



Performance improvement of Indonesian air force personnel through work environment, social relationships, and efficiency

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Abstract

Human resource performance is a strategic factor in supporting organizational effectiveness, especially in military institutions that demand high discipline, coordination, and efficiency. This study aims to analyze the influence of the work environment, social relations, and efficiency on the performance of members of Manuhua Biak Air Base. The study used a quantitative, explanatory design. The study population was all 80 members of the 27th Air Squadron of Manuhua Biak Air Base, using a census technique. Data were collected using a structured questionnaire and analyzed using multiple linear regression in SPSS. The results showed that the work environment, social relations, and efficiency simultaneously had a significant effect on member performance. Partially, the three independent variables also had positive and significant effects on performance, with the work environment exerting the greatest influence. These findings indicate that creating a conducive work environment, fostering harmonious social relations, and optimizing resource efficiency are important determinants of improving member performance in the military air base environment. This study provides an empirical contribution to the development of human resource management in the defense sector. It serves as a basis for policy recommendations for continuously improving the performance of military organizations.

Keywords: Work environment, social relations, efficiency, member performance, Manuhua Biak Air Force Base

Introduction

In the current era of globalization, the quality of human resources is a primary concern in determining organizational success. Organizations can develop (advance) due to the ability of their employees to produce high performance. The higher the performance of members, the greater the organization's success (Wati & Rahman, 2020). In this context, performance reflects the concrete behavior demonstrated by each individual, as the achievement of work results carried out by members in accordance with their roles within an agency. It also includes the level of effectiveness and efficiency demonstrated by employees in carrying out daily tasks in an organization or company over a specific period (Sari *et al.*, 2020; Husain *et al.*, 2022)^[10].

According to the Encyclopedia Britannica in Sedarmayanti (2019), performance in economics refers to the ratio of the results achieved to the sacrifices made to produce something. Generally, performance is defined as the comparison between the results achieved (output) and the total human resources used (input). According to Sedarmayanti (2019:72), several factors can influence employee performance, namely: a) Work Environment; b) Social Relations; and c) Efficiency.

Striving for high employee performance is no easy feat, as numerous factors, including the work environment, social relationships, and efficiency, influence it. While many other factors can influence employee performance, this study focused only on the three mentioned above.

Based on the background of the problem and the formulation of the problem, the objectives of this study are to describe the Work Environment, Social Relations, Efficiency and performance of the Members of Manuhua Biak Air Force Base; analyze the level of significance of the Work Environment, Social Relations, and Efficiency simultaneously having a significant effect on the performance of the Members of Manuhua Biak Air Force

Base; analyze the level of significance of the Work Environment, Social Relations, and Efficiency partially having a significant effect on the performance of the Members of Manuhua Biak Air Force Base; analyze which variables of the Work Environment, Social Relations, and Efficiency have a dominant effect on the performance of the Members of Manuhua Biak Air Force Base.

The expected results of this study are for Lanud Manuhua Biak, practically, that is, it can be used as input for practitioners and Lanud Manuhua Biak, so that they can know how the members' attitudes towards the variables of Work Environment, Social Relations, and Efficiency towards the work productivity of members, and can also be used as a reference in taking strategic steps in order to improve the performance of Lanud Manuhua Biak members. For Researchers, it can increase insight in the field of human resource management, especially regarding the influence of Work Environment, Social Relations, and Efficiency on the performance of Lanud Manuhua Biak Members; as a form of direct application of theories regarding Work Environment, Social Relations, and Efficiency, and the performance of Lanud Manuhua Biak Members, which were obtained during lectures into real field situations. For the Development of Knowledge theoretically related to the development of science, especially those related to Work Environment, Social Relations, Efficiency, and the performance of Lanud Manuhua Biak Members. For Other Parties, there is a development in science, especially in human resource management, which has recently been of great interest to various groups. Thus, the results of this study are expected to be used as a reference material for the increasingly complex demands for human resource management developments, as well as a reference for further research, especially those related to the topics of Work Environment,

Social Relations, Efficiency, and Performance of Members of Manuhua Biak Air Force Base.

Literature Review

Sukardi (2021) [14] states that performance is an individual's success in carrying out their duties, which can be measured along the dimensions of engagement, planning skills, effort in work, and overall employee performance. Setiawan (2021) states that performance is the comparison between output (results) and input (inputs). If performance increases, it is only possible through greater efficiency (time, materials, labor), improved work systems, production techniques, and increased workforce skills. Kustini and Sari (2020) [10] state that performance is the ability to produce goods or services using each worker's or employee's resources and abilities.

According to Sedarmayanti in Desi (2017:25), the work environment comprises the tools and materials encountered, the surrounding environment where a person works, their work methods, and work arrangements, both as individuals and as a group. According to Mangkunegara (2017), the work environment comprises the tools and materials encountered, the surrounding environment in which a person works, their work methods, and work arrangements, both as individuals and as a group. Meanwhile, according to Rahmawati *et al.* (2021), the work environment is a social, psychological, and physical life within the company that influences employees in carrying out their duties. The work environment refers to the conditions around employees that can influence how they perform their tasks.

In general, social relations are reciprocal relationships between individuals that influence each other and are based on the awareness of mutual assistance. This aligns with the views of several experts, including Sunarto and B. Agung Hartono, in their book "Students' Development," which defines social relations as relationships between people who need each other. According to Dany Haryanto & G. Edwi Nugrohadhi, social relations are a learning process that guides children in developing social personalities, enabling them to become responsible and effective members of society.

According to Stoner (2018), efficiency is the ability to minimize resource use to achieve organizational goals. A person who acts efficiently can minimize the cost of the resources required. Work efficiency is the implementation of activities in the easiest, cheapest, shortest, lightest, and shortest-in-distance ways to reach the goal. Efficiency is a measure of the success of an activity, as reflected in the resources used to achieve the desired results.

Method

1. Research Design

The research design is quantitative, meaning it involves a hypothesis and uses statistical tools to test it. This research is a causal-comparative study with three independent variables and one dependent variable. The results of the influence between the variables studied will be explained in more depth, making this research type explanatory.

2. Scope of Research

The scope of this research includes human resources research, specifically examining the performance of members of the Manuhua Biak Air Force Base, which is

influenced by the work environment, social relations, and efficiency.

3. Research Location

The research location is Manuhua Biak Air Force Base. The reason for choosing this location is that it is relevant to the topic being studied.

4. Data Types and Sources

The data used are quantitative. Quantitative data is questionnaire data converted into numbers (Umar, 2003). In the process, the data, expressed in numbers or figures, are then described and interpreted.

The data used in this study comprises primary and secondary data. Primary data was obtained by distributing questionnaires to respondents, with statements provided by the researcher. Secondary data used to support the primary data consists of administrative records obtained from documents at Manuhua Biak Air Force Base.

5. Population and Sample

In this study, considering the relatively small population, a census was used. A total of 60 members of the 27th Air Squadron, Manuhua Biak Air Base, were surveyed. Therefore, this study constitutes a census.

6. Data collection technique

In this study, the author chose a technique in line with the research design, namely a questionnaire.

7. Data Analysis Techniques

The data analysis in this study used descriptive analysis, multiple linear regression, classical assumptions, and hypothesis testing. Descriptive analysis, after the data has been collected in its entirety, will then be conducted using appropriate, easy-to-understand methods to ensure that the collected raw data has meaning and significance in addressing the existing problems. Multiple linear regression is used to determine the effect of the independent variable (X) on the dependent variable (Y). The examination of whether the estimated regression coefficients achieve the best results is carried out by testing several classical assumptions required by OLS. In this study, the classical assumption tests for multicollinearity, heteroscedasticity, autocorrelation, and normality will be assessed (Ghozali, 2007). To test the first hypothesis in this study, the F Test is used, namely, testing the regression coefficient simultaneously by comparing its probability value with an alpha (α) of 5% or 0.05.

Results and Discussion

Result

The results of the tabulation of classification according to gender of members of Manuhua Biak Air Force Base are presented in the table below:

Table 1: Respondents by Gender

No.	Gender	Number of Respondents	Percentage %
1.	Man	15	65.3%
2.	Woman	65	34.7%
		80	100%

Source: Processed data, 2025

Based on the table above, the number of female respondents is 15 people, or %, and the number of male respondents is 65 people, or %. Thus, the number of male respondents is greater.

The tabulation results by age for members of Manuhua Biak Air Force Base are presented in the table below:

Table 2: Respondents by Age

No.	Age (Years)	Number of Respondents	Percentage %
1.	<30 years	10	13.8%
2.	31-40 years	18	27.8%
3.	41-50 years	31	43.1%
4.	>50 years	21	15.3%
		80	100%

Source: Processed data, 2025

Based on the table above, the largest group is respondents aged 41-50 years, with 31 people (or %). In general, this shows that most members of Manuhua Biak Air Force Base are of advanced age, with a high level of experience and knowledge.

The results of the tabulation of the education of members of Manuhua Biak Air Force Base are presented in the table below:

Table 3: Respondents Based on Education

No.	Education	Number of Respondents	Percentage %
1.	Senior high school	22	22.2%
2.	Diploma	12	13.9%
3.	Bachelor	27	37.5%
4.	Postgraduate	19	26.4%
		80	100%

Source: Processed data, 2025

Based on the table above, the largest group is respondents with a bachelor's degree, at 27 (27%). In general, this indicates that those with a bachelor's degree demonstrate a good level of understanding in dealing with work problems. The tabulation results according to the length of service of the members of the Manuhua Biak Air Force Base are presented in the table below:

Table 4: Respondents Based on Work Period

No.	Education	Number of Respondents	Percentage %
1.	<5 years	20	27.8%
2.	6-10 years	24	33.3%
3.	11-20 years	19	15.3%
4.	>20 years	17	23.6%
		80	100%

Source: Processed data, 2025

Based on the table above, the largest group is respondents with a service period of 6-10 years, with 24 people (or %). In general, this shows that the majority of members of the Manuhua Biak Air Force Base have served for 6-10 years.

The researcher used SPSS to describe the four variables. The statistics used were the mean and mode values. The frequency distribution of each indicator of the work environment variable is as follows: sense of security was reported, with the majority of respondents answering agree (37 people, or 46.3%). Comfort with the equipment was obtained, with the majority of respondents answering 'agree' (36 people, 45.0%). Workload was matched to ability, with the majority of respondents answering 'agree' (44 people,

55.0%). Opportunities to develop a career were obtained, with the majority of respondents agreeing (40 people, or 50.0%).

The frequency distribution of each indicator of the social relationship variable is described as follows: feeling comfortable conveying work-related problems or concerns. It was found that the majority of respondents agreed, with 39 people, or 48.8%. When colleagues and superiors were asked, 32 respondents, or 40.0%, agreed. The majority of respondents agreed (42, 52.5%). Discussion: the majority of respondents agreed (48 people, 60.0%). Feeling sufficient was the majority response, with 38 people (47.5%). Coordination is quite good; the majority of respondents agreed (42, 52.5%).

The frequency distribution of each indicator of the efficiency variable is as follows: feeling motivated to achieve work goals, the majority of respondents answered in agreement (39 people, or 48.8%). After clearly understanding the goals, it was found that the majority of respondents agreed (49 people, or 61.3%). Regarding income, the majority of respondents agreed (40 people, or 50.0%). Among management or superiors who support workplace resource savings, the majority of respondents agreed (35 people, or 43.8%). When asked to save or reduce resource use, the majority of respondents agreed (38 people, or 47.5%). Resource savings have been implemented effectively; the majority of respondents agreed (44 people, or 55.0%).

The frequency distribution of each indicator of the performance variable is described as follows: analyzing the data and information obtained, the majority of respondents answered 'agree,' with 51 respondents (63.7%). Respondents who could overcome emerging challenges answered 'agree' in the majority (36, 45.0%). High work enthusiasm has a positive impact, as the majority of respondents answered 'agree' (40, 50.0%). Productive and excelling in work: the majority of respondents answered 'agree,' as many as 31 people (38.8%). Providing facilities for members' self-development showed that the majority of respondents answered 'agree,' with 48 people (60.0%). With sufficient support, the majority of respondents answered 'agree,' with 36 people (45.0%).

The results of the multiple linear regression analysis between the independent variables and the dependent variables at Manuhua Biak Air Force Base are explained in the table below:

Table 5: Recapitulation of Multiple Linear Regression Analysis Results

Variables	Information	Regression Coefficient	t Count	Sig.
X1	Work environment	.198	1,529	.000
X2	Social Relations	.102	.842	.000
X3	Efficiency	.010	.093	.000
Constant = 28.579; R = .049; Adjusted R Square = .051; F Count = 1.296; Sig. F = .000; N = 80				
Related Variable = Employee Performance (Y)				

Source: processed data 2025

Based on the regression table above, a multiple linear regression equation can be prepared as follows:

$$Y = c + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + e$$

$$Y = 28.579 + 0.198X_1 + 0.102X_2 + 0.010X_3 + 5\%$$

The regression constant of 28.579 indicates that, even when the independent variable is set to 0, there is still a nonzero member performance at Lanud Manuhua Biak. The Regression Coefficient of variable X1 of 0.198 indicates that variable X1 has a positive influence on member performance at Lanud Manuhua Biak. The t-test results indicate that the probability value of variable X1 is less than the researcher's error rate of 0.05. The Regression Coefficient of variable X2 of 0.102 indicates that variable X2 has a positive influence on member performance at Lanud Manuhua Biak. The t-test results indicate that the probability value of variable X2 is less than the researcher's error rate of 0.05. The Regression Coefficient of variable X3 of 0.010 indicates that variable X3 has a positive influence on member performance at Lanud Manuhua Biak. The t-test results indicate that the probability value of variable X3 is less than the researcher's error rate of 0.05.

The strength of the relationship between the independent variable and the dependent variable (Y) can be measured using the multiple correlation coefficient. The resulting R value (correlation coefficient) of 0.049 indicates that the correlation between the independent and dependent variables is 49.0%. This figure indicates a strong relationship between the researcher-selected independent variable and the dependent variable. The R² (Adjusted) value, or coefficient of determination, is 0.051, indicating that the independent variable accounts for 5.1% of the variation in Lanud Manuhua Biak's performance. In comparison, the remaining 94.9% is due to other independent variables not studied.

Hypothesis I testing in this study uses the F test to assess the effects of independent variables on dependent variables at Manuhua Biak Air Force Base. Based on the F test results, the calculated F value is 28.579, with a significance level. F of 0.000 while the F table value is 3.111 for a value of 1 and df = 80. The comparative value between the calculated F and the F table shows that the calculated F is greater (calculated F (28.579) > F table (3.111)). And the Sig. The F value (0.000) is less than the researcher's error rate of 0.05 (5%). Therefore, the independent variables have a significant effect on member performance. Thus, hypothesis I can be proven.

Hypothesis II testing in this study uses the t test, which is to test the significance of the influence of each (partial) independent variable on the dependent variable as follows: Variable X1 has a t value of 1.529 with a significance (Sig.) of 0.000; variable X2 has a t value of 0.852 with a significance (Sig.) of 0.000; variable X3 has a t value of 0.093 with a significance (Sig.) of 0.000. The results of this study indicate that the significance values (Sig. t) for the independent variables partially indicate a significant effect on member performance. Thus, hypothesis 2 can be proven. By comparing the Unstandardized Coefficients values for variable X1, 0.198 is the largest among variables X2 and X3. Thus, the third hypothesis stating that X3 is the independent variable that has a greater or dominant influence on member performance can be proven.

Discussion

The work environment is a crucial factor influencing a person's comfort, focus, and work motivation. A conducive work environment, both physical (space, ventilation, tools) and non-physical (relationships with superiors, job security, workload), can foster a work environment that supports

increased productivity. The better the work environment, the higher the employee's performance.

Social relationships in the workplace encompass interpersonal interactions such as communication, cooperation, and solidarity among members. When social relationships are strong, members feel more comfortable, motivated, and ready to support one another. This creates a cohesive and productive work team. Harmonious social relationships positively contribute to improved performance. Efficiency reflects an individual's or team's ability to optimize time, energy, and resources to produce the best possible output. Efficient members can work quickly, precisely, and with minimal errors. High efficiency directly impacts the quality and quantity of performance. The more efficiently a person works, the higher their output.

A positive work environment fosters enthusiasm. Strong social relationships foster synergy and mutual assistance. High work efficiency produces maximum output with minimal time and cost. The combination of these three creates an ideal work environment that supports both individual and overall organizational performance.

Conclusion

This study explains the influence of work motivation, social relationships, and efficiency on member performance at Manuhua Biak Air Force Base. Therefore, the work environment significantly influences member performance. A comfortable, clean, and supportive work environment can increase work enthusiasm and productivity. Social relationships in the workplace also positively influence performance. Good communication, mutual trust, and support between colleagues create a harmonious and effective work atmosphere. Work efficiency significantly contributes to performance. Members who can use time and resources optimally will achieve maximum performance. Simultaneously, these three variables have a positive and significant influence on performance. This means that the better the work environment, social relationships, and efficiency, the higher the resulting performance.

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