Factors influencing clean and healthy lifestyle behavior (PHBS) on the educational personnel of Cenderawasih University in 2025

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Abstract

Purpose: This study aims to 1). to analyze the influence of knowledge on Clean and Healthy Living Behavior (PHBS), 2) to analyze the influence of attitudes on Clean and Healthy Living Behavior (PHBS), 3) to analyze the influence of actions on Clean and Healthy Living Behavior (PHBS), 4). to analyze the influence of the availability of facilities and infrastructure on Clean and Healthy Living Behavior (PHBS). 5. To analyze the influence of leadership support on Clean and Healthy Living Behavior (PHBS, 6). To analyze the influence of the Work Environment on Clean and Healthy Living Behavior (PHBS) on Cenderawasih University Education Personnel.

Research methodology: The location of the study was at Cenderawasih University, in all Education Personnel in each section at Cenderawasih University totaling 243. The sample in this study used the Lemeshow formula. Stratified random sampling technique of employees totaling 165 employees. Analysis Methodusing Univariate analysis, Bivariate analysis, and Multivariate analysis.

Results: The partial research results are: 1). Knowledge has no effect onimplementation of clean and healthy living behavior at Cenderawasih University 2). Attitude influences the implementation of clean and healthy living behavior at Cenderawasih University. 3). Action influences the implementation of clean and healthy living behavior at Cenderawasih University. 4). Facilities and infrastructure influences the implementation of clean and healthy living behavior at Cenderawasih University. 5). Leadership support influences the implementation of clean and healthy living behavior at Cenderawasih University. 6). The work environment does not influence the implementation of clean and healthy living behavior at Cenderawasih University.

Conclusions: In general, simultaneously; knowledge, attitudes, actions, infrastructure, leadership support, and work environment influence the implementation of clean and healthy living behavior at Cenderawasih University.

Keywords: *Knowledge, attitudes, actions, availability of facilities and infrastructure, leadership support*

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1. Introduction

Clean and Healthy Living Behavior (PHBS) is a collection of actions practiced on the basis of awareness as a result of learning that enables a person or family to help themselves themselves in the health sector and play an active role in realizing public health.(Kemenkes, 2018). A cross-sectional study conducted by Sulistyawati and Pramono (2023) on 2,150 education personnel in five regions of Indonesia found significant variations in the implementation of PHBS, with the highest level of compliance in Java (72.3%) and the lowest in Eastern Indonesia (45.8%) (Saekoko & Arianti, 2024; Yusefa, Wijayanto, Sutrisno, & Suswantoro, 2023).

Health surveillance data from Cenderawasih University in 2023 showed that the distribution of PHBS-related diseases varied between faculties, with the highest incidence rates in faculties with limited sanitation facilities (Sarwono & Ayomi, 2023). A mixed-method study conducted by Mansyur et al. (2024) identified that 65% of reported disease cases were directly related to inadequate PHBS practices. Factors influencing PHBS in Cenderawasih University education personnel are multidimensional. A mixed-method study conducted by Sutopo et al. (2023) identified that knowledge, attitudes, availability of facilities, and leadership support had a significant positive correlation (p <0.05) with the implementation of PHBS.

From the background above, the purpose of this study is to determine and analyze the influence of knowledge, attitudes, actions, availability of facilities and infrastructure, leadership support, and work environment factors on Clean and Healthy Living Behavior (PHBS) among Education Personnel at Cenderawasih University.

2. Literature review

Clean and Healthy Living Behavior (PHBS) is a set of behaviors practiced on the basis of awareness as a result of learning, which makes a person, family, group or community able to help themselves (independently) in the health sector and play an active role in realizing public health (Kemenkes, 2018; Sari, Sutarto, & Utama, 2023).

Higher education is an educational unit that provides higher education, which can be in the form of a university, institute, college, polytechnic, or academy (Law No. 12 of 2022 concerning Higher Education).

Cenderawasih University as a state university in Papua has a strategic role in developing human resources in the Eastern Indonesia region (Indonesian State Universities Directory, 2024). Martinez and Wilson (2023) stated that the health and productivity of educational staff in higher education are greatly influenced by the conditions of the work environment and clean and healthy living behavior.

Educational personnel are members of the community who dedicate themselves and are appointed to support the implementation of education in educational units, which include educational unit managers, librarians, laboratory assistants, learning resource technicians, and administrative staff (Law No. 20 of 2023 concerning the National Education System).

Educational staff also have an important role in creating a healthy lifestyle culture in the campus environment. According to Hafid (2022), educational staff who have clean and healthy lifestyle behavior can be role models for students and other academics.

3. Research Methodology

The location of the research was conducted at Cenderawasih University, in all Education Personnel in each section at Cenderawasih University totaling 243 employees divided into several sections with different numbers. BAAK Section 18 people, BAUK 46 people, BAPSIK 13 people, FKIP 20 people, F. Law 13 people, FISIP 9 people, F. Economics 18 people, F. Mipa 16 people, F. Engineering 25 people, FKM 9 people, F. Medicine 18 people, FIK 5 people, UPT. Museum 4 people, UPT. Computer 5 people, UPT. Library 9 people, LPPM 7 people, LP2M 4 people and Postgraduate 4 people who

know or have special tasks related to the problem being studied. To determine the sample size in this study using the Lemeshow formula. Stratified random sampling technique of employees who carry out PHBS at Cenderawasih University as many as 165 employees.

This study was conducted by filling out a questionnaire given to respondents. The questionnaire contains a list of questions aimed at identifying the characteristics of age, education, and Knowledge factors (X1) 10 Questions, Attitudes (X2) 10 Questions, Actions (X3) 10 Questions, Availability of facilities and infrastructure (X4) 10 Questions, leadership support (X5) 10 Questions, Work environment (X6) 10 Questions and Clean and Healthy Living Behavior (PHBS) (Y) 10 Questions. Quantitative analysis with a cross-sectional approach

3.1 Analysis Method
Data analysis using Univariate analysis, Bivariate analysis, and Multivariate analysis

4. Results and Discussions
Respondent Characteristics, based on the data taken, gender can be seen that males (52.7%) are slightly more numerous than females (47.3%). In terms of age, most respondents are in the 30-40 year age group, which is 43.6%, followed by respondents aged between 41-50 years at 25.5%, although there are also respondents over 50 years old but the number is not large. Respondents' education is generally a bachelor's degree, which is 65.5%, then followed by those with a Master's degree at 23.0%, although there are also respondents with a high school/equivalent education but only 8.5%. Respondents' work period is generally not more than 10 years, which is 34.5% with a work period of 5-10 years and 24.2% with a work period of less than 5 years. There are also respondents who have a work period of more than 15 years at 21.8%. For work units, most respondents came from the engineering faculty (13.9%), general administration and finance bureau (12.1%), economics and business faculty (10.9%), teacher training and education faculty (10.9%), and medical faculty (9.7%).\

Table 1. Respondent Characteristics

No	Respondent Characteristics	Amount	Percentage
1	**Gender**		
	Man	87	**52.7%**
	Woman	78	**47.3%**
2	**Age**		
	Less than 30 years	33	**20.0%**
	30-40 years	72	**43.6%**
	41-50 years	42	**25.5%**
	Over 50 years	18	**10.9%**
3	**Education**		
	High School/Equivalent	14	**8.5%**
	D2	4	**2.4%**
	S1	108	**65.5%**
	S2	38	**23.0%**
	S3	1	**0.6%**
4	**Years of service**		
	Less than 5 years	40	**24.2%**
	5-10 years	57	**34.5%**
	11-15 years	30	**18.2%**
	Over 15 years	36	**21.8%**
	Missing Value	2	**1.2%**

5	**Work unit**		
	BAAK	7	**4.2%**
	BAPSIC	12	**7.3%**
	BAD	20	**12.1%**
	FEB	18	**10.9%**
	FH	8	**4.8%**
	Faculty of Social and Political Sciences	8	**4.8%**
	FK	16	**9.7%**
	Faculty of Teacher Training and Education	18	**10.9%**
	Faculty of Mathematics and Natural Sciences	11	**6.7%**
	FT	23	**13.9%**
	LP2M	3	**1.8%**
	LPPM	2	**1.2%**
	Postgraduate	4	**2.4%**
	Computer Unit	3	**1.8%**
	Museum UPT	4	**2.4%**
	Library Unit	8	**4.8%**

Source: Processed data, 2025

4.1 Univariate Analysis

Table 2. Descriptive Analysis of Research Variables

Variables	**Criteria**	**Frequency**	**Percentage**
Knowledge	▪ Low	16	**9.7%**
	▪ Tall	149	**90.3%**
Attitude	▪ Negative	72	**43.6%**
	▪ Positive	93	**56.4%**
Action	▪ Negative	73	**44.2%**
	▪ Positive	92	**55.8%**
Infrastructure	▪ Not Enough	123	**74.5%**
	▪ Adequate	42	**25.5%**
Leadership Support	▪ Low	77	**46.7%**
	▪ Tall	88	**53.3%**
Work environment	▪ Not Supported Yet	102	**61.8%**
	▪ Support	63	**38.2%**
PHBS	▪ Not Doing PHBS	79	**47.9%**
	▪ Carrying out PHBS	86	**52.1%**

Source: Processed data, 2025

1. This means that educational staff at Cenderawasih University generally have good knowledge regarding clean and healthy living behavior.
2. shows that the majority of educational staff at Cenderawasih University have a positive attitude towards clean and healthy living behavior.
3. This means that the majority of educational staff at Cenderawasih University show positive attitudes towards clean and healthy living behavior.
4. shows that the facilities and infrastructure available at Cenderawasih University to support clean and healthy living behavior are inadequate.
5. assessed that the work environment at Cenderawasih University does not support clean and healthy living behavior.
6. These data show that the majority of educational staff at Cenderawasih University have received support from their leaders in terms of clean and healthy living behavior.

7. This means that the majority of educational staff at Cenderawasih University have implemented clean and healthy living behavior.

4.2 Bivariate Analysis

Table 3. Cross Tab Analysis of Independent Variables with PHBS Implementation

Independent Variables	PHBS				χ^2	*p-value*
	Do not do		Do			
	f	%	f	%		
Knowledge						
▪ Low	8	50.0%	8	50.0%	0.032	0.858
▪ Tall	71	47.7%	78	52.3%		
Attitude						
▪ Negative	48	66.7%	24	33.3%	18,069	0,000
▪ Positive	31	33.3%	62	66.7%		
Action						
▪ Negative	46	63.0%	27	37.0%	12,018	0.001
▪ Positive	33	35.9%	59	64.1%		
Infrastructure						
▪ Inadequate	67	54.5%	56	45.5%	8,416	0.004
▪ Adequate	12	28.6%	30	71.4%		
Leadership Support						
▪ Low	49	63.6%	28	36.4%	14,365	0,000
▪ Tall	30	34.1%	58	65.9%		
Work environment						
▪ Does not support	50	49.0%	52	51.0%	0.139	0.709
▪ Support	29	46.0%	34	54.0%		

Source: Processed data, 2025

1. The results of the statistical test on the knowledge variable showed insignificant results (p-value > 0.05), so that the error rate was 5%. cannot be proven there is a significant relationship between knowledge and the implementation of clean and healthy living behavior.
2. . The results of the statistical test on the attitude variable showed significant results (p-value < 0.05), so that at an error rate of 5% can be proven there is a significant relationship between attitudes and the implementation of clean and healthy living behavior.
3. The results of the statistical test on the action variable showed significant results (p-value < 0.05), so that the error rate was 5%. can be proven there is a significant relationship between actions and the implementation of clean and healthy living behavior.
4. The results of the statistical test on the infrastructure variables showed significant results (p-value < 0.05), so that the error rate was 5%. can be proven there is a significant relationship between infrastructure and the implementation of clean and healthy living behavior
5. The results of the statistical test on the leadership support variable showed significant results (p-value < 0.05), so that the error rate was 5%. can be proven there is a significant relationship between leadership support and the implementation of clean and healthy living behavior.
6. The results of statistical tests on the work environment variables showed insignificant results (p-value > 0.05), so that the error rate was 5%. cannot be proven there is a significant relationship between the work environment and the implementation of clean and healthy living behavior.

4.3 Multivariate analysis
1. Goodness of Fit Test

Table 4. Model Feasibility Test Results

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	5.165	8	.740

The Chi-square value in the Hosmer and Lemeshow test is 5.165 with a significance value of 0.740. Because the significance value of the Hosmer and Lemeshow test is greater than 0.05, it can be concluded that the empirical model obtained has met the Goodness of Fit requirements.

2. Logistic Regression Analysis

The results of data processing obtained the results of estimating the influence of logistic regression.knowledge, attitudes, actions, infrastructure, leadership support, and work environment towards the implementation of clean and healthy living behavior at Cenderawasih University as follows.

Table 5. Logit Model Estimation Results for Predicting PHBS Implementation

Variables in the Equation

		B	SE	Wald	df	Sig.	Exp(B)
Step 1a	Knowledge	-.146	.643	.051	1	.820	.864
	Attitude	1.376	.372	13,644	1	.000	3.958
	Action	1,077	.372	8,373	1	.004	2.936
	Infrastructure	.967	.464	4.346	1	.037	2,629
	Leadership Support	1.173	.409	8.219	1	.004	3.231
	Work environment	-.843	.443	3.615	1	.057	.431
	Constant	-1.676	.701	5,714	1	.017	.187

a. Variable(s) entered on step 1: Knowledge, Attitude, Action, Facilities and Infrastructure, Leadership Support, Work Environment.

Through the processing results as presented in table 5above, the regression coefficient value (B) can be applied in the form of a functional equation with the logit model as follows:

$$\text{Log}\frac{P}{1\text{-}P} = \text{-}1{,}676 - 0{,}146X_1 + 1{,}376X_2 + 1{,}077X_3 + 0{,}967X_4 + 1{,}173X_5 - 0{,}843X_6$$

Through the logit model, the following prediction model can be formed.

$$P(Y=1) = \frac{1}{1+e^{-\left[\,\text{-}1{,}676 - 0{,}146X_1 + 1{,}376X_2 + 1{,}077X_3 + 0{,}967X_4 + 1{,}173X_5 - 0{,}843X_6\,\right]}}$$

P (Y=1) is the probability or opportunity/possibility of someone implementing clean and healthy living behavior, where it is predicted to implement clean and healthy living behavior if the probability value (P) obtained through the equation is greater than 0.5. In the equation, it can be seen that the coefficient of the knowledge and work environment variables is negative, indicating that employees with higher knowledge or a supportive work environment tend to still not implement clean and healthy living behavior. Then the variables of attitude, action, facilities and infrastructure and leadership support have a positive coefficient, indicating that employees with positive attitudes and actions, and receive adequate facilities and infrastructure with high support from leaders tend to implement clean and healthy living behavior.

4.4 Discussion
1. The Influence of Knowledge on the Implementation of Clean and Healthy Living Behavior
The statistical value of the Wald test for the knowledge variable is 0.051 with a significance value of 0.820. Because the Wald statistical value for the knowledge variable (0.051) is smaller than the Chi-square table value (3.841) and the significance value is greater than 0.05, then at a 5% error rate it is decided to accept Ho so that Ha is rejected. Thus it can be concluded that knowledge does not affect the implementation of clean and healthy living behavior at Cenderawasih University. This result is in

accordance with Based on the results of the hypothesis testing that has been carried out, it can be concluded that knowledge does not affect the implementation of clean and healthy living behavior at Cenderawasih University. Research by Widodo and Cahyani (2023). "GAP between Knowledge and Implementation of PHBS among Academics" that there is a gap between what is known and what is practiced in the context of clean and healthy living behavior, where high knowledge does not guarantee good implementation without other supporting factors.

2. The Influence of Attitudes on the Implementation of Clean and Healthy Living Behavior

The Wald test statistic value for the attitude variable is 13.644 with a significance value of 0.000. Because the Wald statistic value for the attitude variable (13.644) is greater than the Chi-square table value (3.841) and the significance value is less than 0.05, then at a 5% error rate it is decided to reject Ho so that Ha is accepted. Thus it can be concluded that attitude influences the implementation of clean and healthy living behavior at Cenderawasih University. The results of this study provide empirical evidence that employees with positive attitudes tend to implement clean and healthy living behavior.

This result is in accordance with the research of Amalia et al. (2022). "Correlation of Attitudes and Implementation of PHBS in Academic Community of Higher Education" which found that positive attitudes towards health

3. The Influence of Actions on the Implementation of Clean and Healthy Living Behavior

The statistical value of the Wald test for the action variable is 8.373 with a significance value of 0.004. Because the Wald statistical value for the action variable (8.373) is greater than the Chi-square table value (3.841) and the significance value is less than 0.05, then at a 5% error rate it is decided to reject Ho so that Ha is accepted. Thus it can be concluded that actions have an effect on the implementation of clean and healthy living behavior at Cenderawasih University. The results of this study provide empirical evidence that employees with positive actions tend to implement clean and healthy living behavior.

These results are in accordance with the research of Hartono et al. (2023) "Analysis of Practice Factors and Actions in the Implementation of PHBS in Higher Education Institutions" which shows that positive actions are consistently the main predictor in the implementation of clean and healthy living behaviors among academics.

4. The Influence of Availability of Facilities and Infrastructure on the Implementation of Clean and Healthy Living Behavior

The Wald test statistic value for the infrastructure variable is 4.346 with a significance value of 0.037. Because the Wald statistic value for the action variable (4.346) is greater than the Chi-square table value (3.841) and the significance value is less than 0.05, then at a 5% error rate it is decided to reject Ho so that Ha is accepted. Thus it can be concluded that infrastructure has an effect on the implementation of clean and healthy living behavior at Cenderawasih University. The results of this study provide empirical evidence that employees who receive adequate infrastructure tend to implement clean and healthy living behavior. These results are in accordance with The results of this study provide empirical evidence that employees who receive adequate infrastructure tend to implement clean and healthy living behavior.

This result is in accordance with the research of Kurniawan et al. (2023) "The Effect of Availability of Facilities and Infrastructure on the Implementation of PHBS in Higher Education Environments" which found that the availability of adequate facilities is a significant determining factor in the success of the PHBS program on campus.

5. The Influence of Leadership Support on the Implementation of Clean and Healthy Living Behavior

The Wald test statistic value for the leadership support variable is 8.219 with a significance value of 0.004. Because the Wald statistic value for the leadership support variable (8.219) is greater than the

Chi-square table value (3.841) and the significance value is less than 0.05, then at a 5% error rate it is decided to reject Ho so that Ha is accepted. Thus, it can be concluded that leadership support has an effect on the implementation of clean and healthy living behaviors at Cenderawasih University. The results of this study provide empirical evidence that employees who receive support from their leaders tend to implement clean and healthy living behaviors. These results are in accordance with The results of this study provide empirical evidence that employees who receive support from their leaders tend to implement clean and healthy living behaviors. This finding is also supported by the study of Hermawan and Putri (2022) "Analysis of the Influence of Leadership Policies on the Implementation of the PHBS Program in the Campus Environment" which confirms that commitment and role models from leaders are key factors in creating an environment that supports clean and healthy living behaviors among employees and students.

6. The Influence of the Work Environment on the Implementation of Clean and Healthy Living Behavior

The Wald test statistic value for the work environment variable is 3.615 with a significance value of 0.057. Because the Wald statistic value for the knowledge variable (3.615) is smaller than the Chi-square table value (3.841) and the significance value is greater than 0.05, then at a 5% error rate it is decided to accept Ho so that Ha is rejected. Thus it can be concluded that the work environment does not affect the implementation of clean and healthy living behavior at Cenderawasih University.

These results are in accordance with the research of Ramadhan et al. (2022) "Analysis of Factors Influencing the Implementation of PHBS in the University Environment" which found that the work environment is not always a significant predictor in the implementation of clean and healthy living behaviors when other variables such as leadership support and availability of facilities and infrastructure are included in the model.

5. Conclusion

1. Knowledge has no effect onimplementation of clean and healthy living behavior at Cenderawasih University.
2. Attitude influencesimplementation of clean and healthy living behavior at Cenderawasih University. The results of this study provide empirical evidence that employees with positive attitudes tend to implement clean and healthy living behavior.
3. Actions have an impact onimplementation of clean and healthy living behavior at Cenderawasih University. The results of this study provide empirical evidence that employees with positive actions tend to implement clean and healthy living behavior.
4. Infrastructure has an impact onimplementation of clean and healthy living behavior at Cenderawasih University. The results of this study provide empirical evidence that employees who receive adequate facilities and infrastructure tend to implement clean and healthy living behavior.
5. Leadership supporthave an impact onimplementation of clean and healthy living behavior at Cenderawasih University. The results of this study provide empirical evidence that employees who receive support from their leaders tend to implement clean and healthy living behavior.
6. Work environmenthas no effect onimplementation of clean and healthy living behavior at Cenderawasih University.
7. Knowledge, attitudes, actions, infrastructure, leadership support, and work environment simultaneously influence the implementation of clean and healthy living behavior at Cenderawasih University.

5.1 Suggestions

Suggestions that can be considered by educational staff (tendik) and the university:

1. For educational staff, active involvement in the research process is highly expected through participation as respondents to provide a unique perspective on the implementation of PHBS in the administrative work environment.
2. For Cenderawasih University as an institution, official support for this research is very important through the provision of comprehensive research permits and easy access to relevant data.

3. Furthermore, Cenderawasih University can promote this research as part of its institutional commitment to a healthy and sustainable campus, and make it a model for research collaboration in Papua that prioritizes a contextual approach in solving public health problems.

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