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Analysis of Factors Affecting the Timeliness of Data Reporting in the Information System and Monitoring on the ASPAK Application at the South Suwawa Health Center

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ABSTRACT

ASPAK (Medical Facilities, Infrastructure, and Devices Application) is a web-based application to manage and monitor health facility data. This study aims to analyze the factors that affect the timeliness of data reporting at the South Suwawa Health Center through the ASPAK application in the Health Center Management Information System (SIMPUS). The factors studied include information system quality, user competence, management support, technological infrastructure, and human resources. Data were collected through a survey of 44 Puskesmas employees and analyzed using simple linear regression and cross-tabulation. The results showed that most employees gave positive assessments of the quality of information systems (75%), user competence (79.5%), management support (68.2%), technological infrastructure (70.5%), and human resources (52.3%). The timeliness of data reporting is also relatively high with 61.4% reporting on time. The regression analysis confirmed that these five factors had a significant effect on the timeliness of reporting with a significance value of < 0.05 and a determination coefficient (R^2) of 40.3%. Research suggests improved training, management support, and infrastructure development to improve the timeliness of data reporting.

INTRODUCTION

According to the Regulation of the Minister of Health of the Republic of Indonesia Number 43 of 2019 concerning Community Health Centers, in order to realize effective, efficient, and accountable public health centers in the implementation of quality and sustainable first-level health services with attention to the safety of patients and the community, organizational arrangements and work relationships of community health centers are needed.(Abdul Rokimal 2023)

Health information systems are essential for organizing effective and efficient health efforts. According to government regulation of the Republic of Indonesia number 46 of 2014: Health Information System is a set of orders that include data, information, indicators, procedures, devices, technologies, and human resources that are interrelated and managed in an integrated manner to direct actions or decisions that are useful in supporting health development.

Puskesmas is a health service facility that organizes public health efforts and first-level individual health efforts, with more emphasis on promotive and preventive efforts, to achieve the highest degree of public health in its work area. Puskesmas play a role in health-oriented development in their area with the aim of realizing a community that has healthy behavior (awareness, willingness and ability to live a healthy life). Able to reach quality health services, live in a healthy environment, and have an optimal degree of health, both individuals, families, groups and communities. In carrying out its functions, health centers are obliged to implement health policies to achieve the goals of health development in their work areas and the realization of healthy sub-districts.

Based on Law Number 36 of 2009 concerning Health, health information is needed to carry out effective and efficient health efforts, and in Government Regulation of the Republic of Indonesia Number 46

of 2014 concerning Health Information Systems states that health information systems must be managed by Health Service Facilities for the management of health information systems on the scale of health service facilities. (Abdul Rokim et al., 2023)

One of the Health Information Systems of Puskesmas (SIMPUS) in Indonesia is the Integrated Puskesmas Recording and Reporting System (SP2TP) which is a series of activities to record and report general data, facilities, personnel and efforts of health services at Puskesmas which refers to Government Regulation of the Republic of Indonesia Number 46 of 2014. The Integrated Puskesmas Recording and Reporting System (SP2TP) is a comprehensive (integrated) puskesmas recording and reporting activity with the concept of the puskesmas work area. This reporting system is expected to be able to provide information both for health centers and for higher administrative levels, to support health management. (Mardini et al., 2020)

Along with the advancement of information and communication technology, the conversion service system that has been implemented in government agencies has shifted to an electronic-based service system. At the South Suwawa Health Center, applications used for health services in carrying out data reporting services at each health center are the use of the ASPAK application. ASPAK is a manifestation of the implementation of the Puskesmas Management Information System (SIMPUS) carried out by the ministry and is an Information and Monitoring System (SIMONA)

ASPAK is a multi-user application from the ministry with web-based technology that allows it to be used by more than one person. ASPAK is an application used for data reporting purposes at health centers that are directly connected to the health office. ASPAK itself is used to propose medical devices or make a report that is lacking at the South Suwawa Health Center.

The timeliness of data reporting in the information and monitoring system at the health center is crucial. Accurate and timely data is the basis for effective decision-making in health management. Delays or inaccuracies in data can hinder efforts to improve the quality of health services. departing from the awareness of the importance of data in decision-making in the health sector. Accurate and timely data is the foundation for program planning, performance evaluation, and improving the quality of health services. Delays or inaccuracies in data can have a negative impact on improving the services of the health center itself. (Dian Riris Arisma Putri et al., 2024)

The South Suwawa Health Center is one of the public health service units that plays an important role in providing basic health services for the community in the South Suwawa sub-district area. As a health service unit, the South Suwawa Health Center is required to be able to provide accurate, up-to-date, and timely data and information to support the planning, implementation, and evaluation of health programs.

Based on the results of initial observation interviews with health officers of the South Suwawa Health Center, the South Suwawa Health Center is one of the outpatient health centers in Bone Bolango Regency, precisely in South Suwawa District which has Plenary accreditation. The Health Center Management Information System by monitoring the use of the ASPAK application has been used by the South Suwawa Health Center since 2019. Therefore, it is hoped that the application of SIMONA to ASPAK at the South Suwawa Health Center will be implemented properly and can contribute to the Health Center in increasing the effectiveness and efficiency of health services, considering that the accreditation at the South Suwawa Health Center has been Plenary Accreditation but is still not perfect in its services. In the reporting system, the South Suwawa Health Center still has several obstacles that affect it.

Timeliness of data reporting is very important to support the Health Center Management Information System. The South Suwawa Health Center itself is still ineffective in reporting data. There are several factors that cause this ineffectiveness, including: Information System Quality is still not good, User Competence is not optimal, Management Support is still not supportive, Infrastructure is inadequate, and Human Resources are still incompetent. Understanding and addressing these factors is critical to improving the timeliness of data reporting.

Based on this background, the researcher is interested in conducting a research with the title "Analysis of Factors That Affect the Timeliness of Data Reporting in Information Systems and Monitoring on Applications at the South Suwawa Health Center".

RESEARCH METHODS

Research Location and Time

This research has been carried out at the South Suwawa Health Center This research has been carried out in February 2025

Research Design

The use of Quantitative Design which is analyzed descriptively using a simple linear regression test analytic survey. The form of presentation of this result data is in the form of a table or frequency distribution and cross tabulation (cross tab).

Research Variables

The independent variables or independent variables in this study are the quality of information systems, user competence, management support, technological infrastructure, and human resources. Dependent variables or bound variables are one of the variables that have dependencies and can be influenced by other variables. Dependent variables in this study Timeliness of data reporting

Population and Sample

In the study, the population in question was all employees who remained actively working at the South Suwawa Health Center which amounted to 44 people. And the sample used was 44 permanent employees of the South Suwawa Health Center who were actively working at the time of the study

Data Analysis Techniques

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RESULTS

Research Results

Characteristics of Respondents

The research, which has been carried out in 1 month, precisely in February 2025, was carried out at a research location located directly in the working area of the South Suwawa Health Center, Bone Bolango Regency

Distribution of employees by age group

Table 1 Distribution of Employees by Employee

Age Group (Year)	Frequency	
	n	%
≤35 Years	17	38.6
36-40 Years	12	27.3
41-50 Years	14	31.8
51-60 Years	1	2.3
Total	44	100.0

Based on table 1 of the distribution of employees by age group of 44 employees, it was found that the predominant age of employees was the age group of ≤35 years and 36-40 years of age as many as 17 employees (38.6%) while for the least age group of 51-60 years as many as 1 employee (2.3%).

Distribution of employees by last Education

Table 2 Distribution of Employees by Recent Education

Education	Frequency	
	n	%
High School/Equivalent	5	11.4
Diploma	17	38.6
Bachelor	21	47.7
Master	1	2.3
Total	44	100.0

Based on table 2 of the distribution of employees based on the last education, it shows that of the 44 employees, the last education that dominated the most was Bachelor's with 21 employees (47.7%), while the last education with the least was Master's as many as 1 employee (2.3%).

Distribution of employees by employment status

Table 3. Distribution of Employees by Employment Status

Employment Status	Frequency	
	n	%
Honor	10	22.7
ASN	34	77.3
Total	44	100.0

Based on table 3 of the distribution of employees based on employment status, it shows that of the 44 employees, the most dominant employment status is ASN, which is as many as 34 employees (77.3%). Meanwhile, the least employment status is Honor with 10 employees (22.7%).

Univariate Analysis
Quality of Information Systems

Table 4 Distribution by Quality of Information Systems

Quality of Information Systems	Frequency	
	n	%
Good	33	75
Pretty Good	11	25
Not Good	0	0
Not Good	0	0
Total	44	100

Based on table 4 of the distribution of information system quality for the timeliness of data reporting, it shows that out of 44 employees, there are 33 employees (75%) who say the quality of the information system has a good category in a data reporting and who have a fairly good category as many as 11 employees (25%).

User Competencies

Table 5 Distribution by User Competency

User Competencies	Frequency	
	n	%
Good	35	79.5
Pretty Good	9	20.5
Not Good	0	0
Not Good	0	0
Total	44	100

Based on table 5 of the distribution of User Competency for the timeliness of data reporting, it shows that out of 44 employees, there are 35 employees (79.5%) who have a good category, while 9 employees (20.5%) have a fairly good category.

Management Support

Table 6 Timeliness Distribution of Data Reporting Based on Management Support

Management Support	Frequency	
	n	%
Satisfied	30	68.2
Quite satisfied	14	31.8
Dissatisfied	0	0
Dissatisfied	0	0
Total	44	100

Based on table 6 of the distribution of employees for management support, it shows that out of 44 employees, there are 30 employees (68.2%) who have a satisfied category, employees who have a fairly satisfied category as many as 14 employees (31.8%).

Technology Infrastructure

Table 7 Time-Right Distribution of Data Reporting by Technology Infrastructure

Technology Infrastructure	Frequency	
	n	%
Adequate	31	70.5
Quite Adequate	13	29.5
Inadequate	0	0
Inadequate	0	0
Total	44	100

Based on table 7 of the distribution of technology infrastructure employees, it shows that out of 44 employees, there are 31 employees (70.5%) who have an adequate category, employees who have a sufficient category 13 employees (29.5%).

Human Resources

Table 8 Distribution of Data Reporting Timeliness by Human Resources

Human Resources	Frequency	
	N	%
Competent	23	52.3
Quite Competent	18	40.9
Less Competent	3	6.8
Incompetent	0	0
Total	44	100

Based on table 8 the distribution of human resources shows that out of 44 employees, there are 23 employees (52.3%) who have a competent category, there are 18 employees who have a fairly competent category (40.9%) and those who choose to be less competent there are 3 employees (6.8%) satisfactory as many as 23 employees (41.8%).

Data Reporting Timeliness

Table 9 Timeliness Distribution of Data Reporting

Data Reporting Timeliness	Frequency	
	n	%
Punctuality	27	61.4
Quite Timely	15	34.1
Lack of Punctuality	2	4.5
Not On Time	0	0
Total	44	100

Based on table 9, the distribution of employees for responsibility shows that out of 55 employees, there are 39 employees (70.9%) who have the responsible category, 15 employees (34.1%) who have the responsible categoryas many as 2 (3.6%).

Bivariate Analysis

Cross-tabulation of the timeliness of data reporting as seen from the quality of the information system

Table 10 Distribution of cross-tabulation of information system quality and timeliness of data reporting

Quality of Information Systems	Data Reporting Timeliness						Total	
	Less Accurate Time		Quite Precise Time		Punctuality			
	n	%	n	%	n	%	n	%
Pretty Good	0	0	5	45.5	6	54.5	11	100
Good	2	6.1	10	30.3	21	63.6	33	100
Total	2	4.5	15	34.1	27	61.4	44	100

Table 10 above shows that the timeliness of data reporting is seen from the quality of information systems in the category that is quite good, there is no less timely reporting, 5 employees (45.5%) are quite on time and 6 employees (54.4%) are on time, so that a total of 11 (100%) are on time. In the good category, there were 2 employees (6.1%) who were not on time, 10 employees (30.3%) were on time, and 21 employees (63.6%) were on time for a total of 33 employees (100%.)

Cross-tabulation of the timeliness of data reporting is seen from the user's competence

Table 11 Cross-tabulation distribution, user competence and timeliness of data reporting

User Competencies	Data Reporting Timeliness						Total	
	Less Accurate Time		Quite Precise Time		Punctuality			
	n	%	n	%	n	%	n	%
Pretty Good	1	11.1	3	33.3	5	55.6	9	100
Good	1	2.9	12	34.3	22	62.9	35	100
Total	2	4.5	15	34.1	27	61.4	44	100

Table 11 above shows that the timeliness of data reporting is seen from the competence of users in the category that is quite good, there are 1 employee (11.1%) who is not on time, 3 employees (33.3%) who are quite on time and 5 employees (55.6%) on time, so that a total of 9 (100%). In the good category, there were 1 employee (2.9%) who was not on time, 12 employees (34.3%) who were on time, and 22 employees (62.9%) on time for a total of 33 employees (100%) in the good category.

Tabulated them (*crosstab*) timeliness of data reporting seen from management support

Table 12 Distribution of cross-tabulation of management support and timeliness of data reporting

Management Support	Data Reporting Timeliness						Total	
	Less Accurate Time		Quite Precise Time		Punctuality			
	n	%	n	%	n	%	n	%
Quite satisfied	1	7	7	50	6	43	14	100
Satisfied	0	0	9	30	21	70	30	100
Total	1	7	16	80	27	61	44	100

Table 12 above shows that the timeliness of data reporting is seen from the management support in the category of satisfied with 1 employee (7.1%) who is not on time, 7 employees (50%) are on time, and 6 employees (43%) are on time for a total of 14 employees (100%). And in the satisfied category, there is nothing less timely, 9 employees (30%) are quite on time, and 21 employees (70%) are on time so that a total of 30 employees (100%) in the category are satisfied.

***Crosstab* of data reporting timeliness seen from the technology infrastructure**

Table 13 Distribution of cross-tabulation of technology infrastructure and timeliness of data Reporting

Human Resources	Data Reporting Timeliness						Total	
	Less Accurate Time		Quite Precise Time		Punctuality			
	n	%	n	%	n	%	n	%
K. Competent	1	33.3	1	33.3	1	33.3	3	100
C. Competent	1	5.6	6	33.3	11	61.1	18	100
Competent	0	0	8	34.8	15	65.2	23	100
Total	2	4.5	15	34.1	27	61.4	44	100

Table 13 above shows that the timeliness of data reporting is seen from the technological infrastructure in the category that is quite adequate, there are 1 (7.7%) who are not on time, 11 employees (84.6%) are quite on time, and 1 employee (7.7%) is on time, so that a total of 13 (100%). In the adequate category, 1 employee (3.2%) was not on time, 4 employees (12.9%) were on time, and 26 employees (83.9%) were on time for a total of 31 employees (100%) in the adequate category.

Crosstab tabulation of data reporting timeliness seen from human resources

Table 14 Distribution of human resource cross-tabulation and timeliness of data reporting

Technology Infrastructure	Data Reporting Timeliness						Total	
	Less Accurate Time		Quite Precise Time		Punctuality			
	n	%	n	%	n	%	n	%
Quite Adequate	**1**	**7.7**	**11**	**84.6**	**1**	**7.7**	**13**	**100**
Adequate	**1**	**3.2**	**4**	**12.9**	**26**	**83.9**	**31**	**100**
Total	**2**	**4.5**	**15**	**34.1**	**27**	**61.4**	**44**	**100**

Table 14 above shows that the timeliness of data reporting is seen from human resources in the category of less competent, there are 1 (33.3%) who are not on time, 1 employee (33.3%) is quite on time and 1 employee (33.3%) is on time, so that a total of 3 (100%) are not competent. In the category of competent enough, there is 1 employee (5.6%) who is not on time, 6 employees (33.3%) who are quite on time, and 11 employees (61.1%) on time for a total of 18 employees (100%) who are quite competent. And in the competent category, there is nothing less than timely, 8 employees (34.8%) are quite on time, and 15 employees (65.2%) are on time, so that a total of 22 employees (100%) in the competent category

Analytical Survey
The Effect of Information System Quality on the Timeliness of Data Reporting
Determination Test (R Square)

Table 15 Determination test results (R Square)

Model Summaryb				
Models	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.496a	.246	.228	4.152

Based on the table of results of the Summary Model Determination Test above, it is known that the magnitude of the correlation/relationship value (R) is 0.496. From the output, a determination coefficient (R Square) of 0.246 was obtained, namely that the influence where the independent variable (information system quality) had an influence on the denpendent variable (data reporting timeliness) of 24.6%.

Simultaneous Test (F Test)

Table 16 Results of Test F (Simultaneous test)

NEW ERA						
Models		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.646	1	3.646	13.734	.001b
	Residual	11.150	42	.265		
	Total	14.795	43			

Based on table 16 above, the simultaneous significance test shows a calculated F value of 13.734 with a significance value of 0.001<0.05, so it can be concluded that the regression model used is significant. Thus, there is a significant influence between the variables of information system quality on the variables of data reporting timeliness.

Hypothesis Test (T Test)

Table 17 Results of the t-test (Partial test)

Coefficient						
		Unstandardiz ed Coefficients		Standardi zed Coefficie nts		
Models		B	Std. Error	Beta	T	Sig.
1	(Constant)	1.466	.573		2.560	.014
	Total_sop	.585	.158	.496	3.706	.001

From the output table of the results of the simple linear regression equation coefficients, the following regression equation is obtained:

$$Y = 1.466 + 0.585\ X + e$$

The value of the information system quality variable is 3,706 where the calculation is > table or 3,706 > 2,018 and the significance value is 0.01 < 0.05 which means that the quality of the information system has a significant effect on the timeliness of data reporting at the South Suwawa Health Center

The Influence of User Competency on the Timeliness of Data Reporting
Determination Test (R Square)

Table 18 Determination test results (R Square)

Model Summaryb				
Models	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.422a	.178	.159	.53804

Based on the table of the results of the Summary Model Determination Test above, it is known that the magnitude of the correlation/relationship value (R) is 0.422. From the output, a determination coefficient (R Square) of 0.178 was obtained, namely that the influence where the independent variable (user competence) had an influence on the denpendent variable (data reporting timeliness) was 17.8%.

Simultaneous Test (F Test)

Table 19 Results of Test F (Simultaneous test)

NEW ERA						
Models		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression n	2.637	1	2.637	9.110	.004 b
	Residual	12.158	42	.289		
	Total	14.795	43			

Based on table 19 above, the simultaneous significance test shows a calculated F value of 9.110 with a significance value of 0.004<0.05, so it can be concluded that the regression model used is significant. Thus, there is a significant influence between the user competency variable and the data reporting timeliness variable.

Hypothesis Test (T Test)

Table 20 Results of the t-test (Partial test)

Coefficient						
		Unstandardized Coefficients		Standardized Coefficients		
Models		B	Std. Error	Beta	T	Sig.
1	(Constant)	1.825	.583		3.129	.003
	Total_sop	.492	.163	.422	3.018	.004

From the output table of the results of the simple linear regression equation coefficients, the following regression equation is obtained:

$$Y = 1.825 + .492\ X + e$$

The value of the user competency variable is 3,018 where the calculation is > table or 3,018> 2,018 and the significance value is 0.04 < 0.05 which means that user competence has a significant effect on the timeliness of data reporting at the South Suwawa Health Center

The Effect of Management Support on the Timeliness of Data Reporting
Determination Test (R Square)

Table 21 Results of the determination test (R Square)

Model Summaryb				
Models	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.544a	.296	.279	.49805

Based on the table of the results of the Summary Model Determination Test above, it is known that the correlation value (R) is 0.544. From these outputs, a determination coefficient (R Square) of 0.296 was obtained, which is that the influence where the independent variable (management support) has an influence on the denpendent variable (data reporting timeliness) of 29.6%.

Simultaneous Test (F Test)

Table 22 Results of Test F (Simultaneous test)

NEW ERA						
Models		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4.337	1	4.377	17.646	.000 b
	Residual	10.418	42	.248		
	Total	14.795	43			

Based on table 22 above, the simultaneous significance test shows a calculated F value of 17,646 with a significance value of 0.000<0.05, so it can be concluded that the regression model used is significant. Thus, there is a significant influence between the management support variable and the data reporting timeliness variable.

Hypothesis Test (T Test)

Table 23 Results of the t-test (Partial test)

Coefficient						
Models		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.344	.535		2.512	.016
	Total_sop	.631	.150	.344	4.201	.004

From the output table of the results of the simple linear regression equation coefficients, the following regression equation is obtained:

$Y = 1.344 + .631X + e$

The value of the management support variable is 4,201 where the calculation is > table or 4,201 > 2,018 and the significance value is 0.04 < 0.05 which means that management support has a significant effect on the timeliness of data reporting at the South Suwawa Health Center

The Influence of Technology Infrastructure on the Timeliness of Data Reporting
Determination Test (R Square)

Table 24 Determination test results (R Square)

Model Summaryb				
Models	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.635a	.403	.388	.45874

Based on the table of the results of the Summary Model Determination Test above, it is known that the magnitude of the correlation/relationship value (R) is 0.635. From this output, a determination coefficient (R Square) of 0.403 was obtained, namely that the influence where independent variables (technological infrastructure) had an influence on the denpendent variable (timeliness of data reporting) was 40.3%.

Simultaneous Test (F Test)

Table 25 Test F Results (Simultaneous test)

NEW ERA						
Models		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression n	5.957	1	5.957	28.305	.000 b
	Residual	8.839	42	.210		
	Total	14.795	43			

Based on table 25 above, the simultaneous significance test shows an F value of 28,305 with a significance value of 0.000<0.05, so it can be concluded that the regression model used is significant. Thus, there is a significant influence between the technology infrastructure variables on the data reporting timeliness variable.

Hypothesis Test (T Test)

Table 26 Results of the t-test (Partial test)

Coefficient						
		Unstandardized Coefficients		Standardized Coefficients		
Models		B	Std. Error	Beta	T	Sig.
1	(Constant)	581	.566		1.026	.311
	Total_sop	.806	.152	.635	5.320	.000

From the output table of the results of the simple linear regression equation coefficients, the following regression equation is obtained:

$Y = 581 + .806\ X + e$

The value of the technology infrastructure variable is 5,302 where the calculation is > ttable or 5,302 > 2,018 and the significance value is 0.00 < 0.05 which means that the technology infrastructure has a significant effect on the timeliness of data reporting at the South Suwawa Health Center

The Influence of Human Resources on the Timeliness of Data Reporting

Determination Test (R Square)

Table 27 Determination test results (R Square)

Model Summaryb				
Models	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.476a	.227	.208	.52192

Based on the table of results of the Summaryb Model Determination Test above, it is known that the magnitude of the correlation/relationship value (R) is 0.476. From this output, a determination coefficient (R Square) of 0.227 was obtained, namely that the influence where the independent variable (human resources) had an influence on the denpendent variable (data reporting timeliness) was 22.7%.

Simultaneous Test (F Test)

Table 28 Results of Test F (Simultaneous test)

NEW ERA						
Models		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression n	3.354	1	3.354	12.314	.001b
	Residual	11.441	42	.272		
	Total	14.795	43			

Based on table 28 above, the simultaneous significance test shows a calculated F value of 12,314 with a significance value of 0.001<0.05, so it can be concluded that the regression model used is significant. Thus, there is a significant influence between human resource variables on data reporting timeliness variables.

Hypothesis Test (T Test)

Table 29 Results of the t-test (Partial test)

Coefficient						
		Unstandardized Coefficients		Standardized Coefficients		
Models		B	Std. Error	Beta	T	Sig.
1	(Constant)	1.646	.553		2.974	.005
	Total_sop		.158	.476	3.509	.001

From the output table of the results of the simple linear regression equation coefficients, the following regression equation is obtained:

$Y = 1.646 + .553\ X + e$

The value of the human resource variable is 3,509 where the calculation is > table or 3,509 > 2,018 and the significance value is 0.01 < 0.05 which means that human resources have a significant effect on the timeliness of data reporting at the South Suwawa Health Center

DISCUSSION

Factors that affect the timeliness of data reporting based on the quality of the information system

The quality of the information system in the timeliness of data reporting can affect the percentage that can be seen in table 4.4 of the 44 health workers, there are 33 health workers (75%) in the good category, while for the fairly good category, there are 11 employees (25%).

The implementation of the timeliness of data reporting carried out by health workers at the South Suwawa Health Center, namely 44 employees, was reviewed based on the quality of the information system. The measurement results showed that the quality of the information system in supporting the timeliness of data reporting was in the 'very high-quality' category with a percentage of 91%. This is because a quality system is able to speed up the reporting process, make it easier for health workers to use, and contribute directly to the timeliness of data reporting

These results show that although the information system is in the category of being quite good, no employees experience delays in reporting. This can happen because the information system, although not optimal, can make work quite efficient. In addition, individual discipline and work responsibility factors are likely to play a major role in maintaining the timeliness of reporting, even though the quality of the information system has not been maximized.

Even though the quality of the information system has been assessed as good, there are still 2 employees (6.1%) who have not reported on time. This shows that the quality of information systems is not the only factor that affects the accuracy of reporting. Individual factors such as level of understanding of system usage, workload, or lack of training can cause delays. However, 21 employees (63.6%) reported on time, indicating that a good information system in general contributes positively to the timeliness of reporting.

The researcher assumes that although health workers have a good quality of work, discipline in the timeliness of reporting is still affected by the limitations of information systems, especially in terms of the speed of data access. This can be seen from the existence of health workers who perform well but are not on time in reporting. In addition, the researcher also assumes that most health workers who are in the category of "good enough and on time" have demonstrated adequate responsibility and work discipline, although there is still room for improvement in order to achieve a more optimal performance category. Thus, improving information systems and strengthening individual capacity are important factors in improving the timeliness of data reporting.

This is in line with research conducted by (Sari, 2021), Good performance in health services is not always followed by the timeliness of task implementation. Delays can occur due to suboptimal time management, high workloads, operational disruptions, and lack of priority settings. Therefore, improving time management through training, good planning, and workload management is essential to overcome tardiness and improve the work effectiveness of healthcare workers.

Factors affecting the timeliness of data reporting based on user competencies

This shows that user competence in the timeliness of data reporting can affect the percentage that can be seen in table 4.5 of the 44 health workers, there are 35 health workers (79.5%) choosing the good category, while for the fairly good category, there are 9 employees (20.5%).

The implementation of the timeliness of data reporting based on user competence carried out by health workers at the South Suwawa Health Center, namely 44 employees was reviewed based on user competence. The measurement results showed that user competence in supporting the timeliness of data reporting was in the "very high" category with a percentage (91%). High user competence plays an important role in supporting the timeliness of data reporting, as healthcare workers are able to operate the system well, understand reporting procedures, and complete tasks efficiently.

The results obtained, out of a total of 44 health workers, there was 1 employee (11.1%) in the category of quite good and not on time, This indicates that competencies that are not optimal, such as lack of mastery of information systems, slow adaptation processes, or lack of technical training, have an impact on reporting delays. Employees may need more support in the form of technical guidance or retraining. While 3 health workers (33.3%) in the category are quite good and quite timely, this shows that adequate competence can result in almost timely reporting, although it is not completely optimal. Factors such as personal work efficiency and experience also affect the accuracy of reporting even though the competence is not optimal. For the category of good and timely as many as 5 health workers (55.6%), this shows that personal discipline has a big role in punctuality, even when competence has not reached the good category.

The category of good and not on time is 1 employee (2.9%), This shows that high competence alone does not guarantee the timeliness of reporting, because other factors such as high workload, technical problems, or external obstacles may affect the delay. In the good and fairly timely category, there are 12 (34.3%), this shows that there are inhibiting factors such as slow system access, unstable internet network, or heavy workloads. Although they are able to run the system well, external factors can slow down the reporting process. And in the good and punctual category, there were 22 employees (62.9%). This shows that good user competence directly contributes to timely reporting, as they understand the system, are able to access and input

data efficiently, and have good time management. These results show that the better the user competence, the better the timeliness of data reporting will be in implementation. This also shows that user competence is good but not optimal in the timeliness of data reporting

The researcher assumes that user competence has a significant influence on the timeliness of data reporting, as shown by the high percentage of punctuality in health workers whose competence is already good. However, the existence of one health worker with good performance but not on time shows that the quality of work is not always directly proportional to time discipline. The researcher also assumes that the timeliness of reporting is not only influenced by competence, but also by other factors such as workload, technical glitches, infrastructure facilities, and individual time management. Therefore, adequate training is needed in the operation of reporting applications and improvement of supporting facilities to optimize the timeliness of data reporting.

This is in line with research conducted by (Widyastuti, 2020), it is stated that user competence is the main factor in ensuring the timeliness of health data reporting. However, punctuality is also heavily influenced by external factors such as workload, technical glitches, infrastructure facilities, and personal time management capabilities. To improve punctuality without sacrificing quality, it is necessary to develop time discipline, effective workload management, and improve facilities and technology support.

Factors affecting the timeliness of data reporting based on management support

This shows that user competence in the timeliness of data reporting can affect the percentage that can be seen in table 4.6 of the 44 health workers, there are 27 health workers (61.4%) choosing the satisfied category, while for the fairly satisfied category, there are 14 employees (34.1%) and dissatisfied there are 2 employees (4.5%)

The implementation of the timeliness of data reporting based on management support carried out by health workers at the South Suwawa Health Center, namely 44 employees were reviewed based on management support in supporting the timeliness of data reporting in the "very high" category with a percentage (87%). This is due to active leadership, availability of facilities, effective monitoring systems, awarding and sanctions, and open communication. Such support creates a disciplined, efficient, and encouraging culture of timely reporting.

The results obtained, out of a total of 44 health workers were not in the category of dissatisfied and not on time, there was 1 (50%) in the category of dissatisfied and quite on time, even though these health workers reported data fairly on time, satisfaction with the system or low reporting support, it could be due to a reporting system that was considered complicated, high workload, or lack of support from management. While 1 health worker (50%) in the category is less satisfied and on time, this individual remains disciplined in reporting data on time even though they are not satisfied with the existing system, possibly due to high personal professionalism factors, even though they feel that the system or facilities provided are not optimal. The category of satisfied and not on time is 1 (6.7%), feel quite helped by the system, but are unable to report on time, it can be due to personal obstacles such as time management or other workloads, not because of the system. 5 employees (33.3%) in the category of satisfied and on time enough satisfaction and punctuality are equally moderate, they likely feel the reporting system is quite good, but still face minor technical or operational challenges that affect the speed of reporting. And there are 7 employees (60%) in the category of satisfied and on time, satisfied enough and timely reporting showing that the system is sufficiently supportive but can still be improved, they feel helped, but still see potential improvements in technical support or training. And in the category of satisfied and not on time, there is 1 (3.7%), although satisfied, these health workers have not been consistent in punctuality, it can be due to individual factors such as forgetting deadlines, multitasking, or other urgent work priorities. In the satisfied and quite timely category there were 9 employees (33.3%), the satisfaction rate was high, but there were still minor obstacles in timeliness, adequate systems and support, but there were occasional technical obstacles such as internet outages or delays in data input. And as many as 17 employees (63%) in the category of satisfied and on time, this group felt satisfied and consistently reported on time, showing that the reporting, training, and management systems were very supportive, and that individuals had high discipline. These results show that the higher the management support, the better the timeliness of data reporting in implementation.

The researcher assumes that management support has an important role in influencing the timeliness of data reporting. Although most healthcare workers show good timeliness, satisfaction levels with management support still vary. Punctuality is achieved even though low levels of satisfaction indicate the presence of other internal factors such as individual discipline, but in the long run, a lack of management support can be an obstacle to improving service quality and job satisfaction. The researcher also assumes that consistent management support, such as routine monitoring and reporting assistance, is needed to maintain and improve data reporting performance simultaneously with employee job satisfaction.

This condition is because management support in the timeliness of data reporting greatly affects data reporting with a good percentage in its implementation. Meanwhile, the rest indicate that health workers who feel dissatisfied are evenly divided between those who are quite on time and on time, and there is nothing less

timely. This shows that punctuality is relatively good although the satisfaction rate is still low.

This is in line with the research conducted by (Widyastuti, 2020), it is stated that adequate management support plays a very important role in ensuring the timeliness of health worker data reporting by increasing motivation and providing the necessary resources. Although some health workers feel satisfied or satisfied with their work, the inaccuracy of reporting can be an obstacle to improving service quality and job satisfaction. Therefore, there is a need for managerial efforts to help employees manage time and overcome obstacles so that performance and job satisfaction can increase at the same time.

Factors affecting the timeliness of data reporting based on technology infrastructure

This shows that the technological infrastructure in the timeliness of data reporting can affect with the percentage that can be seen in table 4.5 of the 44 health workers, there are 31 health workers (70.5%) choosing the adequate category, while for the moderately adequate category, there are 13 employees (29.5%) and for the inadequate there are 2 employees (3.6%)

The implementation of the timeliness of data reporting based on technology infrastructure carried out by the South Suwawa Health Center, namely as many as 44 employees were reviewed based on the technological infrastructure in supporting the timeliness of data reporting was in the "very high-quality" category with a percentage (87%). This shows that the technological infrastructure is adequate and functions well in supporting the timeliness of data reporting. Good infrastructure, such as a stable internet network, adequate computer devices, and a responsive and accessible application system, plays a major role in speeding up the process of data input and transmission.

The results obtained were that out of a total of 44 health workers, 1 employee (7.7%) was in the category of adequate and not on time, delays in reporting in this category showed that infrastructure that was not fully supported (such as slow networks or unresponsive devices) was the main obstacle. In addition, a lack of technical capabilities or adaptation to technological limitations can worsen the timeliness of reporting. While 11 health workers (84.6%) in the category are quite adequate and timely, most of the health workers are able to report fairly in a timely manner even though they are only supported by infrastructure that is not fully ideal. This indicates the contribution of other factors such as work experience, perseverance, or personal discipline that masks shortcomings in terms of technology. For the category of sufficient and timely 1 health worker (7.7%), the achievement of timely reporting in limited infrastructure conditions shows that individual factors such as good time management, high technical skills, or initiative in finding solutions to technological constraints play a major role in the success of reporting. In the Adequate and Less Timely category, there is 1 employee (3.2%), this condition shows that a good infrastructure does not automatically guarantee timely reporting. Possible causes of delays could come from personal factors such as excessive workload, lack of discipline, or other non-technical problems, such as lack of motivation. While 4 personnel (12.9%) are in the category of adequate and quite timely, even though the facilities are adequate, the reporting is only timely because the infrastructure has not been utilized optimally, plus there are small technical obstacles that are repeated. In the category of adequate and timely as many as 26 employees (83.9%), the reporting was only timely enough even though the facilities were adequate due to the lack of optimal use of infrastructure and the existence of recurring technical obstacles. These results show that the more adequate the Technology Infrastructure in the implementation of data reporting, the better the performance of the health workers themselves.

The researcher assumes that technological infrastructure has a significant influence on the timeliness of data reporting, as shown by the high percentage of timely reporting in the adequate infrastructure category. However, the presence of one employee (3.2%) who is in the *category of adequate but not on time indicates* that the availability of infrastructure alone is not enough if it is not supported by a quick response from the technical or IT team. Therefore, the researcher assumes that in addition to the completeness of the infrastructure, the readiness and responsiveness of the technical team in handling technical obstacles is also an important factor in maintaining the timeliness of data reporting at the Health Center.

This is in line with research conducted by Apriliantika et al. (2023) A study at the Semarang City Health Center shows a very strong relationship between the readiness of human resources and technological infrastructure with the implementation of digital health (r=0.964 for human resources and r=0.899 for technological infrastructure) with a positive pattern. Good technology infrastructure explains 80.8% variation in digital health implementation readiness, which contributes to the timeliness of data reporting. The study also found that while most healthcare workers are on time, limited technology infrastructure can lead to delays for a small number of employees.

Factors affecting the timeliness of data reporting based on human resources

This shows that human resources in the timeliness of data reporting can affect with the percentage that can be seen in table 4.5 of the 44 health workers, there are 23 health workers (52.3%) in the competent category, while for the fairly competent category, there are 18 employees (40.9%) and 3 employees (6.8%) who are less competent.

The implementation of the timeliness of data reporting based on human resources by health workers at the South Suwawa Health Center, namely 44 employees was reviewed based on the quality of the information system in supporting the timeliness of data reporting in the "Very Quality" category with a percentage (91%). This shows that human resources at the South Suwawa Health Center have the capacity, skills, and good understanding in using information systems to support timely data reporting. Competent healthcare workers are able to operate reporting applications efficiently, understand system workflows, and have responsibility for timeliness.

The results obtained, out of a total of 44 health workers, there was 1 employee (33.3%) in the category of incompetent and less punctual, delayed reporting by less competent employees showed that lack of understanding and training of the system affected the accuracy of reporting, so basic competencies were needed. Also 1 health worker (33.3%) in the category of less competent and quite on time, reporting is quite timely even though low competence shows that work environment support can help overcome individual limitations. Also 1 health worker (33.3%), timely reporting by incompetent employees can be caused by personal motivation, work experience, or technical factors that support reporting. For the category of sufficiently competent and not on time, only 1 employee (5.6%), the delay in reporting on employees who are sufficiently competent is caused by technical or non-technical factors, even though they already have basic skills in using the system. In the category of sufficiently competent and on time, there are 6 employees (33.3%), the competence that is allowing reporting is quite timely, although it is still constrained by efficiency or speed of system access. And there are 11 (61.1%) employees in the category of competent and timely employees, the majority of health workers are able to report on time, showing that basic competencies such as application understanding and computer skills support efficient reporting. While in the category of competent and less punctual, there is no percentage, the absence of delays in competent employees shows that high competence plays a direct role in improving the discipline and timeliness of reporting. And in the category of adequate and timely enough, there are 8 (34.8%), reporting that is only timely enough even though competent employees show that competencies need to be supported by adequate infrastructure and work environment. and in the adequate and timely category with a percentage of 15 employees (65.2%), the majority of competent employees report on time, showing that good human resource competence supports fast, precise, and efficient reporting.

The researcher assumes that technical competence is not the only factor determining the timeliness of data reporting. Even though there are employees who are less technically competent, they are still able to report on time because they are supported by other factors such as good work schedule arrangements, team collaboration, or field experience that helps complete tasks. On the other hand, employees who have good enough competence can still experience delays if they are unable to manage time or face other technical and operational obstacles. As such, good technical competence is important, but it must be supported by time management, a supportive work environment, and a mentoring system to ensure consistent reporting timeliness.

This is in line with research conducted by (Kholisa, 2022), stating that employees with less technical competence but still on time can be explained through time management theory, team collaboration, and work experience. This proves that factors such as good timing, team support, and work experience can help employees complete tasks on time even if their technical competencies are not optimal. On the other hand, employees with good competence are not necessarily on time if they face obstacles in time management or lack of team support.

The more competent human resources or health workers are in the implementation of data reporting, the better the performance of health workers themselves. Human Resources in the timeliness of data reporting greatly influences data reporting with a good percentage in its implementation.

CONCLUSION

The quality of the Information System has an impact on the Timeliness of Data Reporting by a percentage (91%). User Competency is very important to support Data Reporting Timeliness at a percentage (90%). The timeliness of Data Reporting based on Management Support can have an impact by a percentage (87%). Technology Infrastructure can affect the Timeliness of Data Reporting by a percentage (88%). Human Resources play a significant role in the Timeliness of Data Reporting with a percentage (90%).

ADVICE

For employees, the researcher suggests to further increase the level of knowledge in the use of applications for the purpose of data reporting by utilizing all the features of the existing health center management information system.

For Agencies, they should always ensure information technology facilities and infrastructure to support the smooth reporting of data in the information system and monitoring on the ASPAK application, including adequate internet networks and hardware.

For future researchers, it is recommended to research related to the use of the ASPAK application using more *updated* methods in the future.

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