

# **The Effect of Competence and Management Quality on the Effectiveness of Using Medical Equipment through Electromedical Performance at Makassar City Hospital**

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## **Abstract**

This study aims to examine and analyze the influence of competence and management quality on the effectiveness of using medical equipment through the electro-medical performance at Makassar City Hospital. The research design used in this study is a survey and path analysis with a quantitative approach in which data concerning the independent variable, dependent variable, and intervening variable are taken simultaneously to determine the direct and indirect effect of the variables to be studied. The population of this study was all 101 electromedical officers scattered in hospitals within the city of Makassar. The number of samples used saturated samples, or total sampling, namely the entire population in the study, was used as a sample with 101 respondents in all hospitals in Makassar City. The results showed that competence on the effectiveness of using medical equipment directly had a negative and insignificant effect and competence of the efficacy of using medical equipment through electromedical performance was negligible. In contrast, the quality of management on using medical equipment through electromedical version both directly and indirectly had a significant positive effect.

## **Keywords:**

Competence, Management Quality, Electromedical Performance, Effectiveness of Using Medical Equipment

## **1. Introduction**

The World Health Organization (WHO) or the World Health Organization in 1957 defines a hospital as a social organization. Its function is to provide curative and rehabilitative health services and to reach comprehensive family and environmental services. The hospital also functions as a center for training and biotic research for personnel Health (WHO, 2017). Because it is closely related to human life, hospital services are provided with severe professional consequences. The implementation of health services, especially in hospitals, is very much determined by the availability of health facilities that are well managed and strived to always be in good condition and usable. The action and continuity of health services, primarily medical activities, will always be guaranteed. In the implementation of health services in hospitals or other health service organizations, medical equipment is a significant supporting factor.

To support these health services, medical equipment's condition, and function must be reasonable and usable. The maintenance of hospital facilities considers the speed of response time to equipment failure of 15 minutes by 50% of the 80% standard, the accuracy of the maintenance of the equipment by 50% of the 100% standard, and the standard equipment and measuring instruments used in electromedical services are calibrated on time following the provisions. Calibration of 0% of the standard 100% calibrated tools based on Decree of the Minister of Health of the Republic of Indonesia (KEPMENKES RI No.129 / MENKES / SK / II / 2008) concerning Hospital Minimum Service Standards (Ekowati, 2015; Nuraini et al., 2019; Umanailo, 2020, 2019). Properly maintained medical equipment would affect services in the hospital. Good medical equipment condition affects patient satisfaction, service quality, service coverage, and hospital performance. It is necessary to plan to finance, calculating the efficiency and investment of medical equipment to obtain a medical device condition that meets the standards. Medical equipment efficiency needs to be improved to get maximum results with minimal costs as a long-term investment effort. Therefore, the maintenance of medical equipment is part of the hospital's efficiency that needs to be addressed proportionally and consistently (Ekowati, 2015). According to KEPMENKES NO.371 / 2007, electromedical personnel is health workers who are generally responsible for ensuring the implementation of health services, especially the feasibility of ready-to-use health equipment level of accuracy and safety as well as standard quality. The strategic issue for health workers is the inadequate competence of health workers, seen from the results of the evaluation of the competence of health workers, which is still below 6 out of standard 10 (Indonesian Health Workforce Council, 2020).

One of the factors that influence performance is discipline. Discipline is everything that a person does to realize a work agreement that has been mutually agreed upon in the workplace (Prawirosentono, 1999). In fact, in carrying out the primary duties and functions of an electromedical technician, they still do not carry out their tasks optimally, according to the author's observations. For example, a schedule for monitoring equipment functions is not carried out according to the original plan. Repairs often delayed due to electromedical behavior neglect their primary duties and tasks by postponing work. Of course, this work attitude can affect electromedical performance in health services and impact dissatisfaction and complaints from users. In this case, doctors, nurses, and other operators as users of medical equipment in hospitals and ultimately affect using equipment for services at the hospital not running. Optimally. Satisfaction (Kotler in Anwar Hafid 2014; Arafah, B., Hasyim, M. 2019) is a feeling of happiness or disappointment for someone that arises because of the comparison between the performance (results) of the product that is thought of the expected performance. Maintenance of medical equipment as a form of efficiency in the hospital needs to be addressed proportionally and consistently. A flawed equipment maintenance system causes the equipment's service life to be reached, and impacts increase additional costs due to medical equipment damage (Ekowati, 2015; Mu'adi et al., 2020; Nawawi et al., 2020). This can be seen from the electromedical work attitude, which is still neglecting recording and reporting according to the author's observations. It often has difficulty in conducting evaluations due to incomplete data and equipment history. The large number of equipment that does not reach technical age is also due to the maintenance management system that is still not running correctly. The response time to user complaints from equipment damage is still slow, so services are delayed or hampered.

## 2. Literature Review

Competence is a person's ability to work effectively. Competence is an essential character of a person's behavior related to parameters as a practical guide and superior achievement in carrying out a job in various situations (Spencer & Spencer, 1993). Competence is a way to classify behavior into its elements. The skill dimension plays a vital role in shaping competence, organizational culture, and individual competencies, resulting in developing specific skills related to competence. At the same time, experience is an essential element in shaping a person's mastery of competence in his duties (Michael Zwell, 2000 in Sudarmanto, 2018).

Competence-based on this explanation indicates the essential character of a person as seen from the way of thinking, behaving, acting, and drawing conclusions that are carried out and maintained by a person at a particular time. Several aspects contained in the concept of competence (Gordon in Sutrisno, 2010) include 1) Knowledge (knowledge), 2) Understanding (understanding), 3) Skill (skills), 4) Attitude (attitude).

Crosby, quoted by Zulian Yamit (2010), states that quality is a form of perfection and conformity to requirements. So what is meant by management quality is a dynamic management process that meets or exceeds the expectations of facilities and infrastructure and supervision and assessment to achieve predetermined goals. The dimensions of health service quality have been widely used to measure the quality of health services which are commonly used in research concepts, including several aspects (Zeithaml and Parasuraman in Hardiansyah, 2011), including 1) Reliability, 2) Assurance, 3) Tangibles (tangible), 4) Responsiveness (responsiveness).

Effectiveness is the ability to choose goals or targets that are right and achieve them. Therefore, effectiveness shows the relationship between the results achieved with the goals that have been determined in a plan. An organization can be effective if the output produced has met the desired goals (Donni, 2013). From this understanding, it can be concluded that the effectiveness of using medical equipment is defined as the condition of the equipment that can work optimally and optimally where the equipment is ready to use and fit for use within the lifetime of the equipment. As stipulated in Regulation of the Minister of Health (PERMENKES) No. 65/2016, Electromedical Service Standards implicitly states that in the implementation of electromedical services in hospitals, electronics have strategic authority to manage medical equipment in hospitals to achieve effective use of medical equipment. This requires integrating integrated and comprehensive benefits, cooperation, and good communication with service units as medical equipment users. These service implementation standards include: (1) Formulating appropriate policies and regulations regarding the procurement of medical equipment, (2) Effective implementation by creating and disseminating standard operating procedures, maintenance, testing/calibration of medical equipment, and (3) Evaluating and participating in the supervision of medical equipment. Implementation of medical equipment management starting from the acquisition/procurement, maintenance & calibration, use of electromedical equipment, and eliminating medical equipment use of medical equipment.

Performance is always a current issue because performance is a crucial question to any organization's effectiveness or success. Organizations with individuals who have good performance and are supported by quality human resources are successful and effective organizations. Activities can be practical if a final goal can be achieved, but a move that is not important but achieves the desired result and results in satisfaction even though it is effective is called inefficient. It is said to be efficient if all work activities are essential and achieve the desired goals (Prawirosentono, 1999). According to Robbins, 2006, the parameters that can be used to assess a person's performance are: Quality of work is assessed from the employees' understanding of the quality of work output and employees' ability to complete tasks thoroughly; The quantity assessed from the number of work outputs, such as the number of activities completed in a predetermined time; Timeliness is assessed from the number of activities that can be completed at the beginning of time, seen from the point of harmony with work output, and maximizing the time available for other activities; Effectiveness is assessed from the total use of organizational resources (human resources, money, technology, raw materials) by increasing each unit's yield to maximize the use of these resources; Independence is assessed from an employee who can carry out his work function through work commitment and responsibility with the institution where he works.

Electromedical personnel is health workers who have the authority to ensure that medical equipment is ready to use and fit for use. Electromedical is someone who has a competency certificate according to the professional level based on the applicable laws and regulations, which has the authority to perform electromedical services. Based on the Minister of Health Regulation No.65 of 2016, it is implicitly stated that electromedical services are organized and regulated so that electromedical services can run and are oriented towards security and safety to implement electromedical services in hospitals runs efficiently and with quality. Here are some things that are done, among others: (1) Carrying out the use of medical equipment starting from the acquisition/procurement, maintenance, repair & calibration of medical equipment and analyzing the removal of medical equipment, (2) Making maintenance system scheduling and preparation of procedures related to the management of electromedical equipment, (3) Creating and compiling a function monitoring procedure and carrying out equipment function tests electromedical, and 4) Planning and scheduling testing/calibration of electromedical equipment.

### 3. Methods

The research design used in this study is a survey and path analysis with a quantitative approach in which data concerning the independent variable, dependent variable, and intervening variable are taken simultaneously to determine the direct and indirect effect of the variables to be studied. The method used for data collection is observation and using a questionnaire. This research's time and location were carried out in all hospitals within the city of Makassar in October - November 2020 for approximately two months. The location selection is considered to represent research on the competence and quality of management on the effectiveness of using medical equipment through electromedical performance. Path analysis is used to analyze the competence and quality of control of using medical equipment through electrical account at the Makassar City Hospital. This effect was tested with a 95% confidence interval or  $\alpha = 0.05$ . If  $t \text{ count} < t \text{ table}$  at the 95% confidence level, then  $H_0$  is accepted and  $H_a$  is rejected, whereas if  $t \text{ count} > t \text{ table}$  is at the 95% confidence level, then  $H_0$  is rejected, and  $H_a$  is accepted.

## 4. Results

### 4.1. Validity and Reliability Test (Validity of Research Instruments)

The validity test is carried out to test each statement item's accuracy in each variable (questionnaire). The validation criteria are if  $r\text{-count} \geq r\text{-table}$ , then the instrument is declared valid. Still, if  $r\text{-count} < r\text{-table}$  then the device is declared invalid, it is known that the  $r\text{-table}$  uses a significant level  $\alpha = 0.05\%$  with  $n = 101$  then the  $r\text{-table}$  value is obtained = 0.194. Table 1 describes the results of the validity test for each of the following variables:

**Table 1.** Results of the Validity Test of the Items - Research Variable Items

Variable	Statement Items	r – calculate	r – table	Description	
Competency (X1)	X <sub>1,1</sub>	0,753	0,194	Valid	
	X <sub>1,2</sub>	0,700		Valid	
	X <sub>1,3</sub>	0,859		Valid	
	X <sub>1,4</sub>	0,817		Valid	
Quality Management (X2)	X <sub>2,1</sub>	0,867		Valid	
	X <sub>2,2</sub>	0,867		Valid	
	X <sub>2,3</sub>	0,856		Valid	
	X <sub>2,4</sub>	0,837		Valid	
Electromedical Performance (Y1)	And <sub>1,1</sub>	0,823		Valid	
	And <sub>1,2</sub>	0,885		Valid	
	And <sub>1,3</sub>	0,891		Valid	
	And <sub>1,4</sub>	0,820		Valid	
Effectiveness of Medical Equipment Use (Y2)	And <sub>2,1</sub>	0,861		0,194	Valid
	And <sub>2,2</sub>	0,863			Valid
	And <sub>2,3</sub>	0,852			Valid
	And <sub>2,4</sub>	0,911			Valid

Source: Primary Data Processed, 2020.

The validity test results in table 1 show that each variable's statement items are declared valid, seen from the value of  $r\text{-count} \geq 0.194$  ( $r\text{-table}$ ). Thus, all items on the competency variable (X1), management quality (X2), electromedical performance (Y1), and the effectiveness of using medical equipment (Y2) were declared appropriate to be used as research instruments.

The reliability test was analyzed using Cronbach's Alpha technique. A test technique with a natural level of 5%, the calculation uses the SPSS version 24 application. If the correlation coefficient is greater than the Cronbach's Alpha value  $> 0.6$ , the item is declared reliable (Arikunto, 2002). The results of reliability testing are presented in table 2 below:

**Table 2.** Reliability Test Results

Variable	Cronbach's Alpha	Cut of Point (0,6)	Description
Competency (X1)	0,810	0,60	Reliable
Quality Management (X2)	0,831	0,60	Reliable
Electromedical Performance (Y1)	0,829	0,60	Reliable
Effectiveness of Medical Equipment Use (Y2)	0,834	0,60	Reliable

Source: Primary Data Processed, 2020.

Table 2 shows the results of the reliability test of all question items on the competency variable, management quality, electromedical performance, and the effectiveness of using medical equipment, the Cronbach's Alpha value is obtained  $> 0.60$  (0.810; 0.831; 0.829; 0.834) so that all question items are considered reliable. And can be used in this research. Data processing in path analysis is by analyzing the competence and quality of management on the effectiveness of using medical equipment through electromedical performance through the process of two multiple linear regressions using the SPSS version 24 application. Path Coefficient Model I and Path Coefficient Model II show the output of data processing as follows:

### 4.2. Path Coefficient of Model I

Based on the Regression Model I output table 3 below:

**Table 3. Path Analysis Model I**

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig
		B	Std. Error	Beta		
1	(Constant)	1.364	1.523		.895	.373
	Competency (X1)	.174	.086	.135	2.012	.047
	Quality Management (X2)	.737	.068	.728	10.861	.000

Source: Primary Data Processed, 2020.

From the path analysis output model 1 shown in the table, it is known that the significant values of the two variables, namely  $X1 = 0.047 < \alpha = 0.05$  and  $X2 = 0.000 < \alpha = 0.05$ . Thus, from the Path Analysis Model, I found a positive and significant effect of variable X1 and variable X2 on variable Y1.

**Table 4. Output Testing Coefficient of Determination**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.790 <sup>a</sup>	.624	.616	1.397

a. Predictors: (Constant), Management Quality (X2), Competency (X1)

Source: Primary Data Processed, 2020.

The R Square output in the "Model Summary" table with a value of 0.624 indicates that the contribution of X1 and X2 variable influence to variable Y1 is 62.4% while the remaining 37.6% is a contribution from other variables not included in the study.

#### 4.3. Model II Path Coefficient

Refers to the Model II Regression output in the following "coefficients" table

**Table 5. Path Analysis Output Model II**

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig
		B	Std. Error	Beta		
1	(Constant)	2.350	1.282		1.833	.070
	Competency (X1)	-.024	.074	-.019	-.327	.744
	Quality Management (X2)	.278	.084	.278	3.298	.001
	Electromedical Performance (Y1)	.623	.085	.630	7.362	.000

Source: Primary Data Processed, 2020.

From the regression analysis output of model II shown in table 5 it is known that the meaningful value of variable  $X1 = 0.744 > \alpha = 0.05$ ,  $X2 = 0.001 < \alpha = 0.05$  and  $Y1 = 0.000 < \alpha = 0.05$ . Thus, it was found that the insignificant negative influence of variable X1 on variable Y2 while variable X2 and Y1 against variable Y2 gave a positive and significant influence.

**Table 6. Output Testing Coefficient of Determination**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.856 <sup>a</sup>	.733	.725	1.171

Source: Primary Data Processed, 2020.

The R Square output value shown in the "Model Summary" table with a value of 0.733 indicates that the contribution of X1, X2, Y1 variable influence to Y2 variable is 73.3% while the remaining 26.7% is a contribution from other variables not included in this study.

#### 4.4. Indirect Effect Analysis

The result of hypothesis through variables between / mediators to see the indirect influence shown in the following table:

**Table 7. Indirect Effect Testing Output**

Path Coefficient	Standardized Coefficient Beda	Std. Error
X1 Y1→	0,135	0,086
Y1 Y2→	0,630	0,085
X1 Y1 Y2→→	0,135 x 0,630 = 0,085	-
X2 Y1→	0,728	0,068
X2 Y1 Y2→→	0,728 x 0,630 = 0,458	-

Source: SPSS Data Processing Results, 2020.

The indirect effect of competence (X1) on the use of medical equipment (Y2) through electromedical performance (Y1) is 0.085. The output of hypothesis testing using the variable Sobel test X1 against Y2 through Y1 obtained a value of 1.523 < 1.660, meaning that t-count < t-table. Thus, found a positive and insignificant effect of the variable X1 on Y2 through Y1. Meanwhile, the indirect impact of management quality (X2) on the effectiveness of using medical equipment (Y2) through electromedical performance (Y1) is 0.458. From the output of hypothesis testing using the variable Sobel test X2 against Y2 through Y1, the value is 6,076 > 1,660, which means t-count > t-table. Thus, it is found that the variable X2 has a positive and significant effect on Y2 through Y1.

#### 5. Discussion

The respondent's assessment of the competence obtained from the questionnaire results shows that the competence in the first indicator is in the high category. Namely, the respondent knows and can operate electromedical equipment in electromedical services. From the results of hypothesis testing, it was found that there was an influence between competency variables on electromedical performance variables at Makassar City Hospital. This proves that the first hypothesis that the author proposes is confirmed, which means that if the competence is getting better, it will further improve the electromedical performance at Makassar City Hospital. This is in line with Sulistyaningsih's (2009) research and Yudisthira and Siwantara (2012) that competence directly has a positive and significant effect on employee performance.

From the results of data processing of respondents' answers, it was found that the variable quality of management on electromedical performance at Makassar City Hospital was in a pretty good category. Therefore, the hypothesis that the authors propose indicates an influence between the quality of management on electromedical performance at the Makassar City Hospital. The test results prove the author's second hypothesis is accepted, which means that the better the quality of management, the electromedical performance at Makassar Hospital will increase.

The results showed that competence has a negative and insignificant effect on the effectiveness of using medical equipment, meaning that if competence increases, the point of using medical equipment will decrease, but not significantly. This shows that the third hypothesis, which states "Competence Has a Positive and Significant Effect on the Effectiveness of the Use of Medical Equipment in Makassar City Hospital," was rejected because of a conflict between theory and reality. The respondents' profile based on tenure shows that ten years of service is the most dominant, which is 54.5%, and the shape of respondents based on male gender is more prevalent, namely as much as 71.3%.

Based on the author's observations in the field, it was found that the higher the competence possessed by electromedicine, the less it shows that there is less work involved in doing technical work in the field related to the effectiveness of using medical equipment. With a work period of more than ten years, it affects the electromedical work attitude where the work they do routinely and repeatedly and continuously for an extended period of up to tens of years results in boredom so that a desire to move or switch to managerial work arises. Meanwhile, seen from the respondents' profile with D-III education, the most dominating is 52.5%, with a work period of fewer than ten years. Admitting that they are happy and enthusiastic in doing their work because of curiosity and high curiosity if there are

tools used and feel satisfied if the device is suitable, usable, and reusable. This shows that low competency electromedicine shows high work involvement in doing technical work related to the effectiveness of using medical equipment.

From the partial test results, it is known that the quality of management affects the effectiveness of the use of medical equipment in Makassar City Hospital. The test results prove that the author's fourth hypothesis is proven because there is a significant medical effect between the quality of management on the effectiveness of the use of medical equipment. The better the quality of control, the more effective the use of medical equipment in Makassar City Hospital will be.

Based on the direct test results with the path analysis test, it can be concluded that electromedical performance affects the effectiveness of using medical equipment. The path analysis test results prove that the fifth hypothesis proposed by the author is accepted, namely that there is an influence between electromedical performance on the effectiveness of using medical equipment. This shows that the electromedical performance itself influences the excellent or lousy point of using medical equipment. The higher the electro-medical performance, the more influential the use of medical equipment in Makassar City Hospital will be

From the results of hypothesis testing using the single test, guided by  $t\text{-count} > t\text{-table}$ , the results of  $t\text{-count} < t\text{-table}$  has no significant effect on the effectiveness of using medical equipment through electromedical performance as a mediator/intervening. So that the hypothesis "Competence has a Positive and Significant Effect on the Effectiveness of Equipment Use. Medical through Electromedical Performance in Makassar City Hospital "is rejected or not proven. Electromedical performance is unable to mediate the competency variable on the effectiveness of medical equipment because the results obtained are not significant even though they have a positive effect. Electromedical performance is a technician's work in carrying out the overall task during a specific period with work standards, targets, and criteria determined and agreed upon.

According to the author's data and observations, they were carrying out electro-medical engineering service activities. These several hospitals already have more than five electromedical divides the location/room, with each person in charge of each room divided into several workgroups. In one working group, some have high and low Competence. They can share knowledge and understand skills in carrying out electrical engineering services related to the effectiveness of using medical equipment in hospitals. But more hospitals only have no more than three electromedical people in one hospital. Of the total 20 hospitals that the author studied, 14 are hospitals that only have three, two, and even one electromedical in one hospital. Meanwhile, their average working period is over ten years. The higher the competency possessed by an electromedical; the less work involved in carrying out technical work in the field is related to using medical equipment.

From the test results, it was found that the direct effect of management quality on the effectiveness of the use of medical equipment and the indirect impact of management quality on the efficacy of the use of medical equipment through electromedical performance. From the results of hypothesis testing using the Sobel test, guided by  $t\text{-count} > t\text{-table}$ , it can be concluded that the quality of management has a significant effect on the effectiveness of medical equipment management. It means that the hypothesis "Management Quality has a positive and significant impact on the point of equipment use. Medical through Electromedical Performance in Makassar City Hospital "is accepted or proven.

## 6. Conclusion

Competence has a positive and significant effect on electromedical performance at Makassar City Hospital; Quality of management has a positive and significant effect on electromedical performance at Makassar City Hospital; Competence has a positive and significant effect on the effectiveness of using medical equipment at Makassar City Hospital; The quality of management has a positive and significant effect on using medical equipment at Makassar City Hospital; Electromedical performance has a positive and significant effect on using medical equipment at Makassar City Hospital; Competence has a positive and significant effect on using medical equipment through electromedical performance at Makassar City Hospital; The quality of management has a positive and significant effect on the effectiveness of using medical equipment through electromedical performance at Makassar City Hospital

## References

- Ahmad. 2016. Analisis Kualitas Pelayanan Terhadap Kepuasan Konsumen Di SPA Club Arena Yogyakarta. Program Studi Ilmu Keolahragaan. UNY. Yogyakarta.
- Amalia, R. dan P. Siswantara. 2018. Efektifitas Penyuluhan Kesehatan Reproduksi Pada Calon Pengantin Di Puskesmas Pucang Sewu Surabaya. *Jurnal Biometrika dan Kependudukan*. 1(7) : 29-38
- Anwar Hafid. 2014. Hubungan Kinerja Perawat Terhadap Tingkat Kepuasan Pasien Pengguna Yankestis Dalam Pelayanan Keperawatan Di RSUD Syech Yusuf Kab.Gowa. *Jurnal Kesehatan*. Volume VII No.2/2014.
- Apriansyah, Topik. 2012. Gambaran Sistem Manajemen Pemeliharaan Alat Elektromedis Oleh Unit Taknak Di Rumah Sakit Pertamina Jaya Tahun 2011. Fakultas Kesehatan Masyarakat. UI. Depok
- Arafah, B., Hasyim, M. 2019. Linguistic functions of emoji in social media communication. *Opcion*, 35 (24), pp. 558–574
- Aria Sulistya. 2015. Evaluasi Pengelolaan Peralatan Medis di RSUD. Arosuka, PSIKM FK Unand.
- Bangun, Wilson. 2012. “Manajemen Sumber Daya Manusia”. Jakarta: Erlangga. Crosby, P.B. 1979. *Quality is Free: The Art of Marking Quality Certain*. New York: McGraw-Hill.
- Deming, W. Edwards. 2002. *Out of Crisis*. Massachusetts Institute of Technology. Cambridge.
- Departemen Kesehatan RI. 2018. *Pedoman Operasioanal dan Pemeliharaan*
- Dessler, G. 2000. *Human Resource Management*. 8th edition. New Jersey: Prentice-Hall, Inc.
- Donni Juni Priansa, dan Agus Garnida. 2013. *Manajemen Perkantoran Efektif, Efisien, dan Profesional*, Bandung: Alfabeta, 2013.
- Duwi Basuki. 2011. *Penggunaan Peralatan Medis Yang Aman Bagi Pasien*. FK UI. Jakarta
- Ekowati Supartinah Kamandaka Putri, 2015. *Manuskrip Analisis Program Pemeliharaan Secara Preventive Alat Medis Sebagai Upaya Efisiensi Di Rumah Sakit Wawa Husada*. Program Studi Magister Manajemen Rumah Sakit Fakultas Kedokteran. Universitas Brawijaya. Malang.
- Gordon, Stephen P. 1990. Developmental Supervision: An Exploratory Study of A Promising Model. *Journal of Curriculum and Supervision*, 5(4): 293-307.
- Hamel dan Prahalad. *Management*. New Delhi: Tata McGraw Hill, 1995. Hardiansyah, 2011 *Kualitas Pelayanan Publik: Konsep, Dimensi, Indikator dan Implementasinya*. Yogyakarta: Gava Media.
- Hidayat. 1986. *Teori Efektifitas Dalam Kinerja Karyawan*. Gajah Mada University
- Jamshidi, Afshin et al. 2014. *Medical devices Inspection and Maintenance: A Literatur Review*. *Proceedings of the 2014 Industrial and Systems Engineering Research Conference*
- Kotler, Philip and Kevin Lane Keller. 2016: *Marketing Management*, 15<sup>th</sup> Edition
- Luthans, F. 2005. *Organizational Behavior*. Seventh Edition. McGraw-Hill, Inc., New York.
- Mathis, R.L. & J.H. Jackson. 2006. *Human Resource Management: Manajemen Sumber Daya Manusia*. Terjemahan Dian Angelia. Jakarta: Salemba Empat.
- Meningkatkan Kualitas Pembelajaran di SMP Pelita Harapan*. UIN: Jakarta.
- Mu’adi, S., Maksum, A., Hakim, M. L., & Umanailo, M. C. B. 2020. Transfer of function agricultural land. *Proceedings of the International Conference on Industrial Engineering and Operations Management*, 0(March), 2568–2574.
- Mulyono, 2010. *Sistem Informasi Pencatatan Alat Kesehatan Untuk Mendukung Tugas Elektromedis Dalam Pengelolaan Alat Medik STIKES Widya Husada: Semarang* Namira Mardin Amin. 2015.
- Nawawi, M., Ali, A., Irawan, B., Ahmad, B., Mukramin, S., Marsuki, N. R., Umanailo, M. C. B., & Kaya, I. R. G. 2020. The village kalesang program as a poverty alleviation community. *International Journal of Scientific and Technology Research*, 9(3), 3103–3107.
- Neven Saleh, Amr A. Sharawi, Manal Abd Elwahed, Alberto Petty, Daniele Puppato, dan Gabriella Balestra dalam *IEEE journal of biomedical and health informatics* vol. 19 No. 3 May 2015.
- New Jersey: Pearson Prentice Hall, Inc.
- Nuraini, N., Riadi, A., Umanailo, M. C. B., Rusdi, M., Badu, T. K., Suryani, S., Irsan, I., Ismail, I., Pulhehe, S., & Hentihu, V. R. (2019). Political Policy for the development of Education. *International Journal of Scientific & Technology Research*, 8(10).
- Nurlaila, 2010. *Manajemen Sumber Daya Manusia I*. Ternate: Penerbit LepKhair
- Pengaruh Kompetensi Terhadap Kinerja Pegawai Di Sekretariat Daerah Kabupaten Sidenreng Rappang*. Universitas Hasanuddin Fakultas : Makassar
- Peralatan Kesehatan*. Jakarta: Departemen Kesehatan RI. Diunduh tanggal 4 September 2018
- Robbins, P. Stephen. (2006). *Perilaku Organisasi*. Edisi Sepuluh. Diterjemahkan oleh: Drs. Benyamin Molan. Erlangga, Jakarta.



- Siagian, Hotlan., Cahyono, Hotlan., 2014, Analisis Website Quality, Trust, dan Loyalty Pelanggan Online Shop, Jurnal Manajemen Pemasaran Vol 8 No 2.
- Soewarno, Handayaningrat. 1994. Pengantar Studi Ilmu Administrasi dan Manajemen. Jakarta: CV. Haji Masagung
- Spencer, Lyle & Signe M. Spencer. 1993. Competence at Work, Models for Superior Performance. Canada: John Wiley & Sons, Inc.
- Sugiyono, 2019. Metode Penelitian Kuantitatif, Kualitatif dan R & D. Cetakan ke-27, Bandung: Penerbit Alfabeta.
- Sulistyaningsih, Agustini. 2009. Analisis Pengaruh Kepemimpinan, Kompetensi Karakteristik Individu, *Locus Of Control* Dan Penerapan Teknologi Informasi Terhadap Kinerja Pegawai Pada Dinas Pendidikan Kabupaten Klaten. *Excellent*. (1):1
- Surya Dharma, 2018. Manajemen Kinerja Falsafah Teori dan Penerapannya. Cetakan ke-7, Yogyakarta: Penerbit Pustaka Belajar.
- Umanailo, M. C. B. 2019. Structure of Social Change in Industrial Society. Proceedings of the International Conference on Industrial Engineering and Operations Management Riyadh, 668–672.
- Umanailo, M. C. B. 2020. The energy in the context of social. Proceedings of the International Conference on Industrial Engineering and Operations Management, 0(March), 2503–2508.
- Undang-Undang RI Nomor 44 Tahun 2009 tentang Rumah Sakit. Jakarta. 2009.
- WorldHealth Organization. 2017. WHO *Global Patient Safety Challenge: Medication Without Harm*
- Yudistira, Cokorda Gede Putra. dan I Wayan Siwantara. 2012. Pengaruh Gaya Kepemimpinan Transformasional Ketua Koperasi dan Kompetensi Kecerdasan Emosional Manajer Koperasi Terhadap Kepuasan Kerja dan Kinerja Manajer Koperasi di Kabupaten Buleleng. Jurnal manajemen, Strategi Bisnis dan Kewirausahaan. (6):1 h: 99 –108
- Zeithaml, V. Parasuraman, A. and L. Berry L. 1985. “*Problems and Strategies in Services Marketing*”. *Journal of Marketing Vol. 49. (Spring)*
- Zulfikar Husni Faruq et al. 2017. Penilaian Manajemen Peralatan Laboratorium Medis Di RSUD Se Provinsi DKI Jakarta. *Jlabmed Vol 1 No 1, 2017, 16-20. E-ISSN: 2549-9939*
- Zulian, Yamit. 2010. Manajemen Kualitas Produk & Jasa. Vol. Edisi Pertama. Yogyakarta: EKONISIA.
- Zwell, Michael. 2010. Creating a Culture of Competence. New York: John Wiley & Sons, Inc.

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