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Quality Audit Analysis of the Implementation of Hand Washing 5 Moments 6 Steps for Doctors and Nurses with the Incidence of Plebitis in the Hospital

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ABSTRACT

Background: Health professionals in hand washing are often associated with efforts to prevent cross-infection in hospitals. Compliance of health professionals in doing hand washing on average is still below 40%. This situation is very risk cause nosocomial infections in service to patients in the hospital. The incidence of phlebitis in infusion is one indicator that must be considered in the quality of infection prevention and control target with indicators below 1.5 per mile.

Methods: This study uses a quantitative analytical approach that aims to analyze the relationship between the audit of the quality of the implementation of hand washing of health professionals with the incidence of phlebitis in hospitals. Compliance with health professionals hand washing was observed by auditing the quality of hand washing 5 moments and 6 steps carried out by the Infection Prevention Control Nurse (IPCN) consisting of doctors n = 30 and nurses n = 70. Phlebitis was measured through daily recordings and monitoring by the Infection Prevention Control Link Nurse (IPCLN) in 4 rooms the results were validated by the IPCN and the hospital's control and prevention committee. Data analysis using SEM WarpPLS.

Results: There is a significant relationship between the audit of nurses hand washing with the incidence of phlebitis with p value: 0.007 (highly significant), obtained R-Square determinant or R^2 = 0.19 meaning that 19% of nurses hand washing is at risk of causing phlebitis. There is no relationship between the audit of the doctor's hand washing with the incidence of phlebitis p value: 0.416 (Not significant).

Conclusion: There is a significant relationship between the audit of the implementation of hand washing 5 moment 6 steps nurses with the incidence of phlebitis.

Keywords: health professionals, five moments, six steps, phlebitis

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INTRODUCTION

In the last two decades hand washing has been a critical discussion related to the problem of infection and efforts to reduce antimicrobial spread resistance [10]. Implementation of hand washing 5 moments 6 steps for every health professional in the hospital is a standard procedure in preventing and controlling infection that must be done properly and correctly. Some studies show that the average level of compliance of health workers in washing their hands in hospitals is still below 50% [7,11,16]. The average complication of infection is 8-10% in all hospitals generally often occurs in the intensive care unit [3]. Hand washing (HW) has a proven benefit in preventing transmission of infection, yet compliance with hand washing, especially in intensive care units, ranges between 28% and 74% [3].

The impact of poor hand washing on food contributes to health problems caused by staphylooccus aureus and gram-negative basili. The presence of microorganisms is also found in patients with phlebitis namely E. colly, staphylococcus, and Basillus [15]. The range of time treated to exposure to phlebitis is in the range of 3 days to 17 days [4]. The study findings reported the incidence of infiltration among cannulae to up to 31.5%. Majority of the cannulae developed Grade II (72%) infiltration. Phlebitis developed in 29.8% of cannulae. Nearly 45% of cannulae developed each with Grade II and Grade III phlebitis. Post infusion phlebitis at 48 hours was diagnosed in 59 (1.8%) patients. Fifteen (25.4%) of these patients had phlebitis at removal and also at 48 hours after removal [15]. The low compliance of officers in washing their hands can potentially cause skin infections (phlebitis).

METHODS

Study design

This study uses an analytic design that aims to analyze the relationship between the quality audit of health professionals hand washing with the incidence of phlebitis. The study was conducted at the Military Hospital by taking 4 rooms namely ICU, Hemodialysis, Emergency Unit and Inpatient. The data collection process was carried out by conducting an audit of the quality of observation of health professionals in complying with washing hands 5 moments 6 steps of health professionals consisting of doctors and nurses using the WHO standard observation form [20] with a sample of 100 consisting of doctors n: 30 and nurses n: 70 .

An audit evaluation of the observation of hand washing was carried out by the Infection Prevention Control Nurse (IPCN) Hospital Infection Prevention and Control Committee. Observation was assessed from 5 moments 6 steps moment-1: Hand Wash before contacting patients, moment-2: before aseptic procedures, moment-3: after contact body secretions, moment-4 after contact patients and moment-5 after contact environment. Observations

were made in 2018 once every 3 months. Phlebitis event data is observed every time by an Infection Prevention Control Link Nurse (IPCLN) officer by conducting an assessment of plebitis events and validated by IPCN.

Data analysis

Data analysis uses Structural Equation Model (SEM) analysis of WarPLS which aims to analyze whether there is a relationship between the variables of the audit of the quality of hand washing of doctors and nurses in implementing compliance with hand washing 5 moments and 6 steps to the incidence of phlebilitis. Identification of the factor loading of each moment 1-5 describe the convergent validity of the health professionals hand washing variable, the highest factor loading describe the important moment for the officer in carrying out compliance carrying out the 5 moment 6 step hand washing.

Conditions are accepted when a significant hypothesis p-value <0.05. The coefficient of determination is used to see the effect on the independent variable. Model fit (goodness of fit) to assess whether the model made is appropriate or not with an APR and ARS value>0.05.

RESULTS

Quality audit of the implementation of hand washing 5 moments and 6 steps of 100 doctors and nurses health officers carried out for 1 year divided into 4 stages with monitoring carried out every 3 months. The average compliance rate of health proffessionals hand washing 81% is still below the WHO standard of 100%.

Indicators on the measurement of the variables of nurse hand washing implementation in all 1-5 activities of hand washing are obtained by an outer loading factor of an average of 0.783 and p-value of 0.001, thus fulfilling a significant convergent validity at a level of 10% so that the five moments of hand washing really described as a measure of the variable implementation of nurse's hand washing (X1). There is a factor load that is highest in the implementation of nurses' hand washing to occur at moment 4 of 0.854, meaning nurses always wash their hands after interacting with patients ($X_{1.4}$).

In the measurement of the variable implementation of the doctor's hand washing at all moments 1-5 hand washing activities obtained outer loading factor of an average of 0.76 and p-value of 0.001 then fulfills a significant convergent validity at a level of 10% so that the indicator really describes as a measure of the implementation of the doctor's hand washing variable (X2). The most important factor load which is an indicator of the implementation of the doctor's hand washing is moment 5 of 0.893 meaning that the doctor always does the hand washing after being exposed to the patient's environment. (Table 1)

TABLE 1. Health professionals hand washing 5 moments and 6 steps

Type	Moment-1	Moment-2	Moment-3	Moment-4	Moment-5	p- value	Information.
Nurses	0.600	0.807	0.783	0.854	0.811	0.001	Significant
Doctors	0.437	0.752	0.860	0.841	0.893	0.001	Significant

The results of hypothesis testing in the WarpPLS analysis using the t-test: There is a significant high effect of the washing of nurses handswashing 5 moments 6 steps (X1) with the with p-value 0.007 R-Square determinant above with the value of $R^2 = 0.19$ (figure 2) shows the effect of the implementation of nurse's hand washing (X1) contributed to the incidence of phlebitis (Y1) by 19%. Analysis of the effect of the implementation of hand washing of a doctor found no effect (not significant) the implementation of washing hands of doctors 5 moments 6 steps with the incidence of phlebitis (Table 2).

TABLE 2. Hypothesis Testing Results

Type	Relationship between variables		Coefficient of path	*p-value*	Information
Nurses	X1	Y1	0.442	0.007	Highly significant
Doctors	X2	Y1	-0.044	0.416	Not significant

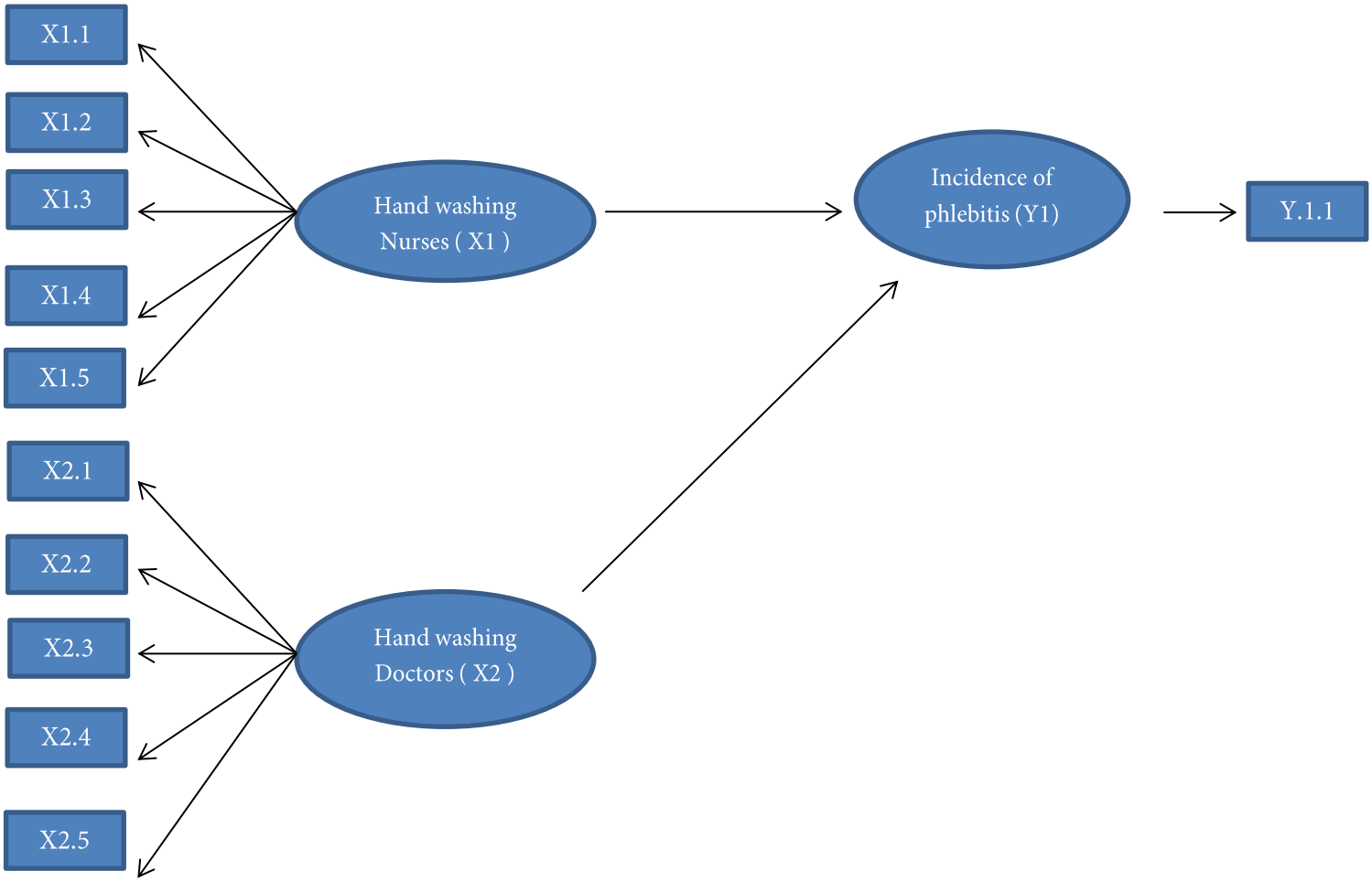

Figure 1: Model of relationship between hand washing of health professionals and the incidence of phlebitis

TABLE 3.Table 3 Model Results of Goodness of Fit

Model fit and quality indices	Analysis Results	Fit Criteria	Information
Average path coefficient (APC)	APC = 0.243 p = 0.051	Signifikan jika p < 0,05	Not significant
Average R-squared (ARS)	ARS = 0.193 p = 0.081	Signifikan jika p < 0,05	Not significant
Average adjusted R-squared (AARS)	AARS = 0.108 p = 0.149	Signifikan jika p < 0,05	Not significant
Average block VIF	AVIF = 1.717	Acceptable if AVIF ≤ 5 Ideal if AVIF ≤ 3	Ideal
Average full collinary VIF	AFVIF = 2.301	acceptable if AFVIF ≤ 5 ideal if AFVIF ≤ 3	Ideal
Tenenhaus GoF	GoF = 0.376	Less than if GoF ≥ 0,1 medium if GoF ≥0,25 more than if ≥ 0,36	Great
Sympson's paradox ratio	SPR = 0.500	acceptable if SPR ≥0,7 Ideal if SPR = 1	*Acceptable*
R-square contribution ratio	RSCR = 0.934	acceptable if RSCR ≥0,9 Ideal if RSCR = 1	*Acceptable*
Statistical suppression ratio	SSR =1.000	acceptable if SSR≥0,7	*Acceptable*
Nonlinear Bivariate causality direction ratio (NLBCDR)	(NLBCDR) =1.000	acceptable if (NLBCDR) ≥0,7	*Acceptable*

Based on the figure 1 and the table 3 above shows the results of the Average Path Coefficient APC = 0.243 p = 0.051 and Average R-squared ARS = 0.193 p = 0.081 no smaller than 0.05 then it is not significant so the variable relationship model is not appropriate so it can be ignored because the research objective is to test the hypothesis.

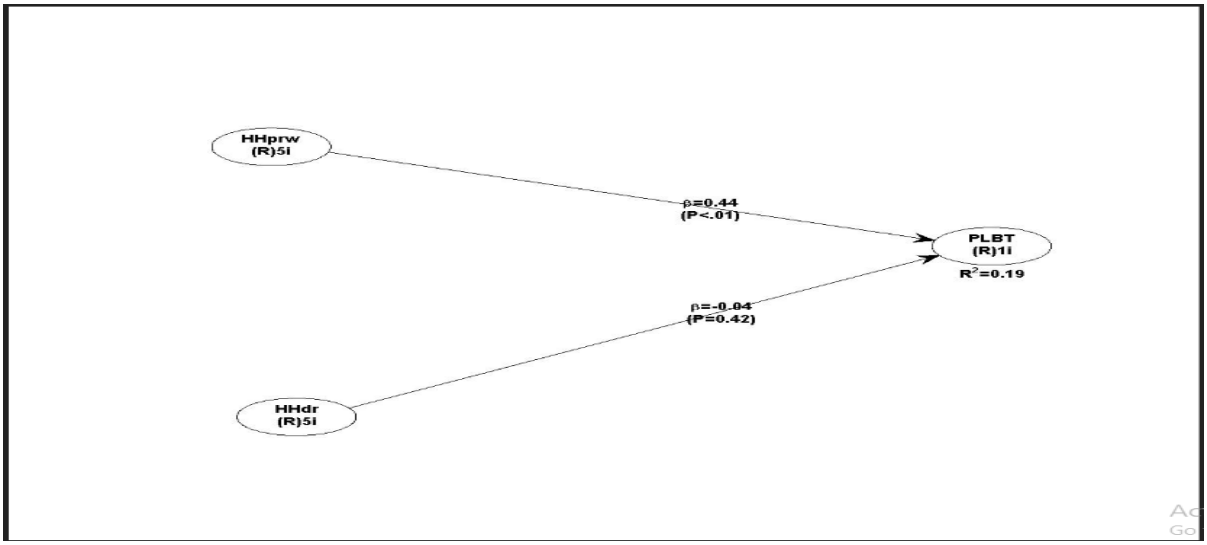

Figure 2: Goodness of fit model of relationship between Hand washing of health professionals and the incidence of phlebitis

Based on the picture above the results of testing the model of the relationship between the implementation of washing hands of nurses (X1) and doctors (X2) with the incidence of phleblitis (Y1) shows that there is a direct influence between the implementation of hand washing 5 moment 6 steps of nurses with the incidence of phlebitis with a path coefficient of 0.44. ($p < 0.01$) with the R-Square determinant above with the value of $R^2 = 0.19$ shows the effect of the implementation of nurse's hand washing (X1) contributed to the incidence of phlebitis (Y1) by 19%.

DISCUSSION

There is an identification of the biggest factor load on the implementation of nurses' hand washing occurred at 4th moment of 0.854, nurses washed their hands after making contact with patients. The most important thing in adherence shows that nurses are more concerned with and prioritize their own safety against infection compared to nurses' efforts to prevent and protect the occurrence of infections to patients characterized by loading factors compliance with hand-washing moment-1 with a loading factor of 0600 nurses washing their hands before contact with patient. This has the potential to transmit germs from one patient to another. In the identification of the doctor's hand washing, the biggest factor at moment 5 was 0.893, the doctor washed his hands after being exposed to the patient's environment. Prevention of self against germs or infections is still more important than the implementation of hand washing to protect infections for patients with the lowest loading factor of 0.437 moment-1.

The condition of the implementation of hand washing above is in accordance with the results of the research of the risk of transmission of infection from HWSs, is dependent on how individual components are integrated into the HWS; e how the HWS is integrated into the hospital environment; and correct construction, use (education), cleaning and maintenance (Weinbren 2018). Efforts to improve compliance with staff hand washing must be done to prevent the risk of transmitting germs according to the explanation that the education and training of staff is frequently cited as essential to the development and maintenance of hand hygiene compliance, which is often quoted as the single most effective measure to prevent Hospital Acquired Infection. (Cole 2006). The need to increase compliance with hand washing must be done through continuous education and training is the most commonly followed approach to increase awareness and improve HH compliance. (Laskar et al. 2018). Monitoring and evaluation by conducting quality audits carried out by the hospital's control and prevention committee must be carried out on an ongoing basis.

Based on the results of hypothesis testing, there is a significant relationship between the implementation of washing hands 5 moment 6 steps with the incidence of phlebitis. This clarifies previous research that washing hands plays a role in the transmission of infections in the health service, food industry and society [6]. In the implementation of hand washing doctor 5 there was no relationship with the incidence of phlebitis, because nurses had 24-hour more direct contact with patients compared to doctors so that the risk in contributing was higher. The result of the R-Square determinant above with the value of $R^2 = 0.19$ shows the effect of the implementation of the nurse's hand washing (X1) contributed to the incidence of phlebitis (Y1) by 19%. This is also supported by research on the presence of germs in nurses before and after hand washing [19] and because of the lack of nurses' attention to infusion care for patients [14,17]. The need for compliance with hand washing is done through strategies and efforts to increase compliance with hand washing in hospitals through education, training, motivation and the hospital's health service system [1,5,8,9].

In testing the equation model of the relationship between the implementation of hand washing 5 moment 6 steps

health workers with phlebitis incidents do not fit the expected model so that it cannot be used as a model reference. The main purpose of research is to identify the relationship of variables so that the model can be ignored.

CONCLUSION

There is a significant high effect on the implementation of nurses washing hands 5 moments 6 steps (X1) with the incidence of phlebitis with p value 0.007 R-Square determinant above with the value R^2 = 0.19. Future research needs to identify the factors that influence the compliance with the implementation of hand washing and the opportunity to wash hands 5 moments 6 steps.

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REFERNCES

1. Cole, Mark. 2006. "Using a Motivational Paradigm to Improve Hand washing Compliance." *Nurse Education in Practice* 6(3): 156–62.
2. Fernandes, Adji Achmad Rinaldo. *Metode Statistika Multivariat Pemodelan Persamaan Struktural (SEM) Pendekatan WarpPLS.* Universitas Brawijaya Press, 2017.
3. GROSS, BETHUEL. 1948. "Professional Status." *The Australasian Journal of Optometry* 31(6): 266–68.
4. Jannah, Ika Nur, Suhartono Suhartono, and Mateus Sakundarno Adi. "Prevalensi Phlebitis pada Pasien Rawat Inap dengan Infus di RSUD Tugurejo Semarang." *Jurnal Kesehatan Masyarakat (e-Journal)* 4.4 (2016): 943-949.
5. Jemal, Suoud. 2018. "Knowledge and Practices of Hand Washing among Health Professionals in Dubti Referral Hospital, Dubti, Afar, Northeast Ethiopia." *Advances in Preventive Medicine* 2018: 1–7.
6. Jumaa, P. A. 2005. "Hand Hygiene: Simple and Complex." *International Journal of Infectious Diseases* 9(1): 3–14.
7. Lal, Mohan. 2015. "Review Article Hand Hygiene – Effective Way To Prevent Infections." *International Journal of Current Research* 7(March): 1–3.
8. Laskar, Abdul Mannan et al. 2018. "A Multimodal Intervention to Improve Hand Hygiene Compliance in a Tertiary Care Center." *American Journal of Infection Control* 46(7): 775–80. https://doi.org/10.1016/j.ajic.2017.12.017.
9. Mathur, Purva. 2011. "Hand Hygiene: Back to the Basics of Infection Control." *Indian Journal of Medical Research* 134(11): 611–20.
10. Pires, D., and D. Pittet. 2017. "Hand Hygiene Mantra: Teach, Monitor, Improve, and Celebrate." *Journal of Hospital Infection* 95(4): 335–37. http://dx.doi.org/10.1016/j.jhin.2017.03.009.
11. Pittet, Didier. 2001. "Improving Adherence to Hand Hygiene Practice: A Multidisciplinary Approach." *Emerging Infectious Diseases* 7(2): 234–40.
12. Pittet, Didier, and Liam Donaldson. "Clean care is safer care: the first global challenge of the WHO World Alliance for Patient Safety." *Infection Control & Hospital Epidemiology* 26.11 (2005): 891-894.
13. Rocha, Lilian Alves, Maria José Nunes, and Paulo Pinto Gontijo Filho. "Low compliance to hand washing program and high nosocomial infection in a brazilian hospital." *Interdisciplinary perspectives on infectious diseases* 2012 (2012).
14. Rosa, Elsye Maria, and M. Kep. "SURVEILENS HAIs KEJADIAN ISK, IDO DAN PHLEBITIS DI RS. PANEMBAHAN SENOPATI BANTUL."
15. Rusmawati, Aprin, Dedi Eko Subekti, and Heri Saputro. "Effect Of Nursing Compliance In Washing Hand To Phlebitis Physical Events In Graha Room Hita Husada dr Iskak Tulungagung Hospital." *Journal Of Nursing Practice* 1.2 (2018): 60-65
16. Shojaei, Hasan, Jafar Shooshtaripoor, and Masoud Amiri. 2006. "Efficacy of Simple Hand-Washing in Reduction of Microbial Hand Contamination of Iranian Food Handlers." *Food Research International* 39(5): 525–29.
17. Saini, Ruchi, et al. "Epidemiology of infiltration and phlebitis." *Nursing and Midwifery Research Journal* 7.1 (2011).
18. Weinbren, M. J. 2018. "The Handwash Station: Friend or Fiend?" *Journal of Hospital Infection* 100(2): 159–64. https://doi.org/10.1016/j.jhin.2018.03.023.
19. Widodo, Dyah, Susi Milwati, and Diah Rika Qurotul. "Jumlah Koloni Bakteri Pada Telapak Tangan Perawat Yang Cuci Tangan Yang Melakukan Tindakan Medis Menggunakan Handscoon." *Jurnal Keperawatan Terapan (e-Journal)* 3.2 (2017): 70-79
20. World Health Organization. *Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level.* World Health Organization, 2016.