



Relationship Between Nurse Compliance and Implementation of Five Moments Hand Hygiene in Preventing HAIs at Pelamonia TK.II Hospital Makassar 2025

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Abstract:

Healthcare Associated Infections (HAIs) are infections acquired by patients during care in a healthcare facility that were neither present nor incubating at the time of admission. HAIs may also affect healthcare workers as a result of medical services. Nurses' compliance with the implementation of the Five Moments for Hand Hygiene is a key preventive measure against HAIs. At Pelamonia Hospital TK.II 14.05.01 Makassar, nurse compliance with hand hygiene protocols from 2022 to 2024 did not fully meet the quality indicator target of $\geq 85\%$. For instance, in February 2022, compliance rates in the operating room and maternity ward were below 85%, and in May 2022, the neonatal unit also fell below this standard. Objective: To determine the relationship between nurse compliance and the implementation of the Five Moments for Hand Hygiene in addressing HAIs at Pelamonia Hospital TK. II 14.05.01 Makassar. Methods: This study used a descriptive quantitative design with a cross-sectional approach. A total of 146 nurses were selected using a probability sampling method with stratified random sampling. Data were collected through questionnaires and analyzed using the Chi-square test in SPSS. Results and Conclusion: There was a significant relationship between nurse compliance and several variables: education ($p=0.000$), length of service ($p=0.000$), knowledge ($p=0.000$), attitude ($p=0.000$), and motivation ($p=0.000$) regarding the implementation of the Five Moments for Hand Hygiene in preventing HAIs. Recommendation: It is recommended that the hospital provide regular education and training for nurses on the Five Moments for Hand Hygiene to enhance compliance and reduce the risk of HAIs.

Keywords: Nurse Compliance, Five Moments for Hand Hygiene, Healthcare Associated Infections (HAIs), hospital N

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INTRODUCTION

Hand hygiene is an important part of the Infection Prevention and Control (PPI) program and is one of the indicators in the assessment of hospital accreditation. Good hand hygiene practices have been proven to be able to reduce the number of nosocomial infections by 20–40% (Anggraini & Pujilestari, 2024). However, the level of compliance of health workers, especially nurses, is still not optimal. Given that nurses have a high intensity of contact with patients, they play an important role in preventing the transmission of infections in the hospital environment (Metusalach et al., 2023).

Low compliance of nurses with the implementation of hand hygiene is one of the causes of the increased risk of Healthcare Associated Infections (HAIs). According to Shelemo (2023), hand hygiene aims to prevent cross-contamination between patients, health workers, and the surrounding environment. The low level of compliance can be caused by a lack of knowledge, awareness of risks, limited support facilities, and weak support from management and peers (Maryanti, 2014 in Santoso, 2019). Therefore, continuous supervision and evaluation of the implementation of Five Moments for Hand Hygiene is needed.

Kindergarten Hospital 14.05.01 Pelamonia Makassar is a military hospital under Kesdam XIV/Hasanuddin that serves soldiers, civil servants (PNS), families, and the general public. This hospital has class B status and has achieved SNARS Plenary Edition 1 accreditation in 2019. With a total of 229 implementing nurses spread across 14 rooms, Pelamonia Hospital is a referral center for the Eastern Indonesia region, so that the implementation of the PPI program, especially hand hygiene, is very crucial in maintaining the quality and safety of patients.

Data shows that the level of hand hygiene compliance at Pelamonia Hospital from 2022 to 2024 has fluctuated. In 2022, some units such as operating rooms (OKs), delivery rooms, and nursery still show compliance below the 85% standard. The years 2023 and 2024 show an increasing trend with an average achievement of above 90%, but not all installations have reached the quality target set by the Indonesian Minister of Health Regulation Number 30 of 2022. These fluctuations indicate the need for a thorough evaluation of compliance factors and the implementation of Five Moments for Hand Hygiene in the field.

Similar conditions also occur in several other hospitals, such as Cibabat Hospital in Cimahi City and X Hospital in Semarang, which have not reached the indicator of $\geq 85\%$. This shows that there is still a gap between policy and implementation on the ground. Based on this phenomenon, the researcher felt the need to conduct a more in-depth study through a study entitled "The Relationship between Compliance and the Application of Five Moment Hand Hygiene in Facing Healthcare Associated Infections (HAIs) at TK.II Hospital 14.05.01 Pelamonia Makassar." This research is expected to provide a scientific basis for improving the quality of services and the effectiveness of infection control programs in hospitals.

METHODS

In this study, a quantitative descriptive research strategy with cross-sectional was used. This research was carried out at the Kindergarten Hospital. II 14.05.01 Pelamonia which is located at Jalan Jenderal Sudirman No. 27, North Pisang Village, Ujung Pandang District, Makassar City, South Sulawesi Province. This research was carried out from April to May 2025. The population in this study is all implementing nurses in the inpatient inpatient establishment of the Kindergarten Hospital. II 14.05.01 Pelamonia Makassar with 229

respondents. The number of samples using the slovin formula was 146 implementing nurses. Data collection in this study consists of two types, namely primary data (distribution of questionnaires to implementing nurses hospital kindergarten II.14.05.01 pelamonia Makassar) and secondary data (hospital document TK II.14.05.01 Pelamonia Makassar). The data processing technique was carried out using the SPSS (Statistical Package for Social Science) for windows version 16.0 application. The stages of data processing in this study are carried out by means of Editing, Coding, Scoring, Data Entry, and Cleaning. The data analysis carried out in this study is Univariate Analysis and Bivariate Analysis. The presentation of data is done after the data is compiled and then it will be presented in the form of writing and distribution tables accompanied by explanations so that readers can easily understand.

RESULTS AND DISCUSSION

Table 1 Distribution of Respondent Characteristics Based on the Inpatient Nurse Room of TK.II Hospital 14.05.01 Pelamonia Makassar

Room	n	%
Sakura	53	36,2
Anyelir	10	6,9
Krisan	15	10,3
Cempaka	35	24,1
Melati	23	15,5
Mawar	10	6,9
Total	146	100,0

Table 1 above, the distribution of respondents based on the nurse room in the inpatient hospital of TK.II Hospital 14.05.01 Pelamonia Makassar from a total of 146 respondents shows that the most in the ICU Room as many as 20 (13.7%) respondents and the smallest in the seruni room as many as 7 (4.8%) respondents.

Table 2 Distribution of Respondent Characteristics by Gender of Nurses in Inpatient Hospital TK.II 14.05.01 Pelamonia Makassar

Gender	N	%
Man	20	13,7
Woman	126	86,3
Total	146	100,0

Based on table 2 above, the distribution of respondents based on the gender of nurses in the hospitalization of Pelamonia TK.II Hospital 14.05.01 Makassar out of a total of 146 respondents showed that the largest number of respondents were female as many as 126 (86.3%) respondents.

Table 3 Distribution of respondent characteristics based on the age of nurses in kindergarten hospital hospitals. II 14.05.01 Pelamonia Makassar

Age	n	%
< 30 yrs	11	7,5
30-35 yrs	36	24,7
36-40 yrs	59	40,4
41-45 yrs	27	18,5
46-50 yrs	11	7,5
>50 yrs	2	1,4
Total	146	100,0

Based on table 4. The above shows that of the 146 respondents, the most respondents aged 36-40 years, namely as many as 59 (40.4%), respondents while the smallest respondents over 50 years old, namely 2 (1.4%) respondents.

Table 4. Distribution of Respondent Characteristics Based on the Qualifications of Nurses in Hospitalization of TK.II Hospital 14.05.01 Pelamonia Makassar

Qualification	n	%
Military	10	6,8
PNS	25	17,1
P3K	21	14,4

Based on Table 5. Of the total 146 respondents, the majority had PHL qualifications as many as 90 respondents (61.6%), while the fewest respondents were respondents with military qualifications, namely 10 respondents (6.8%).

Table 5. Distribution of Respondent Characteristics Based on Nurse Education in Inpatient Hospital TK.II 14.05.01 Pelamonia Makassar

Education	N	%
S2	4	2,7
S1	58	39,7
D3	84	57,5
Total	128	100,0

Based on table 5 above, it shows that out of 146 respondents, the most respondents are D3 educated, which is as many as 84 (57.5%) respondents while the smallest respondents were S2 educated, which was 4 (2.7%) respondents

Table 6. Distribution of Respondent Characteristics Based on the Length of Time Nurses Worked in Inpatient Hospital TK.II 14.05.01 Pelamonia Makassar

Long Time Worker	n	%
1-5 yrs	19	13,0

6-10 yrs	36	24,7
11-15 yrs	50	34,2
16-20 yrs	22	15,2
>20 yrs	19	13,0
Total	146	100,0

Based on Table 6. Of the total 146 respondents, most of them had a working period of 11-15 years, namely 50 respondents (34.2%). Meanwhile, respondents with a working period of 1-5 years were the least, with 19 respondents (13.0%).

Table 7. Results of Respondent Distribution Based on Nurse Education in Kindergarten Hospitals 14.05.01_Makassar Pelamonia 2025.

Education	n	%
Good	109	74,7
Not Good	37	25,3
Total	146	100,0

Based on Table 8 above, it shows that out of 146 respondents, most respondents have the perception that the indicators of nursing education at the Hospital TK.II 14.05.01 Pelamonia Makassar 2025 are in the good category, namely as many as 109 respondents with a percentage (74.7%), while those who have the perception that the education indicators are still not good are 37 respondents with a percentage (25.3%).

Table 9. Results of Respondent Distribution Based on the Working Period of Nurses at TK.II Hospital 14.05.01 PelamoniaMakassar 2025.

Tenure	n	%
Good	109	74,7
Not Good	37	25,3
Total	146	100,0

Based on Table 9 above, it shows that of the 146 respondents, most respondents have the perception that the indicator of the working period of nurses at the TK.II Hospital 14.05.01 Pelamonia Makassar 2025 is in the good category, namely as many as 109 respondents with a percentage (74.7%), while those who have the perception that the indicator of the working period is still not good as many as 37 respondents with a percentage (25.3%).

Table 10. Results of Respondent Distribution Based on Nurses' Knowledge at TK.II Hospital 14.05.01 Pelamonia Makassar 2025.

Knowledge	n	%
Good	104	71,2
Not Good	42	28,8

Knowledge	n	%
Total	146	100,0

Based on Table 10. The above shows that out of 146 respondents, most of the respondents have the perception that the indicators of nurse knowledge at the TK.II 14.05.01 Pelamonia Makassar 2025 Hospital are in the good category, namely as many as 104 respondents with a percentage (84.9%), while those who have the perception that the knowledge indicators are still not good are 42 respondents with a percentage (28.8%).

Table 11. Results of Respondent Distribution Based on Nurses' Attitudes at Kindergarten Hospital, 14.05.01 Pelamonia Makassar, 2025.

Attitude	N	%
Good	108	74,0
Not Good	38	26,0
Total	146	100,0

Based on Table 10. The above shows that of the 146 respondents, most of the respondents have the perception that the attitude indicators of nurses at the TK.II Hospital 14.05.01 Pelamonia Makassar 2025 are in the good category, namely as many as 108 respondents with a percentage (74.0%), while those who have the perception that the attitude indicators are still not good are 38 respondents with a percentage (24.0%).

Table 11. Results of Respondent Distribution Based on Nurse Motivation at Kindergarten Hospital.II 14.05.01 Pelamonia Makassar 2025.

Motivation	n	%
Good	107	73,3
Not Good	39	26,7
Total	146	100,0

Based on Table 11. The above shows that out of 146 respondents, most of the respondents have the perception that the motivation indicators at the TK.II 14.05.01 Pelamonia Makassar 2025 Hospital are in the good category, namely as many as 107 respondents with a percentage (73.3%), while those who have the perception that the motivation indicators are still not good are 39 respondents with a percentage (26.7%).

Table 12. The results of the respondents' distribution were based on the application of *five moment hands.Hygiene* in Hospitals.TK.II 14.05.01 Pelamonia Makassar 2025.

Application	n	%
Effective	126	86,3
Less Effective	20	13,7
Total	146	100,0

Based on Table 12. The above shows that out of 146 respondents, most respondents have the perception that the Implementation of *Five Moment Hand Hygiene* at the TK.II 14.05.01 Pelamonia Makassar 2025 Hospital is in the effective category, namely as many as 126 respondents with a percentage (86.3%), while

those who have the perception that the Implementation of *Five Moment Hand Hygiene* is still less effective as many as 20 respondents with a percentage (13.7%).

Table 13. Relationships. Nurse Education with the Application of *Five Moment Hand Hygiene* in Dealing with Healthcare Associate Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar

Education	Application of <i>five moment hand hygiene</i>						P	
	Education	Application of <i>five moment hand hygiene</i>				Total		
		Effective		Less Effective		N		%
		n	%	n	%			
Good	102	93,6	7	5,9	109	0,0	0,00	
Not Good	24	64,9	13	35,1	37	0,0		
Total	126	63,0	20	3,7	146	0,0		

Based on table 13. The above shows that out of 146 respondents, 119 respondents have education in the good category, where there are 102 respondents with a percentage (93.6%) who have education in the effective category and 7 respondents with a percentage (5.9%) who have education in the less effective category for the implementation of *Five Moment Hand Hygiene*. Meanwhile, there were 37 respondents with education in the category that was still not good, of which 24 respondents with a percentage (64.9%) who had education in the effective category and 13 respondents with a percentage (35.1%) who had education in the category of less effective for the implementation of *Five Moment Hand Hygiene*.

Based on the results of the analysis that has been carried out using the *chi-square test*, a p-value of $0.000 < 0.05$ results can be concluded that H_a is accepted and H_0 is rejected, which means that there is a relationship of compliance with the application of *Five Moment Hand Hygiene* on educational indicators at Kindergarten Hospital, II, 14.05.01 Pelamonia.

Table 13. The Relationship "Nurses' Working Period and the Application of *Five*" Moment Hand Hygiene in Dealing with Healthcare Associate Infections (HAI's) of Nurses at TK.II Hospital 14.05.01 Pelamonia Makassar.

Working Period	Penerapan <i>Five Moment Hand Hygiene</i>						P	
	Working Period	Effective		Less Effective		Total		
		N	%	n	%	N		%
Good	103	94,5	6	5,9	109	0,0	0,00	
Not Good	24	64,9	13	35,1	37	0,0		

Not	2	62	1	37	3	2
Good	3	,2	4	,8	7	3
Total	1	86	2	13	1	1
	26	,3	0	,7	46	26

Based on table 14. The above shows that out of 146 respondents, 109 respondents have a working period in the old category, where there are 103 respondents with a percentage (94.5%) who have a working period in the effective category and 6 respondents with a percentage (5.5%) who have a working period in the less effective category for the implementation of *Five Moment Hand Hygiene*. Meanwhile, there were 37 respondents with a working period in the category of not being long, where 23 respondents with a percentage (62.2%) who had a working period in the effective category and 14 respondents with a percentage (37.8%) who had a working period in the category of less effective on the implementation of *Five Moment Hand Hygiene*.

Based on the results of the analysis that has been carried out using the *chi-square* test, a *p-value* of 0.000 < 0.05 results can be concluded that H_a was accepted and H_o was rejected, which means that there is a relationship of compliance with the application of *Five Moment Hand Hygiene* on the indicator of working time at the Kindergarten II Hospital 14.05.01 Pelamonia.

Table 14 The Relationship of Nurse Knowledge with the Application of *Five Moment Hand Hygiene* in Dealing with *Healthcare Associate Infections (HAI's)* of Nurses at TK.II Hospital 14.05.01 Pelamonia Makassar.

Knowledge	Patient Satisfaction						P
	Effective		Less Effective		Total		
	n	%	n	%	N	%	
Good	1	9	3	2,	1	10	0,0
	01	7,1	9	04	0,0		
Not Good	2	5	1	4	4	10	0,0
	5	9,5	7	0,5	2	0,0	00
Total	1	8	2	1	1	10	
	26	6,3	0	3,7	46	0,0	

Based on table 14. The above shows that out of 146 respondents, 104 respondents have nursing knowledge in the good category, where there are 101 respondents with a percentage (97.1%) who have knowledge in the effective category and 3 respondents with a percentage (2.9%) who have knowledge in the less effective category for the implementation of *Five Moment Hand Hygiene*. Meanwhile, there are 42 respondents with knowledge in the category that is still not good, of which 25 respondents with a percentage (59.5%) who have knowledge in the effective category and 17 respondents with a percentage (40.5%) who have knowledge in the category of less effective on the implementation of *Five Moment Hand Hygiene*.

Based on the results of the analysis that has been carried out using *the chi-square test* , a *p-value* of 0.000 < 0.05 can be concluded that H_a is accepted and H_o is rejected which means that there is a relationship of compliance with the application of *Five Moment Hand Hygiene* on the knowledge indicator at the Kindergarten Hospital.II 14.05.01 Pelamonia

Table 15. The Relationship between Nurses' Attitudes and the Application of *Five Moments*" Hand Hygiene in Dealing with *Healthcare Associate Infections* (HAI's) Nurses at Rumah Sakt TK.II 14.05.01 Pelamonia Makassar.

Attitude	Penerapan <i>five moment hand hygiene</i>				Total		P
	Effective		Less Effective		N	%	
	n	%	n	%			
Good	103	95,4	5	4,6	108	100	0,00
Not Good	23	60,5	15	39,5	38	100	
Total	126	86,0	22	13,7	148	100	

Based on table 16. The above shows that out of 146 respondents, 108 respondents have attitudes in the good category where there are 103 respondents with a percentage (95.4%) who have an attitude in the effective category and 5 respondents with a percentage (4.6%) who have attitudes in the less effective category towards the implementation of *Five Moment Hand Hygiene*. Meanwhile, there were 38 respondents with an attitude in the category that was still not good, where 23 respondents with a percentage (60.5%) who had an attitude in the effective category and 15 respondents with a percentage (39.5%) who had an attitude in the category of less effective towards the implementation of *Five Moment Hand Hygiene*.

Based on the results of the analysis that has been carried out using *the chi-square test* , a *p-value* of 0.000 < 0.05 can be concluded that H_a is accepted and H_o is rejected which means that there is a relationship of compliance with the application of *Five Moment Hand Hygiene* on attitude indicators at Kindergarten Hospital.II 14.05.01 Pelamonia

Table 16. The Relationship of Nurse Motivation with the Application of *Five Moment Hand Hygiene* in Facing *Healthcare Associate Infections* (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar.

Motivation	Penerapan <i>five moment hand hygiene</i>				Total		P
	Effective		Less Effective		N	%	
	n	%	n	%			
High	103	95,4	5	4,6	108	100	0,00
Low	23	60,5	15	39,5	38	100	
Total	126	86,0	22	13,7	148	100	

		1	9	4	3,	1	10	
Good	03	6,3		7	07	0,0		
Not		2	5	1	4	3	10	0,0
Good	3	9,0	6	1,0	9	0,0	00	
Total		1	8	2	1	1	10	
	26	6,3	0	3,7	46	0,0		

Based on table 16. The above shows that out of 146 respondents, 107 respondents have motivation in the good category where there are 103 respondents with a percentage (96.3%) who have motivation in the effective category and 4 respondents with a percentage (3.7%) who have motivation in the less effective category for the implementation of *Five Moment Hand Hygiene*. Meanwhile, there were 39 respondents with motivation in the category that was still not good, where 23 respondents with a percentage (60.5%) who had motivation in the effective category and 16 respondents with a percentage (41.0%) who had motivation in the category of less effective for the implementation of *Five Moment Hand Hygiene*.

Based on the results of the analysis that has been carried out using *the chi-square test*, a *p-value* of 0.000 < 0.05 results can be concluded that H_a is accepted and H_0 is rejected, which means that there is a relationship between compliance and the application of *Five Moment Hand Hygiene* on motivation indicators at Kindergarten II Hospital 14.05.01 Pelamonia.

DISCUSSION

The relationship between nurse education and the Application of Five Moment Hand Hygiene in Facing Healthcare Associate Infections (HAI) at TK.II Hospital 14.05.01 Pelamonia Makassar.

The level of education affects a person's performance. Highly educated people are generally considered to have the knowledge and abilities needed to complete the job quickly and successfully. In the context of nursing, nurse education also determines the quality of their performance. Highly educated nurses often perform better in the workplace because they have more comprehensive knowledge and insight and can provide helpful advice to nursing management to improve the standard of nursing services. (Gibson, 2003 in (Pratiwi, 2022). Health education plays a role in increasing knowledge, and knowledge itself is an important aspect that has a great influence on shaping open behavior or overt behavior someone (Setiawan & Dewi, 2022).

The results of the bivariate test showed that the number of 109 respondents who had education in the good category on the application of five moment hand hygiene in dealing with Healthcare Associate Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar, where there were 102 respondents who were effective in the implementation of five moments because nurses had received sufficient education to apply and understand the relationship between Hand Hygiene with Prevention of Healthcare Associated Infections (HAI's), this can reduce the occurrence of Healthcare Associated Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar. However, there are still 7 respondents with a percentage (5.9%) who are still less

effective in terms of implementing hand hygiene due to the lack of awareness of respondents about the importance of hand hygiene applied every time they carry out measures on patients, this can endanger patients because it can result in Healthcare Associated Infections (HAI's).

Meanwhile, 37 respondents had answers regarding nurse compliance judging from the Education indicator in the category of not good on the implementation of five moment hand hygiene in dealing with Healthcare Associate Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar, where 13 respondents were less effective in the implementation of hand hygiene. Because a small number of respondents do not agree with the existence of informal education, it can strengthen a positive attitude towards the implementation of five moments hand hygiene. However, among the respondents who were categorized as poor, there were 24 respondents who were effective in terms of the implementation of hand hygiene because the nurse had gained enough experience to understand the importance of hand hygiene applied.

The results of this study are in line with the research conducted by Setiawan & Dewi (2022) showing that there is a significant influence between health education provided by nurses on the accuracy of patients in performing Handwashing with Soap (CTPS), with the value of p value by 0.001 which is smaller than 0.05. These findings are consistent with the research of Yanto (2022), which examined how health education affects six handwashing processes followed by patients' families in the inpatient ward of Roemani Hospital, Semarang. With a value of $p < 0.000$, or less than 0.05, the intervention group showed substantial results after the health education intervention. This research is also in line with Ayuningtyas et al., (2021) which shows that there is a meaningful relationship between handwashing education and handwashing behavior in the patient's family, with a value of 0.046.

The Relationship between Nurses' Working Period and the Application of Five Moment Hand Hygiene in Dealing with Healthcare Associate Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar.

The length of service refers to the duration of a person doing a certain job. Nurses with longer working hours are generally considered to have more extensive experience and occupy senior positions. There is a positive relationship between seniority and work productivity. Nurses who have worked for a long time tend to be more skilled in carrying out their duties and have a lower tendency to leave their jobs (Pratiwi, 2022). In addition, length of service also reflects loyalty to the organization – the longer a person works, the higher the level of loyalty to the institution where he works (Santoso, 2019).

five moments because based on clinical experience in the field, nurses are able to improve and apply Five Moment Hand Hygiene skills. The results of the bivariate test show that the total number of 109 respondents' answers regarding nurse compliance is seen from the indicators of service life in the good category of the application of Five Moment Hand Hygiene in dealing with Healthcare Associate Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar, where there were 103 respondents who were effective in the application of Healthcare Associate Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar, this can reduce the occurrence of Health Care Associate Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar. However, there are still 6 respondents who are still less effective in terms of the implementation of

hand hygiene due to the high workload so that nurses find it difficult to carry out all stages of five moment hand hygiene which are more likely to prioritize hand hygiene after carrying out medical measures on patients and neglecting hand hygiene before carrying out medical measures on the patient first. This can harm patients as it can result in Healthcare Associated Infections (HAI's).

Meanwhile, 37 respondents' answers regarding nurse compliance were seen from the indicators of service period in the category of not good for the implementation of Five Moment Hand Hygiene in dealing with Healthcare Associate Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar, where there were 14 respondents who were still not very aware of the stages of hand hygiene. Due to the short working period this can endanger patients because it can result in Healthcare Associated Infections (HAI's). However, among the respondents who were in the poor category, there were still 23 respondents who were effective in terms of the implementation of hand hygiene due to the high awareness of nurses about the importance of hand hygiene before and after contact with patients or objects around the patient.

This research is in line with the research of Shanty et., al. (2021) found a substantial correlation between length of service and compliance level, shown by a p value of 0.023 ($p < 0.05$). Also in line with the research of Saragih & Rumapea (2015) found that nurses with a working period of more than five years had the best compliance rates compared to nurses with shorter working periods.

This study also supports the results of Kurniasari & Ilham's (2023) research which found a p value of < 0.05 which means that H_0 was rejected, with the results of a statistical test of $p = 0.003$ and a confidence level of 95% ($\alpha = 0.05$). This means that there is a significant relationship between work experience and the level of compliance in the implementation of Five Moments for Hand Hygiene in the Maternity Room of I Lagaligo Hospital, Wotu District, East Luwu Regency.

The conclusion of this study is different from the research of Sianturi (2018) which found no significant relationship between respondents' compliance with the implementation of hand hygiene and length of service. This is shown by a p-value of 0.074 which is greater than $\alpha = 0.05$, so there is no statistically significant relationship between the two variables.

The relationship between nurse knowledge and the Application of Five Moment Hand Hygiene in Dealing with Healthcare Associate Infections (HAI's) in Kindergarten Hospitals. II.14.05.01 Pelamonia Makassar.

The level of knowledge and understanding of nurses about hand hygiene and its benefits plays an important role in determining the level of compliance in nursing practice. Therefore, understanding hand hygiene is essential for health workers and other health service facilities, because it functions to prevent the transmission of infections experienced in hospitals. Infection control itself is the first step in realizing quality health services. Nurses' knowledge can grow along with hospitals' efforts to increase the capacity of nursing staff through ongoing training and education. One of the important aspects of infection prevention that needs to be emphasized is the application of hand washing (R. Wulandari, 2017). Knowledge is an individual's understanding of duties and responsibilities in a profession. In the context of nursing, knowledge has to do

with understanding the rules, procedures, and technical skills. This knowledge includes the ability to use information, materials, tools, and techniques appropriately, so that nursing personnel can keep up with the latest developments in their fields, both in terms of regulations, procedures, and technology used (Pancaningrum, 2011).

The results of the bivariate test showed that 104 respondents' answers regarding nurse compliance were seen from the Knowledge indicator in the good category towards the application of Five Moment Hand Hygiene in dealing with Healthcare Associate Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar, where 101 respondents were effective in the implementation of five moments. Because nurses are already able to identify clinical situations that require the strict and thorough implementation of hand hygiene, and also nurses have gained a lot of knowledge and support from management on how to apply the Five Moments correctly and in accordance with the rules, this can reduce the occurrence of Healthcare Associate Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar. But there are still 3 respondents who are still less effective in terms of implementing hand hygiene. This is caused by some nurses who still ignore hand hygiene after contact with low-risk patients, such as conducting blood pressure checks and helping with weight weighing. Further, nurses also neglect hand hygiene after handling equipment related to the patient's environment, such as medical records. This can harm patients as it can result in Healthcare Associated Infections (HAI's).

Meanwhile, 42 respondents' answers regarding nurse compliance were seen from the indicator of knowledge in the category of not good on the implementation of Five Moment Hand Hygiene in dealing with Healthcare Associate Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar, where there were 17 respondents who were less effective in the implementation of hand hygiene due to the lack of respondents' understanding that the implementation of five moments must be done even in emergency situations, this can harm patients because it can result in Healthcare Associate Infections (HAI's). However, among the respondents who are in the poor category, there are still 25 respondents who are effective in terms of the implementation of hand hygiene due to the supervision and support from management so that they can always carry out hand hygiene before carrying out actions.

The results of this study are consistent with the research of Sari (2017) which shows a relationship between the knowledge of health workers and the practice of Five Moments of Hand Hygiene. An alternative hypothesis is acceptable and the null hypothesis is rejected because the results of statistical tests show a p-value of 0.003, which is smaller than 0.05. Therefore, it can be said that the knowledge of health workers and hand hygiene practices at PKU Muhammadiyah Gamping Hospital have a substantial relationship, with a fairly strong correlation. In addition, these results are also supported by research by Haloho et al. (2023) which showed a p-value of < 0.001 , indicating a relationship between knowledge about hand washing and nurses' adherence to five moments hand hygiene. The correlation coefficient of 0.609 and the significance value (2-tailed) of 0.00 further support the idea that nurses' adherence to the five moments of hand hygiene is influenced by handwashing knowledge.

This study is also in line with the study conducted by Loho et al. (2020), which through statistical analysis using the chi-square (χ^2) test at a significance level of 95% ($\alpha = 0.05$), obtained a p-value of 0.003. These results show that the alternative hypothesis (H_a) is accepted, thus it can be said that in the Melati A and B Inpatient Rooms of the Kotamobagu City Hospital there is a considerable relationship between attitudes and knowledge about the use of handrubs for hand hygiene.

The results of this study are not in line with the research conducted by Ratnawati & Sianturi (2018), which showed that there was no significant relationship between knowledge and the level of compliance of nurses in implementing hand hygiene, with a p-value of 0.537 which is greater than the significance level of 0.05 ($\alpha = 0.05$).

The relationship between nurses' attitudes and the application of Five Moment Hand Hygiene in Facing Healthcare Associate Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar.

Attitude is a mental state that is formed through experience and affects how a person responds in an interaction. Because the attitude is flexible and adaptable, it has a significant impact on work behavior in the context of nursing services. Attitude can also be understood as a person's internal tendency to respond to an object in his environment, as a form of appreciation for that object. Attitude is a form of response or internal judgment of a person that is hidden and can affect his tendency to do or not do a behavior. Meanwhile, action is a person's real response to a stimulus. If a person has a positive attitude towards a behavior, then the tendency to do that action will be higher (Wawan, 2010).

The results of the analysis show that the total number of respondents is the majority of respondents' answers regarding nurse compliance seen from the indicator of Attitude in the good category towards the application of Five Moment Hand Hygiene in dealing with Healthcare Associate Infections (HAI's) at T.II Hospital 14.05.01 Pelmonia Makassar, because nurses already feel that they have a responsibility to maintain hand hygiene and support from colleagues in the prevention of Healthcare Associate Infections (HAI's) numbers at Rumah Saki TK.II 14.05.01 Pelamonia Makassar. But there are still a number of respondents who have not implemented hand hygiene effectively. This is due to various factors, such as the high workload, the large number of patients that must be handled, and the tendency to prioritize service to patients rather than performing hand hygiene procedures consistently.

Meanwhile, a small number of respondents had answers regarding nurse compliance as seen from the indicator of Attitude in the category of not good towards the implementation of Five Moment Hand Hygiene in dealing with Healthcare Associate Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar, because some respondents did not feel that there was support with colleagues to make it easier to maintain hand hygiene, and remind and obey each other together. this can harm patients as it can result in Healthcare Associated Infections (HAI's). However, among respondents who are categorized as poor, there are still those who are effective in terms of the implementation of hand hygiene, because nurses realize that not complying with hand hygiene can endanger patients and themselves

The findings of Saragih and Rumapea (2015) are consistent with the results of this study. Data analysis using the chi-square test yielded a p-value of 0.000—less than 0.05. Based on this study, the attitude and compliance of nurses with the implementation of hand hygiene in the inpatient ward of Dr. A. Dadi Tjokrodipo Hospital, Bandar Lampung City in 2019 was significantly correlated. This study is also in line with the results of a study conducted by Octa (2019), where the analysis showed a significance value of $p = 0.013$, which is below the significance threshold of 0.05. This indicates a meaningful relationship between handwashing attitudes and behaviors. These findings are supported by the research of Jelantik and Astarini (2014), which also showed a significant relationship between attitude and handwashing actions, with a p value of 0.009.

The results of this study are not in line with the findings stated by Ratnawati and Sianturi (2018), which show that although most of the respondents have a positive attitude and the level of compliance in implementing hand hygiene reaches 95.1%, the p-value obtained is 0.378 (greater than $\alpha = 0.05$). These results showed that respondents' opinions and their level of hand hygiene compliance were not significantly correlated. The possible cause is the lack of knowledge of respondents about the importance of correct hand hygiene practices.

The relationship between nurse motivation and the Application of Five Moment Hand Hygiene in Facing Healthcare Associate Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar.

Motivation is a factor that encourages, directs, and strengthens a person's behavior to be willing to work with enthusiasm and dedication to achieve maximum results. In the context of nursing, motivation becomes increasingly important because managers are in charge of dividing tasks to staff so that they are carried out effectively and in harmony with organizational goals. However, challenges arise because the ability of leaders to motivate nurses varies greatly, depending on the capabilities of each individual. This phenomenon can be observed in a nursing unit, where there are nurses who show a high work ethic, diligence, and are able to complete their duties and responsibilities in providing optimal nursing care. On the other hand, there are also nurses who are less motivated, showing a lack of work morale, which has an impact on low productivity (Andriani, 2015).

The results of the analysis show that the overall number of respondents is the majority of respondents' answers regarding nurse compliance seen from the Motivation indicator in the good category towards the implementation of Five Moment Hand Hygiene in dealing with Healthcare Associate Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar, due to the implementation of five moments It is getting easier, there are already adequate facilities in the hospital such as soap, antiseptics and sinks. However, there are still respondents who are still less effective in terms of the implementation of hand hygiene due to the lack of awareness of respondents to implement hand hygiene after and before carrying out actions, In addition, the lack of supervision from the hospital is also a factor that underlies the low compliance of nurses with the implementation of hand washing. Many nurses do not wash their hands when they finish providing nursing

care because there is no reprimand from their superiors or hospital management. In fact, sanctions for nurses who do not carry out hand hygiene have also not been strictly enforced.

Meanwhile, a small number of respondents had an answer regarding nurse compliance as seen from the Motivation indicator in the category of not good for the implementation of Five Moment Hand Hygiene in dealing with Healthcare Associate Infections (HAI's) at the Kindergarten Hospital 14.05.01 Pelamonia Makassar, because there was no mutual concern between nurses to maintain hand hygiene at every moment. However, among the respondents who are categorized as poor, there are still those who are effective in terms of the implementation of hand hygiene due to the habit of nurses who always routinely apply hand washing after and before performing medical procedures.

The findings of this study are consistent with Andriani's (2015) research entitled "Motivation and Behavior of Nurses in Preventing Nosocomial Phlebitis Infection in the Operating Room of Adi Husada Hospital". With a correlation value of $r = 0.857$ and a p value of 0.01 ($\alpha < 0.05$), the findings of this study show a strong relationship between motivation and nurse behavior in reducing nosocomial phlebitis infection during infusion installation. These findings indicate that the higher the level of motivation of nurses, the better their behavior in preventing plebitis infection.

In addition, researchers Saragih and Rumapea (2015) presented the results of their research entitled "The Relationship between Motivation and Attitude with Nurse Compliance in the Implementation of Hand Hygiene in the Inpatient Room of the Dr. A. Dadi Tjokrodipo Regional General Hospital, Bandar Lampung City." Based on data analysis using the chi-square test, a p value of 0.004 ($p < 0.05$) was found, which showed a significant relationship between nurses' compliance with the implementation of hand hygiene in hospital inpatient wards and motivation.

The findings of this study contradict the research of Aeni et., al (2022) which did not find a correlation between nurses' compliance and motivation in the implementation of hand hygiene at the Indramayu Regency Hospital in 2019 based on the results of a statistical test using chi-square.

CONCLUSIONS

Based on the results of the study, conclusions can be drawn from the results of the research and discussions that have been found previously, conclusions can be drawn from the overall results and in determining the sample using non-probability sampling, the conclusion from this study can be obtained, namely there is a relationship between nurse education and the application of Five Moment Hand Hygiene in dealing with Healthcare Associate Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar; there is a relationship between the working period of nurses and the Application of Five Moment Hand Hygiene in the face of Healthcare Associate Infections (HAI's) at the Hospital TK.II 14.05.01 Pelamonia Makassar; there is a relationship between the knowledge of nurses and the Application of Five Moment Hand Hygiene in dealing with Healthcare Associate Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar; there is a relationship between nurses' attitudes and the Application of Five Moment Hand Hygiene in dealing with Healthcare Associate Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar; there is a relationship

between nurses' motivation and the Application of Five Moment Hand Hygiene in dealing with Healthcare Associate Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar;

The suggestion from this study is that hospitals should further improve education and training periodically, to increase nurses' compliance with Five Moment Hand Hygiene in dealing with Healthcare Associate Infections (HAI's) at TK.II Hospital 14.05.01 Pelamonia Makassar; the hospital should monitor nurses with short working periods more often so that they always apply Five Moment Hand Hygiene in handling Health Associate Infections (HAIs) at Class II Hospital 14.05.01 Pelamonia Makassar; In an effort to overcome Health Service-Related Infections, the hospital is more proactive in improving, reviewing, and strengthening the understanding of all nurses about the Five Moments of Hand Hygiene at Class II Hospital 14.05.01 Pelamonia Makassar; to foster a positive attitude among nurses in implementing Five-Moment Hand Hygiene to overcome Healthcare Associate Infections (HAIs) in hospitals, hospitals must implement a comprehensive and consistent strategy; Hospitals should use an educational approach by rewarding nurses who have successfully implemented the practice. This will increase the desire of nurses to apply Five Moment Hand Hygiene in handling Health Service Associate Infections (HAIs).

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