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Research Article

The Impact of Patient Safety Culture Training Program in the Inpatient Room of Banda Aceh General Hospital

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Abstract: The complexity associated with the patient's condition during the treatment process in the inpatient room makes them vulnerable to dangerous incidence. Therefore, productive safety culture is needed to reduce these complications with fewer side effects. This research therefore aims to determine the effect of the patient safety culture training program in Banda Aceh General Hospital (RSUD). This is a quasi-experimental research that uses the one-group pretest-posttest design. Data were obtained from a total of 55 nurses from the Neurology inpatient room using questionnaires on Survey Hospital On Patient Safety Culture (HSOPSC), before and after the training program. The obtained data were analyzed using descriptive statistics, Wilcoxon signed-rank test and paired t-test. The results showed an increase in nurses' perceptions of the 12 dimensions of patient safety culture before and after the training program (p-value = 0,000). In addition, for each dimension, there is an increase in teamwork with a p-value of 0,000 for manager's expectations, actions, support for patient safety, open communication, teamwork, staffing, handoffs/transitions, and non-punitive responses to errors. The feedback and communication errors had a p-value of 0.001, while the organizational learning and continuous improvement is 0.002), with a frequency of reported incidents at 0.003. In conclusion, the provision of training programs has the ability to improve the overall perception of patient safety culture. However, additional actions are needed, such as reporting incidents and non-punitive responses.

Keywords: culture, patient safety

INTRODUCTION

Patient safety culture is a product of individual and group values, attitudes, perceptions, competencies, and behavioral patterns used to determine the commitment, style and proficiency of a health organization (WHO, 2009). This culture arises from shared assumptions, values, and norms among members of an organization, units or teams relating to practices that directly or indirectly affect patient safety (Waterson (2014), and Danielsson (2018)).

The safety culture in a hospital is termed a collaborative environment when clinical staffs treat each other respectfully, and always provide adequate care to patients (Hospital Accreditation Committee (KARS), 2017). Efforts to implement patient safety culture are strongly influenced by the knowledge possessed by health workers, especially nurses, which tends to last long. Therefore, nurses need to possess the right knowledge, skills, and attitudes to deal with the complexity of health services (Sharon Myers, 2012).

The research on the provision of educational interventions conducted by Edwards (2008) found a statistically positive increase in the six dimensions of the Hospital Survey On Patient Safety Culture (HSOPSC). Wong (2016), analyzed the impact of a 3-hour educational course that focused on teamwork and communication strategies on patient safety culture and observed a significant improvement in nurses' attitudes in the Emergency Department. Further studies at five small hospitals found that educational interventions with patient safety culture training programs to Nurse Managers found positive improvements using the Hospital Survey On Patient Safety Culture (HSOPSC) questionnaire. Therefore, providing educational interventions on patient safety to staff improves their safety culture in the health care system (Xie *et al.*,, 2017).

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Banda Aceh General Hospital has conducted internal socialization related to patient safety in order to increase the involvement and awareness of nurses in implementing safety programs. However, training associated with patient safety culture has never been carried out, thereby, leading to the inability of nurses to build commitment with varying understanding and perceptions. The role of nurses in the implementation of patient safety culture in the Banda Aceh General Hospital is poor, as seen from the monthly report analysis presented by the chair of the Patient Quality and Safety Committee. Due to its poor performance, adequate measures need to be obtained to increase the role of nurses by providing a comprehensive and continuous training education program.

RESEARCH METHODS

This is a quantitative research of the Quasi Experiment type, which uses the one-group pretest-posttest design approach to measure the impact of the safety culture training provided to nurses.

Data were obtained from a total of 55 nurses in the Neurology inpatient room consisting of Mina 1 and 2 rooms in the Banda Aceh General Hospital using the HSOPSC questionnaire. The purposive sampling technique was used to determine the educational background of nurses with a minimum of 1 year service period. Data collection in this The following analyzes were used (a) normality test for 12 dimensions of patient safety culture with the *Kolmogorof Smirnov* and *Shapiro Wilk*, (b) Univariate analysis for demographic data, and (c) Bivariate analysis using the *Wilcoxon Signed Rank Test* and the *Paired t-test*-.

RESULTS

Table 1. Characteristics of Respondents (n = 55)

o	Demographic Data	Frequency	Percentage
	Age :		
	23	2	3,6
	24	2	3,6
	26	8	14,5
	27	9	16,4
	28	13	23,6
	30	3	5,5
1	32	5	9,1
	33	1	1,8
	35	4	7,3
	36	4	7,3
	39	1	1,8
	40	1	1,8
	44	1	1,8
	51	1	1,8
	Gender :		
2	Male	13	23,6
	Female	42	76,4
	Marital Status		
3	Married	30	54,5
	Single	25	45,5
	Last education:		
4	Diploma III	37	67,3
	Bachelor + Nurse (*Ners*)	18	32,7
	Employment status:		
5	Civil Servants (ASN)	8	14,5
	Contract	47	85,5
	Work experience		
	1-3 years	34	61,8
6	3,1 – 5 years	11	20,0
	5,1 – 10 years	4	7,3
	> 10 years	6	10,9
	Current Position:		
	Ward Chief	2	3,6
7	Deputy Chief of Ward	2	3,6
	Team Leader	6	10,9
	Executive Nurse	45	81,8
	Work Unit :		
8	Mina 1	27	49,1
	Mina 2	28	50,9

Analysis of the respondents' characteristics showed that a total of 13 (23.6%) nurses aged 28 years, with 42 females (76.4%), and 30 married (54.5%). The most dominant education was Diploma III with 37 nurses (67.3%), employment status was mostly contracted by 47 nurses (85.5%), work experience in the category of 1-3 years was 34 nurses (61.8%).

1. Bivariate Analysis

a. Pretest and posttest of Nurse's Perception of Patient Safety Culture.

Table 2: Distribution of Pretest and Posttest Nurse Perceptions on the 12 Dimensions of Patient Safety Culture (n=55)

No	Perception of Patient Safety Culture Dimensions	Pretest		*Postest*			
		Mean	**Mean Rank**	***Mean***	***Mean Rank***	***Z***	***p-value***
1.	Teamwork within Units	13,38	18,18	14,73	19,61	-4,653	0,000
2.	Expectations and actions of the supervisor	13,15	10,17	13,80	16,83	-3,603	0,000
3.	Learning Organization	9,35	18,67	*9,93*	*16,63*	*-3,076*	*0,002*
4.	Management Support	9,22	31,00	*10,25*	*17,62*	*-4,728*	*0,000*
5.	Overall perception of patient safety	11,80	6,50	*12,96*	*18,70*	*-5,021*	*0,000*
6.	Feedback and Communication	9,47	16,25	*10,11*	*17,17*	*-3,354*	*0,001*
7.	Open Communication	8,93	0,00	*10,38*	*23,00*	*-5,941*	*0,000*
8.	Frequency of Incident Report	8,29	21,86	*9,36*	*18,33*	*-3,014*	*0,003*
9.	Inter-Unit Cooperation	11,64	0,00	*13,67*	*23,00*	*-5,884*	*0,000*
10.	Staffing	8,31	12,84	*10,47*	*25,63*	*-5,186*	*0,000*
11.	Handoffs and Transitions	11,04	23,38	*12,58*	*21,30*	*-4,509*	*0,000*
12.	Non-Punitive Response	7,11	9,25	9,95	27,19	-6,136	0,000

Based on Table 2, it is concluded that nurses' perceptions of patient safety culture from the dimensions of teamwork within units have an average pretest and protest scores of 13.38 and 14.73, respectively. The value of the statistical test results at α = 0.05 obtained a Z-value of -4.653 and a p-value of 0.000. Therefore, the null hypothesis (Ho) was rejected, which means there are differences in nurses' perceptions of patient safety culture before and after training.

Subsequently, the actions and expectations of supervisors in promoting patient safety have an average pretest and protest scores of 13.15 and 13.80, respectively. The statistical test results at α = 0.05 obtained Z-value of -3.603 and p-value 0,000, therefore, in conclusion, the null hypothesis (Ho) was rejected, which means there are differences in nurses' perceptions on patient safety culture before and after training.

The organizational learning has an average pretest and protest scores of 9.35 and 9.93, respectively. The statistical test results at α = 0.05 obtained the Z value of -3.076 and the p-value of 0.002. Therefore, in conclusion, the null hypothesis (Ho) was rejected, which means there are differences in nurses' perceptions of patient safety culture before and after training.

The management support for patient safety has an average pretest and posttest scores of 9.22 and 10.25, respectively. The value of the statistical test results at α = 0.05 obtained the Z value of -4.728 and p-value of 0,000. Therefore, it is concluded that the null hypothesis (Ho) was rejected, which means there are differences in nurses' perceptions about patient safety culture before and after training.

The overall perception of patient safety has an average pretest and posttest scores of 11.80 and 12.96, respectively. The value of the statistical test results at α = 0.05 obtained Z and p values of -5.021 and 0,000. Therefore, in conclusion, the null hypothesis (Ho) is rejected, which means that there are differences in nurses' perceptions of patient safety culture before and after training.

The feedback and communication errors have an average pretest and posttest scores of 9.47 and 10.11, respectively. The value of the statistical test results at α = 0.05 obtained the Z value of -3,354 and p-value of 0,000. Therefore, in conclusion, the null hypothesis (Ho) was rejected, which means that there are differences in nurses' perceptions of patient safety culture before and after training.

The open communication has an average pretest and posttest scores of 8.93 and 10.38. In addition, the value of the statistical test results at α = 0.05 obtained the Z-value of -5.941 and p-value of 0,000. Therefore, in conclusion, the null hypothesis (Ho) was rejected, which means there are differences in nurses' perceptions of patient safety culture before and after training.

The frequency of incident reports has an average pretest and posttest scores of 8.29 and 9.36, respectively. Therefore, the value of the statistical test results at $\alpha = 0.05$ obtained the Z-value of -3.014 and p-value of 0.003. In conclusion, the null hypothesis (Ho) was rejected, which means that there are differences in nurses' perceptions of patient safety culture before and after training.

The dimensions of teamwork within units have an average pretest and posttest scores of 11.64 and 13.67, respectively. The value of the statistical test results at $\alpha = 0.05$, obtained a Z-value of -5.884, and a p-value of 0.000. Therefore, it is concluded that the null hypothesis (Ho) was rejected, which means there are differences in nurses' perceptions of patient safety culture before and after training.

The staffing dimension has an average pretest and protest scores of 8.31 and 10.47, respectively. The value of the statistical test results at $\alpha = 0.05$ obtained a Z value of -5.186 and a p-value of 0,000. Therefore, it is concluded that the null hypothesis (Ho) was rejected, which means there are differences in nurses' perceptions of patient safety culture before and after training.

The handoff and transition dimensions have an average pretest and posttest values of 11.04 and 12.58, respectively. The statistical test results at $\alpha = 0.05$ obtained the Z and p values of -4.509 and 0,000. Therefore, in conclusion, the null hypothesis (Ho) was rejected, which means there are differences in nurses' perceptions of patient safety culture before and after training.

The non-punitive response has an average pretest and posttest values of 7.11 and 9.95, respectively. The v statistical test results at $\alpha = 0.05$ obtained the Z and p values of -6.136 and 0,000. Therefore, in conclusion, the null hypothesis (Ho) was rejected, which means that there are differences in nurses' perceptions of patient safety culture before and after training.

a. Pretest and posttest of the perception on 12 dimensions of patient safety culture

Table 3. Distribution of Pretest and Posttest on Nurse Perceptions on the 12 dimensions of Patient Safety Culture (n = 55)

No.	Patient Safety Culture	Mean	Mean Different	*T*	*p-value*
1.	*Pretest*	121,67	16,527	-15,238	0,000
2.	*Posttest*	138,20			

Based on Table 3, it is concluded that nurses' perceptions of patient safety culture have an average pretest and posttest scores of 121.67 and 138.20, respectively. The statistical test results at $\alpha = 0.05$ obtained t and p values of -15.238 and 0.000. Therefore, in conclusion, the null hypothesis (Ho) was rejected, which means there are differences in nurses' perceptions of patient safety culture before and after training.

DISCUSSION

There is an adequate need for the increase in nurses' perceptions of patient safety culture from the dimensions of teamwork within units before and after training with an average pretest and posttest scores of 13.38 and 14.73, respectively. The value of the statistical test results at $\alpha = 0.05$, obtained Z value = -4.653 and p-value of 0.000. This result is in line with the research carried out by Amiri, Khademian, and Nikdanish (2018), which stated that there are significant differences before/after the nurse empowerment education program is administered to the patient safety culture in the dimensions of teamwork within units (p-value = 0.001). Furthermore, these results are also in line with Ultaria S., Arso, and Sriatmi (2017), which stated that teamwork within units regarding patient safety culture of 71.2% is categorized as a medium culture. This dimension is defined as a unit of working together to achieve set goals. Alonazi, Alonazi, Saeed, and Mohamed (2016) stated that the patient safety culture in the element of teamwork within units in hospitals has an average positive response of 75% where staff support one another to provide adequate care services.

The increase in nurses' perceptions of patient safety culture from the expectations and actions of supervisors had an average pretest and posttest scores of 13.15 and 13.80, respectively. The value of the statistical test results at $\alpha = 0.05$ obtained the Z value of -3.603 and p-value of 0,000. This result is in line with the research of Amiri *et al.*, (2018), which stated that there are significant differences before and after the nurse empowerment education program is provided to the patient with a p-value of 0.001. Bowie (2010) stated that leadership commitment to patient safety is closely related to the maturity level of the prevailing culture. Strong leadership has the potential to build a fairness culture for all members, thereby enabling the entire team to support and advance patient safety. According to the National Quality Forum (2006), leadership acts as an important subculture in health services, and it is the most significant facilitator used to build and promote safety culture. Efforts to improve safety in health services need an applicative concept with a focus on the structure and leadership system.

Nurses' perceptions of patient safety culture from organizational learning dimensions have average pretest and posttest scores of 9.35 and 9.93, which showed that the statistical test results at α = 0.05 obtained Z and p values of -3.076 and 0.002. This result is in accordance with several research results. For instance, Ultaria S. *et al.,* (2017) stated that the overall patient safety culture in the organizational learning dimension is categorized as moderate (72.6%). In addition, Puji lestrari (2013) reported that the dimension of organizational learning in DR. Wahidin Sudirohusodo Hospital (RSUP) is in the high category (85.3%). Mutarobin, Hardiyan, and Rosmiatin (2018) further stated that the safety culture on organizational learning dimensions in the Outpatient and Inpatient Unit of the Jakarta Heart Hospital was categorized as good or strong with a positive response rate of 92.5%. The higher the level of organizational learning, the lower the unexpected incidence in the inpatient ward. Therefore, it takes the role of all parties in implementing a comprehensive patient safety culture, which has always been a pillar to improving the hospital services quality.

Nurses' perceptions of patient safety culture from the dimensions of management support were improved using an average pretest and posttest values of 9.22 and 10.25, respectively. The value of the statistical test results at α = 0.05 obtained Z and p values of -4.728 and 0,000. These results are in line with the research of Anwar, Rochadi, Daulay, and Yuswardi (2016), which stated that there is a significant relationship between the function of the ward chief and the implementation of patient safety culture using a p-value of 0,000. Pujilestari, Maidin, and Anggraeni (2014) also stated that nurses' perceptions of patient safety culture from the dimension of management support are in the strong culture category of 93.3%. These dimensions include a work climate that supports the implementation, create hospital policies, prioritize patient safety, and hospital management prior to cases of unexpected incidences (AHRQ, 2016).

Nurses' perceptions of patient safety culture using an average pretest and posttest scores of 11.80 and 12.96 showed that the statistical test results at α = 0.05 obtained Z and p values of -5.021 and 0,000, respectively. This result is in line with Dewi's (2011) study, which showed that the percentage of executive nurses in implementing patient safety is considered good. In addition, Mutarobin *et al.,* (2018) stated that nurses' perceptions of patient safety from the dimensions of overall perception are in the medium culture category (64.7%).

The process of improving nurses' perceptions of patient safety culture from the dimensions of management support using an average pretest and protest scores of 9.22 and 10.25, showed that the value of the statistical test results at α = 0.05 obtained the Z and p values of -4.728 and 0,000. This result is in line with the research conducted by Anwar, Rochadi, Daulay, and Yuswardi (2016), which stated that there is a significant relationship between the function of the ward chief management and the implementation of patient safety culture (p-value = 0,000). Furthermore, Pujilestari, Maidin, and Anggraeni (2014) also stated that nurses' perceptions of patient safety culture from the dimension of management support to patient safety are in the strong culture category (93.3%).

Nurses' perceptions of patient safety culture from the dimensions of feedback and communication on errors with an average pretest and posttest scores of 9.47 and 10.11 showed that the value of the statistical test results at α = 0.05 obtained the Z value of -3,354 and p-value of 0,000. This result is in line with the research conducted by Rao, Thota, and Srinivas (2014), which stated that the feedback and communication on errors are in the good category (65.66%). Furthermore, Lee, Phan, Dorman, Weaver, and Pronovost (2016) mentioned that feedback and communication on errors have a significant positive effect on the perception of the effective handoff of patient information.

Nurses' perceptions of patient safety culture from the dimensions of open communication with an average pretest and posttest scores of 8.93 and 10.38, showed that the statistical test results at α = 0.05 obtained the Z value of -5.941 and p-value of 0,000. This result is in line with the research conducted by Khademian *et al.,*, were perceptions in the anesthetics and surgical ward in the communication dimension increased after training. Kusumapradja (2017) stated that communication influences patient safety culture, because it is founded on mutual trust and openness, therefore, good information flow has the ability to improve the patient safety culture. Chen dan Li (2010) stated that open communication is formed when staff assists each other in health care. Furthermore, it is also established by conducting discussions related to adverse events and errors related to patient safety.

Improvement of nurses' perceptions of patient safety culture from the dimensions of the frequency of incident report with an average pretest and posttest scores of 8.29 and 9.36, respectively. The value of the statistical test results at α = 0.05 obtained the Z value of -3.014 and p-value of 0.003. Positive understanding changes influence these significant differences. After training, nurses realize the importance of reporting errors, to avoid future reoccurrence. According to Kohn, Corrigan, & Donaldson (2000), management is needed through regular monitoring of the reporting system. Hospital incident reporting system is an effort that provides dual potential functions, namely anticipation efforts therefore, the officers are responsible for their performance and act as an

alternative in providing information to improve patient safety.

Improvement of nurses' perceptions of patient safety culture from the dimensions of teamwork within units with an average pretest and posttest scores of 11.64 and 13.67, showed that the statistical test results at $\alpha = 0.05$, obtained the Z and p values of -5.884 and 0.000, respectively. This result is in line with the research conducted by Chen and Li (2010), which reported that teamwork within units in hospitals generally has a positive response (p-value = 0.002). Wagner *et al.,* (2013) stated hospital rules and policies are influenced by governance within each unit in supporting patient safety programs.

Nurses' perceptions of patient safety culture from staffing dimensions with an average pretest and posttest scores of 8.31 and 10.47, showed that the statistical test results at $\alpha = 0.05$ obtained the Z and p values of -5.186 and 0,000, respectively. Based on the 12 dimensions contained in the patient safety culture survey according to the Agency for Healthcare Research and Quality (AHRQ), there is an important dimension that influences the occurrence of incidents, namely human resources. Hasibuan (2012), stated that people involved in an organization are meant to realize its goals. According to AHRQ (2016), the factors that lead to patient safety incidents are: HR problems, communication, inadequate information flow, poor knowledge transfer in the hospital, work-flow, technical failure, as well as inadequate policies and procedures.

Nurses' perceptions of patient safety culture from the handoff and transition dimensions with an average pretest and posttest scores of 11.04 and 12.58, showed that the statistical test results at $\alpha = 0.05$ obtained Z and p values of -4.509 and 0.000, respectively. Handoff or effective patient handover supports important information and the continuity of care. Conversely, the ineffective handover of patients contributes to errors and unexpected incidence in their safety in the form of disability or death (Kamil, 2011). According to Triwibowo, Yuliawati, and Husna (2018), there is a significant relationship between the implementation of handovers and Patient safety. (*p-value=0,04*).

Nurses' perceptions of patient safety culture from non-punitive response dimensions with an average pretest and posttest scores of 7.11 and 9.95, showed that the statistical test results at $\alpha = 0.05$ obtained Z and p values of -6.136 and 0,000, respectively. Weaver *et al.,* (2013) stated that non-punitive responses to errors need clear communication because the primary purpose of error investigations is to identify system problems rather than to blame nurses. The implementation of a fair culture without inappropriate punishment for individual mistakes makes nurses love their jobs. Non-punitive responses to errors are expected when there are reports of unexpected incidence. According to Kohn *et al.,* (2000), penalties need to be imposed on health workers to avoid future errors.

Nurses' perceptions of the 12 dimensions of patient safety culture with an average pretest and posttest scores of 121.67 and 138.20, showed that the statistical test results at 0.05 obtained Z and p values of -15.238 and 0.000, respectively. Regular nursing training is an important element of total quality management. It provides nurses with the opportunity to ensure that they respond quickly and effectively to dangerous situations without the need for close supervision or guidance (McFadden, Henagan, & Gowen Iii, 2009). Cahyono (2008) stated that knowledge to support Learning Culture in an organization is closely related to changes in safety. Similarly, Quaid, Thao, and Denham (2010) stated that the internalization of knowledge into individual values regarding patient safety need to be pursued for it to become the basis for learning through discussion of incidence related to patient safety, and behavior changes based on changes in cognitive abilities.

CONCLUSION

In conclusion, there is an improvement in the 12 dimensions of patient safety culture perceptions before and after participating in training programs, such as teamwork in units, expectations and actions of supervisors, organizational learning, management support, feedback and communication, frequency of incident report, inter-unit collaboration, staffing, handoffs/transitions, and non-punitive responses to errors.

SUGGESTION

Based on the research, excellent policymaking is needed to create a training program by providing a comprehensive education for nurses regarding patient safety culture daily to improve their perceptions and the quality of service at the Hospital.

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