

ASPECTS OF THE OCCUPATIONAL HEALTH AND SAFETY PROGRAM: COMPETENCE OF NURSES IN HOSPITAL

ASPECTOS DEL PROGRAMA DE SEGURIDAD Y SALUD OCUPACIONAL: COMPETENCIA DE LOS ENFERMEROS EN EL HOSPITAL

ASPECTOS DO PROGRAMA DE SEGURANÇA E SAÚDE NO TRABALHO: COMPETÊNCIA DE ENFERMEIROS NO HOSPITAL

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ABSTRACT

This study aims to identify the proxy determinants of the Occupational Health and Safety Program (OHS) implementation among nurses in a hospital in Indonesia. Materials and methods: Cross-sectional study conducted on a sample of 100 nurses from 4 services: perinatology, medicine, surgery and pediatrics, with criteria such as having a minimum education level equivalent to a diploma in nursing and still be actively working. Information on the variables length of work, level of education, training and supervision profiles, occupational health and safety of nurses was collected using an independently developed questionnaire. Results: Education level related to OHS implementation among nurses (p value $0.004 < \alpha = 0.05$), length of work related to OHS implementation among nurses (p value $0.004 < \alpha = 0.05$), training profile related to OHS implementation among nurses (p value $0.004 < \alpha = 0.05$), nursing supervision related to OHS implementation among nurses (p value $0.016 < \alpha = 0.05$). The training profile is a proxy determinant with an OR value of 10.043. Conclusion: The training profile is a proxy determinant of OHS implementation among nurses. These results underscore the importance of socialization and the need for nurses to participate in OHS training.

Key words: Nursing Education; Length of Work; Training Profile; Nursing Supervision; Occupational Health and Safety Program.

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RESUMEN

El estudio tiene como objetivo identificar los determinantes proxy de la implementación del Programa de Seguridad y Salud Ocupacional (SSO) en enfermeras de un hospital en Indonesia. Material y método: Estudio transversal realizado en 100 enfermeros como muestra de los servicios de perinatología, medicina, cirugía y pediatría, con criterios como tener una formación mínima de título profesional en enfermería y seguir trabajando activamente. La información respecto de las variables duración del trabajo, nivel de educación, perfiles de capacitación y supervisión, salud y seguridad ocupacional de los enfermeros fue recolectada mediante un cuestionario que se desarrolló de forma independiente. Resultados: Nivel de educación relacionado con implementación del SSO en enfermeros (valor de p 0,004 $<\alpha = 0,05$), duración del trabajo relacionado con implementación del SSO en enfermeros (valor de p 0,004 $<\alpha = 0,05$), perfil de formación relacionado con implementación del SSO en enfermeros (valor de p 0,004 $<\alpha = 0,05$), supervisión de enfermería relacionado con implementación del SSO en enfermeros (valor de p 0,016 $<\alpha = 0,05$). El perfil de entrenamiento es un determinante proxy con un valor OR de 10,043. Conclusión: El perfil de entrenamiento es un determinante proxy de la implementación del SSO en enfermeros. Estos resultados refuerzan la importancia de la socialización y la necesidad de los enfermeros de asistir a capacitaciones en SSO.

Palabras clave: Educación en Enfermería; Duración del trabajo; Perfil de formación; Supervisión de enfermería; Programa de Seguridad y Salud Ocupacional.

RESUMO

O estudo tem como objetivo identificar os determinantes proxy da implementação do Programa de Segurança e Saúde Ocupacional (SSO) em enfermeiros de um hospital na Indonésia. Material e método: Estudo transversal realizado em uma amostra composta de 100 enfermeiros de 4 serviços: perinatologia, medicina, cirurgia e pediatria, com critérios como ter um nível de escolaridade mínimo equivalente a um título profissional de enfermagem e ainda exercer atividade profissional. As informações sobre as variáveis duração do trabalho, nível de escolaridade, perfis de treinamento e supervisão, saúde e segurança ocupacional dos enfermeiros foram coletadas por meio de um questionário desenvolvido de forma independente. Resultados: Nível de escolaridade relacionado à implementação do SSO em enfermeiros (p valor 0,004 $<\alpha = 0,05$), tempo de trabalho relacionado à implementação do SSO em enfermeiros (p valor 0,004 $<\alpha = 0,05$), perfil de treinamento relacionado à implementação do SSO em enfermeiros (p valor 0,004 $<\alpha = 0,05$), supervisão de enfermagem relacionada à implementação do SSO em enfermeiros (valor de p 0,016 $<\alpha = 0,05$). O perfil de treinamento é um determinante proxy com um valor OR de 10,043. Conclusão: O perfil de treinamento é um determinante proxy da implementação do SSO entre os enfermeiros. Esses resultados destacam a importância da socialização e a necessidade de os enfermeiros participarem do treinamento em SSO.

Palavras-chave: Educação em Enfermagem; Tempo de trabalho; Perfil de formação; Supervisão de enfermagem; Programa de Segurança e Saúde Ocupacional.

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INTRODUCTION

The hospital is one of the health care providers with the obligation to implement the Occupational Health and Safety Program (OHS) which has positive benefits for hospital workers⁽¹⁾. Therefore, hospitals are required to carry out occupational health and safety efforts in an integrated and

comprehensive manner in order to prevent the risk of occupational diseases (OD) and occupational accidents (OA) in the hospital⁽²⁾.

Nurses are one of the health professionals who consistently interact with patients for 24 hours. This situation puts the nursing profession in a situation that is at high risk of experiencing problems in occupational health and safety, with

working environments containing biological, chemical, physical, and psychological hazards. Moreover, nurses at risk for job burnout, stress, work-related illnesses and injuries, blood-borne pathogen exposure, infectious disease exposure, and musculoskeletal disorders⁽³⁾. Therefore, nurses should have ability to obviate those hazards in their working area wherever possible⁽⁴⁾. The implementation of OHS for nurses serves to create safe healthcare services not only for the patients, but also for the nurses themselves⁽⁵⁾.

Nurses in general are often ignorant of safety and health at work, such as ignoring the use of personal protective equipment properly in conditions of fatigue and boredom, PPE is considered to hinder the work to be done⁽⁶⁾ so that there is a high risk of experiencing work accidents such as needling⁽⁷⁾, injured when opening medicinal ampoules⁽⁸⁾, and falling at work⁽⁹⁾.

Based on a survey by the World Health Organization (WHO), the prevalence of blood-borne pathogenic infections against the coetaneous layer is 3 million from 35 million health workers worldwide each year. In detail, there were 2 million against HBV, 0.9 million against HCV, and 170,000 against HIV (17) and in 70,000 HBV infections, 15,000 HCV infections, and 500 HIV infections (18). ANA states that even in 2011, 40% nurses at the hospital reporting occupational injury experiences⁽¹⁰⁾. Financially, work-related injuries cost the budget of \$ 16 million per year including medical care, compensation costs, and temporary replacement costs for injured employees.

Research on perinatology nurses at Tugurejo Hospital Semarang shows that in the past year occupational accidents (needle stick) highest 14 times⁽¹¹⁾. As many as 100% of the nurses and health workers at Malang Hospital did not use a handsoen when taking sputum samples, and 90% did not use gloves (handsoen) when placing the infusion⁽¹²⁾. The same results were obtained by La Ode Alifariki with colleague⁽⁹⁾ in their research that there was a relationship between safe injection practices and the incidence of NSIs.

Occupational Diseases (OD) and Occupational Accidents (OA) among health and non-health workers in Indonesia have not been recorded properly, so no data is available yet. In the period 2015 to November 2019, there were 2 nurses in the Internal Room suffering from Hepatitis suspected

of contracting from a patient. Furthermore, a survey in the ICU and Medical ward in January 2020, the average achievement of occupational safety and health for nurses at Benyamin Guluh Kolaka Hospital was 56%, while the standards of the Ministry of Health, MFK and Infection Prevention and Control (IPC) were 100%.

The study aims to determine the determinant proxies for the implementation of the Occupational Health and Safety (OHS) Program for nurses at Benyamin Guluh Kolaka Hospital.

MATERIAL AND METHOD

This observational analytic study used a cross-sectional approach with the aim was to analyzed the relationship between independent variables such as length of work, level of education, training profiles and supervision with the dependent variable including the occupational health and safety of nurses: hand hygiene aspects, located at Benyamin Guluh Hospital, Kolaka Regency, particularly in 4 nursing wards including perinatology ward, internist ward, surgical ward and pediatric ward. The research data collection period started from December 2018 to January 2019. Samples were taken proportionally in each ward and obtained 100 nurses as research respondents. The nurses selected were those who met the inclusion criteria such as nurses who serve in the inpatient room and were not the chief of the ward. The flow chart of research sample determination explained as follows:

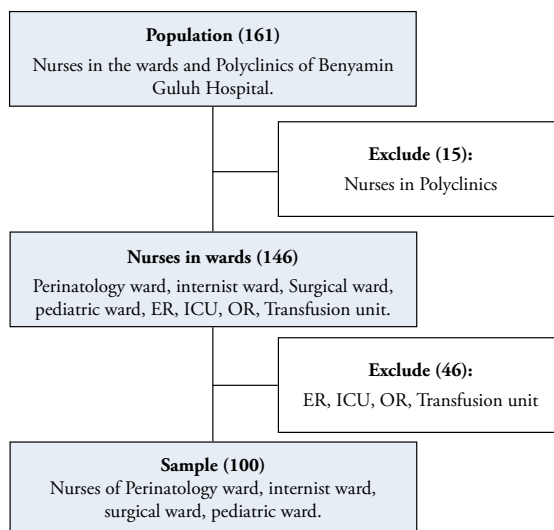


Figure 1. Flow Chart of Research Sample.

The measurement of the independent and dependent variables used a questionnaire that was developed independently, and was trialed on 10 excluded nurses so that overall the questions met the criteria for reliability and validity. Informed consent was given to respondents as evidence of willingness to participate in this study, before the required data were collected. Data were analyzed using SPSS version 16.0, which consisted of bivariate analysis using chi square (X^2) to determine the relationship between variables, while multivariate analysis used logistic regression at the significance level of $\alpha = 0.05$. This study has obtained ethical clearance from the health research ethics commission of the Faculty of Medicine, Halu Oleo University registration number 022 / UN29.17.1.3 / ETIK / 2020.

RESULTS

Table 1 show research samples at RSBG as many as 100 respondents. Distribution table based on age, dominant respondents aged 23-30 years amounted to 47 people (47.0%), and at least 47-54 years old were 4 people (4.0%). Distribution of respondent characteristics based on education level, respondents who BSN level of education were 37 nurses (37.0%) while nursing diploma education was 63 nurses (63,0%). The distribution of respondents based on length of work was dominant over 5 years as many as 66 nurses (66.0%) while the length of work <5 years was 34 nurses (34.0%). The distribution of respondents based on the training profile, the dominant number of people who never participated was 58 nurses (58.0%) while the respondents who had participated in training were 42 nurses (42.0%). The distribution of respondents based on nursing supervision, the dominant respondent said that was enough as many as 58 nurses (58.0%) while the respondents who said "good" were 42 nurses (42.0%). The distribution of respondents based on the implementation of occupational health and safety of nurses based on the aspect of washing hands, dominant good as many as 76 nurses (76.0%) while the moderate category was 24 nurses (24.0%).

Table 1. Responden Characteristics.

Characteristics	Distribution	
	n	%
Age (Years Old)		
23 - 30	47	47
31 - 38	35	35
39 - 46	14	14
47 - 54	4	4
Level of Education		
Nursing Diploma	63	63
Nursing Bachelor	37	37
Length of Work (Years)		
≥ 5	66	66
< 5	34	34
Training Profile		
Ever	42	42
Never	58	58
Nursing Supervision		
Good	42	42
Enough	58	58
Implementation of OHS for Nurses		
Good	76	76
Enough	24	24

In Table 2, the results of the bivariate analysis using the chi square test show the relationship between education level and implementation of OHS nurses ($p 0.004 < \alpha 0.05$), length of work with the implementation of OHS nurses ($p 0.004 < \alpha 0.05$), history of training with implementation Nursing OHS ($p 0.004 < \alpha 0.05$), nursing supervision with the implementation of Nursing OHS ($p 0.016 < \alpha 0.05$).

Through the logistic regression test, the results show training Profile (OR= 10.043) becomes a highest risk factor to the implementation of OHS among nurses compared to all factors including Level of Education (OR= 9.559) as shown in Table 3.

Table 2. Relationship of Level of Education, Length of Work, Training Profile and Nursing Supervision with Implementation of OHS.

Independent Variables	Implementation of Nursing OHS				p value
	Good		Enough		
	n	%	n	%	
Level of Education					
BSN	34	91.9	3	8.1	0.004
Nursing Diploma	42	66.7	21	33.3	
Length of Work (Years)					
≥ 5	56	84.8	10	15.2	0.004
< 5	20	58.8	14	41.2	
Training Profile					
Ever	38	90.5	4	9.5	0.004
Never	38	65.5	20	34.5	
Nursing Supervision					
Good	37	88.1	5	11.9	0.016
Enough	39	67.2	19	32.8	

Table 3. Proxy Determinants Analysis of the Nurses OHS Implementation.

		B	df	Sig.	Exp (B)
Step 1^a	Level of Education	2.257	1	0.005	9.559
	Length of Work	2.115	1	0.002	8.292
	Training Profile	2.307	1	0.002	10.043
	Nursing Supervision	1.578	1	0.015	4.846
	Constant	-14.572	1	.000	0.000

R Square=0.464

DISCUSSION

In general, it can be stated that the current study found a relationship between the implementation of OHS nurses with the level of education, length of work, training profile and nursing supervision. Training profile variable as a proxy determinant of OHS implementation in nurses is determined based on the value of "OR" or Exp (B) 10.043. Regarding how the relationship of each variable is described as follows:

The results of the data analysis inform a significant relationship between the level of education of nurses and the implementation of OHS nurses. There are more nurses with a nursing

diploma than nurses with a bachelor's degree in nursing.

Kurniadi A, on his study⁽¹³⁾, revealed a relationship between education level with patient safety statistically showed a p value <0.05. A high level of formal education positively raises expectations in terms of career and job finding and income.

Beyond expectations, some respondents with a bachelor's degree in nursing did not pay attention to occupational health and safety, especially washing hands. One factor that may play a role is the absence of OHS training experience. Formal education and training are complementary⁽¹⁴⁾. Nurses need to receive OHS training despite their undergraduate

status in nursing. As revealed by⁽¹⁵⁾, that there is no significant relationship between education level and changes in nurse safety behavior ($p = 0.641$).

However, for nursing undergraduates who have attended OHS training, in the implementation may be better than nurses with nursing diploma status. As has been said earlier, knowledge is greatly influenced by a person's education level. Ideally, a high level of education is more convenient to master something learning. Education affects the learning process, the higher a person's level of education, the easier it will be for that person to receive information⁽¹⁶⁾.

Based on the facts in the field revealed in this study, where the length of work is related to the implementation of OHS in nurses, this has proven that nurses' seniority at work will have a tendency to implement occupational health and safety, which has an impact on themselves, patients and families in hospital.

The amount of experience that nurses have is determined by the length of service they have lived. Referring to their experiences, it will appear that their behavior in maintaining their safety will be better. In addition, experience can also be obtained from various socialization and OHS training conducted by the hospital.

On the basis of the previous literature, the length of work has become the basis for achieving patient safety. Employees with more years of work and work experience will be more accustomed to applying safety standards than new workers⁽¹⁷⁾.

However, current study found the poor application of hand washing to some nurses with a working length of > 5 years. Based on the interview, they revealed the reason that this had been their habit for a long time without experiencing any health problems. Their habit is carried out when doing several actions, especially when changing the infusion fluid, and having regular contact with the patient.

Career development and individual positions are ideally related to the length of work because they are more experienced. As stated by AndiMapiare, attainment of a position in work can be experienced by a person only if a learning and experience process is undertaken, with the hope of having a positive work attitude, having better work skills (knowledge) and having good quality work skills and quantity⁽¹⁸⁾.

Other theories also reveal the influence of experiences, beliefs, physical and socio-cultural means on behavior. As has been revealed in interviews, nurses who do not wash their hands either before or after taking certain actions on the grounds fortunately they have never had bad or negative experiences with themselves, or patients and their families. Nurses seniority usually affects the behavior of the accuracy of drug administration because self-taught nurses will be increasingly trained with actions that are repeated over a long period of time, so they have a lot of experience and have a lot of time to learn from mistakes⁽¹⁶⁾.

Robbin and Judge also expressed the same thing that the length of work was related to the experience that employees had. On the other hand, a short work period, of course, has little experience⁽¹⁹⁾. Through a lot of experience, a person will be wiser in dealing with problems than those who have no experience at all.

Several trainings that have been conducted and attended by nurses include nursing care training, OHS, ward management training, emergency training and so on.

Both age and knowledge will affect occupational health and safety, through formal education and training it is hoped that they will be able to change their perceptions and practices in implementing OHS because nurses have an obligation to maintain patient safety and themselves. Responsibility for patient safety is emphasized on nurses as a profession that continuously monitors patients for 24 hours. This responsibility should go hand in hand with the competence obtained from hospital OHS education and training, so nurses will be able to take appropriate actions in accordance with nursing ethics in carrying out nursing care including identification accuracy, increased effective communication, increased drug safety that needs to be watched out for, assurance, right location, right procedure, right surgery patient, reduced risk of infection related to health services reducing the risk of falling patients⁽¹²⁾.

The long-term benefits of training can help medical personnel to have greater responsibilities in the future. Even though nurses have studied OHS in formal education, stimulation in the form of training will be more specifically expanded and updated. In addition, training is also useful for developing intellectual and personality abilities

possessed by nurses⁽²⁰⁾.

Training is part of the educational process which involves the learning process in order to acquire and improve skills outside the formal education system in a relatively short time. A number of trainings followed by nurses can have a strong influence in determining whether someone is good or not in implementing patient safety. The experience from working life is sometimes likely to be another cause of worker non-compliance and underestimate the little things that are really important to do.

That people who have a longer working period sometimes have decreased productivity due to boredom and then lead to non-compliance⁽²¹⁾. In addition, new workers who have not received sufficient training and information on OSH and are not thoroughly familiar with the job description and hazards in their workplaces are at risk of committing violations or non-compliance with SOPs. Workers have different knowledge of their jobs; in this case it is a risk to work safety for nurses and patients.

Nursing supervision at the Benyamin Guluh Kolaka Hospital has basically been carried out based on the assessment of the respondent, but in some items it has not been optimal, such as non-routine and planned supervision activities, meaning that the implementation of supervision is carried out without a planned implementation time and also the assessment items have not been socialized to nurses the results of supervision are not informed and are not followed up, as a result the nurses do not make changes to what is lacking in their service.

As stated in the literature, periodic monitoring and evaluation in supervision activities by the Hospital patient safety team is a solution to improve implementation compliance in building and cultivating patient safety⁽²¹⁾ especially by primary nurses⁽²²⁾.

Good communication from supervisors to workers was positively related to worker safety and negatively related to injury rates⁽²¹⁾. Supervisors' awareness of workplace hazards and risks should be demonstrated by actively protecting workers from the risk of injury. Furthermore, supervisors who actively prioritize and promote safety will create a communicative and supportive safety environment. As an obvious example, a supervisor who encourages workers to wear personal safety equipment can be a valuable resource for workers

facing OSH vulnerabilities. Through a provision of information, superiors or organizational leaders are aware of the dangers that exist in the workplace and actively protect their workers and have a positive effect on the prevention of workplace injuries⁽²¹⁾.

It must be realized that supervision is a part of the management function that plays a role in maintaining that all programmed activities can be carried out correctly and smoothly⁽²¹⁾. Several studies have shown the importance of monitoring and evaluation by the Hospital Patient Safety team periodically through policies, socialization, motivation, supervision, reporting of patient safety incidents and support from hospital management in order to improve OHS compliance and cultivate patient safety^(21, 23-25).

The poor implementation of supervision as the results of this study illustrate that the supervision of the implementation of safety standards in nurses is not optimal. This condition is in contrast to the results of the accreditation obtained by the Benyamin Guluh Hospital. Hospital accreditation is an acknowledgment of the quality of hospital services against predetermined standards, including patient safety assurance issues. The results of this study are supported by the results of research conducted by Nurmalia et al.⁽²⁶⁾, that groups who are not supervised will be at risk of experiencing a decrease in the application of patient safety culture.

CONCLUSION

The supervision as a routine activity must be carried out in order to achieve a more optimal implementation of patient safety goals, which implies patient safety becoming a priority and culture in the work environment and every nurse's activity as a whole.

Training profile is a proxy determinant of nurse's OHS implementation with an "OR" or Exp (B) value of 10.043. These results reinforce the importance of socialization and the obligation of nurses to attend training on OHS. Hospital management needs to improve the OHS culture in the working environment of nurses.

The limitation in the current study lies in the varying employment status of respondents between civil servants and honorary or contract workers, where there will be a great chance of finding

differences in motivation in implementing OHS.

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