

Original article

Determinat Factors The Effect Used Personal Protective Equipment Covid-19 For Health Workers in The Hospital

Alfina Baharuddin¹, Hasriwiani Habo Abbas², Fetrawaty Mansyur³

¹Lecturer in Departement of Environmental Health, Public Health University Moslem Indonesia, ²Lecturer in Departement of Epidemiologi, Public Health University Moslem Indonesia, ³Postgraduated Program Magister of Public health University Moslem Indonesia

Abstract

Purpose: to analyze the determinants of the use of Covid-19 PPE (Personal Protective Equipment) on health workers at Salewangang Hospital, Maros Regency.

Methods: The type of research used is the analytical survey method of research conducted without intervention to the research subject. Data collection regarding free and dependent variables was carried out online using Google Form and the results of Google Form data collection were processed using SPSS 20, where a sample of 199 respondents was taken from health workers at Salewangang Maros Regional Hospital in 2020. The analysis was used to explain the influence of the variables - independent variables to the dependent variable partially using Logistic Regression Analysis.

Results: Based on the results shows that knowledge has a 12-fold effect on behavior The use of Covid 19 PPE and the attitude of health workers has a significant effect on the behavior of using the OR value of 16.6, which means that attitudes have a 16.6-fold effect on the behavior of using Covid 19 PPE

Conclusion: Based on this study, it is concluded that the availability of PPE, knowledge and attitudes of health workers have a significant effect on the behavior of using PPE Covid-19 with a significant value of $0.000 < 0.05$.

Keywords: covid-19, personal protective equipment, health workers, behaviour, hospital

Introduction

Covid-19 is included in the category of occupational diseases caused by other biological factors in the workplace where there is a direct relationship between exposure to biological factors that arise due to work activities and diseases experienced by workers that can be scientifically proven using appropriate methods. Health and non-health workers in carrying out their work to deal with Covid-19 are at high risk of contracting Covid-19 so that they can cause occupational diseases^{1,2}. The incidence of Corona Virus Disease 2019 Covid-19 in hospitals is one of the problems because it can threaten the health of patients, health workers and visitors³.

Personal protective equipment is a device designed as a barrier against the penetration of substances,

solid, liquid, or air particles to protect the wearer from injury or the spread of infection or disease. When used properly, PPE acts as a barrier between infectious material (eg viruses and bacteria) and the skin, mouth, nose, or eyes (mucous membranes) of the health worker and the patient^{4,5}. Barriers have the potential to block transmission of contaminants from blood, body fluids, or respiratory secretions. In addition, other infection control practices such as washing hands, using alcohol-based hand sanitizer, and covering the nose and mouth when coughing and sneezing with the inner upper arm or tissue, can minimize the spread of infection from one person to another. Effective use of PPE includes removal and / or proper disposal of contaminated PPE to prevent exposure of wearers and others to infectious materials^{6,7}.

Based on data from the Covid-19 Patient at Salewangang Maros Regional Hospital in March 2020, 18 people were treated (3 confirmed patients, 5 PDP and 10 ODP patients), 19 people were treated in April 2020 (3 confirmed patients, PDP 6 people and 10 ODP people), in May 2020 as many as 25 people were treated (6 confirmed patients, 14 PDP and 5 ODP people), and 41 people treated in June 2020 (22 confirmed patients, PDP as many as 8 people, ODP as many as 9 people and Suspek as many as 2 people)^{8,9}. Personal Protective Equipment (PPE) which came from donations from various parties. In March - June 2020 Salewangang Regional Hospital received 1,739 hazmat suits, 348 googles, 484 N95 masks, 5,220 surgical masks, 629 cloth masks, 412 hand scoons, as many as boots 177 pieces, 264 helmets, 305 hats, 20 raincoats, 65 face shields, 70 dresses, 92 plastic gloves, 114 covel shoes, and as many aprons. 50 pieces and 4 nurse caps / head cove¹⁰.

The Covid-19 PPE at Salewangang Regional Hospital has a very important role to protect workers from Covid-19 Work-related Diseases, but the large benefits of using Covid-19 PPE at work does not guarantee that

all workers will wear it. Based on this, the researchers are interested in conducting research on "Analysis of Determinant Factors for the Use of Covid-19 PPE on Health Care workers.

Materials And Methods

The research design was an analytic survey with a cross sectional approach. This research was conducted online using Google Form. The research time was started from April to September 2020. The population in this study were 348 health workers who served in Salewangang Hospital with a total sample size of 199 people. The Data Collection Techniques To collect data in this study using an online questionnaire (Google Form). Before answering / filling in the Google Form, respondents will be asked to read and sign the Informed Consent electronically. Data analysis used logistic regression test, the magnitude of the influence is indicated by the EXP value (B) or also known as the Odds Ratio (OR), if the value is sig. <0.05, H0 is rejected and Ha is accepted, it means that there is a significant (significant) effect, if the sig. > 0.05 H0 is accepted and Ha is rejected, so there is no significant effect (significant).

Result

Table 1: Characteristics Respondent for Health Workers in The Hospital

The Characteristic	n	%
≥ 30 Years	45	22.61
31 – 40 Years	98	49.25
≤ 41 Years	56	28.14
sex		
Man	61	30.7
Women	138	69.3
Education		
SMP/SMA	38	19.1
Diploma/S1	156	78.4

Cont... Table 1: Characteristics Respondent for Health Workers in The Hospital

S2/S3	5	2.5
length of work <1 – 5 Years	58	29.15
6 – 10 Years	126	63.32
>10 Years	15	7.53
Time work 7 hours	46	23.1
8 hours	137	68.8

Based on the table. 1 characteristic of respondents, it is known that from 199 respondents, most were 31-40 years old (49.25%). 138 people (69.3%) and the least male 61 people (30.7%). The educational level with the most diploma / S1 is 156 people (78.4%) and at least 5 people are S2 / S3 (2.5%). The maximum length of work is 6-10 years with 126 people (63.32%) and at least 10 years (7.5%).

Table 2 Characteristics of Type of Work Profession In the hospital

Type of work	n	%
Docter	2	1
Nurse	52	26
Midwife	21	11
Health Laboratory Institutions	10	5
Pharmacist	15	8
Fisioterapi	8	4
Radiographer	8	4
Medical check up	8	4
Public health ectention	1	0.5
Epidemiology	2	1
Environmental health	10	5
Elektromedis	4	2
Nutrisionist	10	5
K3	2	1
Administrasi/Staf Manajemen	27	14
IPSRs	13	6.5
Ambulance driver	6	3

Based on table 2, it shows that the profession with the most number of nurses is 52 people (26%) and the least number of public health extension personnel is 1 person (0.5%). For service locations, most of them were

in IPSRS (Hospital Facility Maintenance Installation) as many as 25 people (13%) and at least 2 people were in polyclinics (1%). The maximum length of work in a day is 8 hours (68.8%) and at least 8 hours (8%).

Table 3: Research Variable Bivariate Test Results

Research variable	The Behavior Of Using Personal Protective Equipment				Sign	OR
	Good		Less			
	n	%	N	%		
availability of personal protective equipment						
Complit	174	92.,1	15	7,9	0,000	11,600
incomplit	10	100	0	0		
Knowledge						
Enough	180	92,3	15	7,7	0,000	12,000
Less	4	100	0	0		
Actitude						
Enough	166	94,3	10	5,7	0,000	16,600
Less	`18	78,3	5	21,7		

Based on Table 3, it shows that respondents who have sufficient knowledge of good behavior in using PPE Covid-19 are 180 (92.3%) and less behavior in using PPE Covid-19 are 15 (7.7%). Respondents who had sufficiently good attitudes in the use of Covid-19 PPE were 166 (94.3%) and 10 (5.7%) had less behavior.

Discussion

Based on the results of statistical tests using logical regression tests in this study, the variable availability of PPE has a significant effect on the behavior of using PPE Covid-19 at Salewangang Maros Regional Hospital with a sig value. $0.000 < 0.05$ and the OR (Odds Ratio) value is 11.6. This shows that the availability of PPE has an effect 11.6 times the behavior of using PPE Covid 19. This is in accordance with the data of Covid-19 patients at Salewangang Maros Hospital in March-May 2020, the number of confirmed patients was 2, 3 and 6 people, which tended to be constant, while in June of the year 2020 saw a surge of 22 patients so that the availability of PPE at Salewangang Maros Regional Hospital was limited to meet the needs of health workers. With the limited number of PPE, especially masks, the health

workers provide their own^{8,11}.

Health workers are a group that is very vulnerable to Covid-19 infection because they are at the forefront of handling cases. Close contact with people who are suspected or confirmed positive for Covid-19 puts him at a high risk of being infected with the virus if handling is not according to standards. One of the health protocols that is very important to note is the availability and use of the correct PPE. Health protocols related to the use of PPE recommended by the Ministry of Health are divided into three service categories¹².

First-level health workers such as doctors, nurses, pharmacists who provide health services are recommended to wear three-layer work clothes, gloves and surgical masks. Second level health workers, namely

doctors, nurses, and analysts in charge of the treatment room, sampling, or virus testing laboratories. Health workers in this category must wear PPE in the form of a gown (surgical gown), head coverings, disposable rubber gloves, three-layer surgical masks, and Google glasses or eye protection. Third level health workers are at high risk, namely doctors and nurses who come in direct contact with patients who are suspected or confirmed positive for Covid-19. Third level health workers are required to wear hazmat suits or coveralls that cover all parts of the body, head covers, sterile surgical gloves, N95 masks, boots and face protection^{4,9,13}.

This is in line with the results of research conducted which stated that the results of the logistic regression statistical test partially variable availability of PPE had a significant effect on the compliance of surgical nurses in using PPE with a $p\text{-value} = 0.003 < 0.05$. states that behavior is formed from 3 factors, namely predisposing factors, enabling factors and driving factors. The availability of facilities is included in the enabling factor for the formation of behavior. states that one of the factors that causes someone to behave is the presence of resources in the form of facilities, time, energy^{5,10}.

Knowledge is a very important domain for the formation of a person's actions, because behavior based on knowledge will be more lasting than behavior that is not based on knowledge. For officers and those who are involved in handling Covid-19, they need to get knowledge about the Covid-19 PPE standard according to the recommendations of the Ministry of Health. Therefore, in Salewangang Regional Hospital, several banners have been posted regarding the Covi-19 health protocol, such as notification of patient visiting restrictions, mandatory wearing of masks, mandatory hand washing, minimum distance limitation of 1-2 meters^{13,14}.

The PPE standard recommendation for the level of protection for service locations is divided into 3, the first is PPE that is used in locations or conditions that are relatively less risky. Types of PPE are included in this category, namely various types of masks, work gloves and disposable rubber-based gloves and dresses. One of the officers who are required to wear this PPE is an ambulance driver. They are required to use 3 layers of surgical masks, disposable rubber gloves and gowns

when raising and lowering patients with suspected Covid-19¹⁵. The second level of PPE is used by doctors, nurses, laboratory assistants, radiographers, pharmacies and Covid-19 patient room cleaners. PPE at this level is used when medical personnel, doctors and nurses, in the polyclinic room, examine patients with symptoms of respiratory infection. PPE in the form of 3 layers of surgical masks, gowns, disposable rubber gloves and eye protection. However, PPE for analysts, radiographers, pharmacists and cleaners has different types of PPE used³¹⁶

Medical personnel who use PPE at the third level of protection, namely doctors, nurses and laboratory assistants. The results of this study are in line with research conducted where it is known that there is a very significant relationship between knowledge and the behavior of using PPE among health workers at the Banjarbaru Hospital and the results of the Chi-square statistical test obtainDFDXed a value ($p\text{-value} = 0, 0001$). At Salewangang Maros Hospital in providing services to provide facilities needed for suspected and confirmed Covid-19 patients, always carry out various health protocols when treating Covid-19 patients by protecting themselves as much as possible with PPE according to standards, having sufficient knowledge to handle Covid-19 patients, follow strict requirements to remove official clothes, leave the hospital or meet with family / community, treat with sincerity, even struggle to care for Covid-19 patients.

This research is in line with research conducted) which states that the percentage of good attitudes, namely obedience, is the highest, namely 86.3% and the rest is disobedient. The statistical results of the t test (partial test) of surgical nurses 'attitudes towards surgical nurses' compliance in using obtained a $p\text{-value} (0.117) > 0.05$. Thus it can be concluded that partially the variable attitude of surgical nurses has no significant effect on the compliance of surgical nurses in using PPE¹⁷.

Conclusion

The availability of PPE has an 11.6-fold effect on the behavior of using PPE, knowledge has a 12-fold effect on the behavior of using PPE while attitude has a 16.6-fold effect on the behavior of using PPE with Covid 19.

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