Analysis of the Dominant Factors Associated with the Incidence of Covid-19 in Prehospital and Intra-Hospital Nurses

Nur Intan Hayati Husnul Khotimah[1*], Dede Nur Aziz Muslim[2], Santi Puspitasari[3], Haerul Imam[4]

[1,2,3,4]*Faculty of Nursing, Bhakti Kencana University, Bandung*

Corresponding author email: nur.intan@bku.ac.id

Abstract

Nurses are the main lead in tackling the Covid-19 pandemic as if they are risking contracted by Covid-19. High stress during a pandemic has an impact on psychological problems, Personal Protective Equipment (PPE) usage, decision-making difficulty on triage, and fatigue in which those can decrease the immune systems. The aim of study was to identify the dominant factors related to the incidence of Covid-19 in nurses. This observational study used Cross Sectional Study design and consecutive sampling techniques at 136 respondents. Questionnaires was used as instruments tested by validity and reliability to measure Fatigue, Psychological Problems (Depression, Anxiety, Stress), Decision-Making Ability of Triage-EWS Screening Covid-19, Vaccination history, risks of exposure, PPE usage and Covid-19 Incidents. Dominant factor analysis was assessed using multivariate analysis by logistic regression test. Based on the results of the logistic regression test, it was found that the risk of exposure to Covid-19 was the dominant factor with the incidence of Covid-19 among nurses in the pre-intra-hospital settings with significance of the test results p value <0.0. Handling of Covid-19 incidents in health workers is crucial. It has been clear that the risk of exposure to people who are confirmed positive can increase the incidence of Covid-19, so it necessary to make prevention program by implementing physical distancing and increasing activities that impact on increasing of immunity.

Keywords: Fatigue, Psychological, Triage, PPE, Risk of Exposure, Vaccine

1. Introduction

Health workers are at the forefront of handling Covid-19, which is at high risk of exposure and death. The incidence of death among health workers in Indonesia was 3.70% of the total 459 deaths and increased until March 27, 2021, where 864 deaths were recorded, and the highest mortality rate was for nurses with 275 deaths (Hassanian-Moghaddam et al., 2020; Pusara Digital Nakes, 2023). Nurses are the largest health workforce, playing a key role in developing nursing care practices that improve health services (Public Health Nursing, 2020; WHO, 2020).

Nurses at risk of being infected with Covid-19, out of 121 nurses who were in contact with infected cases, 43 (53.5%) experienced symptoms, 3 of them had confirmed Covid-19, out of 11,738 nurses who were confirmed 70.9% were infected while serving emergency care at home hospital (intra-hospital) and emergency care services (prehospital) (Morley et al., 2020; Lapolla et al., 2021; Heinzerling et al., 2020; Gómez-Ochoa et al., 2020).

Exposure risk caused; 1) 103 respondents, 84.5% were infected intra-hospital, 4.9% were infected in prehospital, in pre-hospital scope nurses made contact with patients before being diagnosed while in intra-hospital most of the time nurses were beside patients in providing actions such as suction, pharyngeal swab collection, intubation; 2) 44.2% due to inadequate protective equipment; 3) 29% of the 2040 health workers confirmed with Covid-19, experienced depression, anxiety (Firew et al., 2020; González-Gil et al., 2021; Jin et al., 2020).

Covid-19 had a psychological impact of 557 ER nurses 53.5% experienced emotional exhaustion, 1103 ER nurses 43.61% experienced depression, from 2014 nurses 91.2% experienced anxiety, difficulty in making triage decisions, experienced stress and fatigue (An et al., 2020; Hu et al., 2020; Major and Hlubocky, 2021). Fatigue and psychological problems trigger the release of cortisol levels which causes a decrease in the pro-inflammatory response thereby weakening the immune system against pathogens which increases the risk of infection (Yasa, 2019).

Fatigue, psychological problems (depression, anxiety, stress), difficulty making triage decisions, use of PPE, risk of exposure can cause Covid-19 in nurses, even though nurses are the pillars of handling the Covid-19 pandemic so it is very important to protect nurses from infection. Based on this description, the researcher is interested in analyzing the dominant factors associated with the incidence of Covid-19 in nurses in the prehospital and intrahospital settings. This study aims to analyze the dominant factors associated with the incidence of Covid-19 in nurses in the prehospital and intrahospital settings.

2. Materials and Methods

2.1. Data Material Collection

a) Psychosocial problems were assessed using the depression, anxiety, stress scale 21 (DASS 21) questionnaire which contained twenty one statements, each of which 7 questions assessed depression, anxiety and assessed stress. Each question is given a score of 0 to 3, then the score in each category is added up and an interpretation of normal, mild, moderate, severe and very severe is carried out, has a validity value of variable r-count value ≥ 0.396 and Cronbach's alpha reliability of 0.902 (Lovibond and Lovibond, 1995).

b) The fatigue level was measured by the Indonesian version of the Japanese Industrial Fatigue Research Committee (JIFRC) Questionnaire, which has nine statements representing the respondent's fatigue level. The scale used is a Likert scale with a scale of 1 (never experienced) to 4 (very often experienced). Interpretation of the results indicates that the higher the score, the higher the degree of severity of perceived fatigue, has a variable r-count validity value with Pearson correlation range 0.5-0.7 and Cronbach's alpha reliability of 0.921 (Ramdan, 2019).

c) The incidence of Covid-19 in nurses in the prehospital and intra-hospital settings was assessed using the Covid-19 exposure questionnaire, which consisted of 5 questions representing the incidence of Covid-19 in the respondent. The choice used is given a score of 1 and no score of 0.

d) The decision-making ability of the Triage-EWS Covid-19 was assessed by means of a questionnaire prepared by the researcher consisting of 20 questions with 3 answer choices, if the correct answer was given a score of 1 and if it was wrong it was given a score of 0, each question was tested for validity with the result being an r-count variable ≥ 0.3 and reliability test KR 20 reliability; 0.7469 in 80 nurses participating in the training on 26-1 June 2021, and a content validity test was carried out with implementing nurses working in the emergency unit, namely Nandra M.Kep (Clinical Care Manager for Critical Areas and Gadar RSUD Sumedang) and Gian Muhammad S .Kep., Nurse (Ingd Nurse Bandung Immanuel Hospital).

e) Actions to use Personal Protective Equipment (PPE) were assessed with an assessment questionnaire on the use of PPE consisting of 7 questions related to the use of PPE, each question describing the use of PPE action habits, instruments adapted from Covid-19 exposure, personal protective equipment (PPE) and hcw infection research results by Firew et al. (2021) and personal protective equipment (PPE) use and exposure results study Heinzerling, et al. (2020).

f) Exposure risk is assessed with questions that describe the risk of exposure to the respondent, consisting of 4 questions. Each question is given a score of 0 to 3, then the score in each category is added up and an interpretation of low, medium, high is carried out. Instrument adapted from the Illinois risk classification of health-care personnel and community contacts with potential exposure to COVID-19 (Ghinai et al., 2020).

g) Vaccination history was assessed using a questionnaire that represented vaccination activities that had been experienced by respondents who had experienced a Covid-19 event. The choice used is given a score of 1 and no score of 0.

2.2. Methods

This type of observational analytic research with a Cross Sectional Study design to assess the dominant factors associated with the incidence of Covid-19 in nurses in the prehospital and intrahospital settings. The scheme for Cross Sectional Design can be seen in Figure 1.
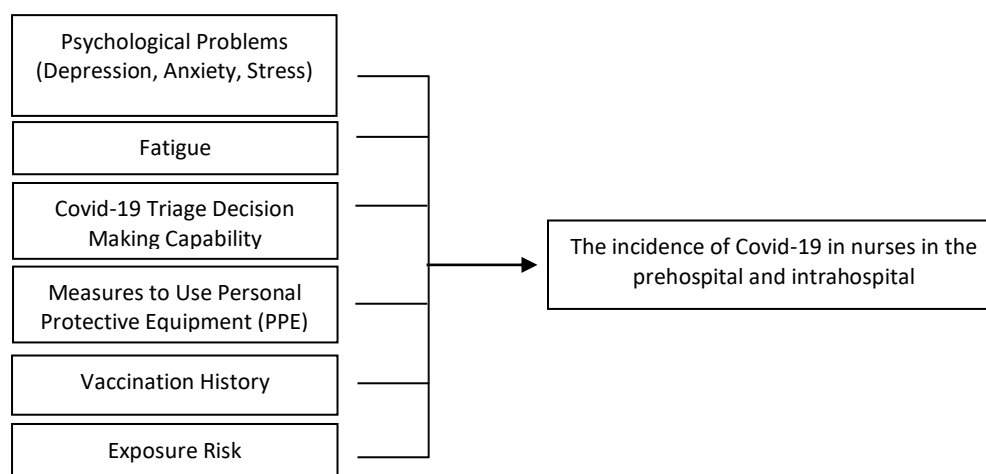

Figure 1: Cross Sectional Design

2.2.1. Dependent Variable

Incidence of Covid-19 in nurses in the prehospital and intrahospital scopes, and independent variables: Fatigue, Psychological Problems (Depression, Anxiety, Stress), Ability to make decisions Triage-EWS Screening Covid-19, Vaccination history, risk of exposure and Actions to Use Personal Protective Equipment (PPE).

2.2.2. Population

Nurses in the scope of prehospital and intrahospital. Sample; the sampling technique used consecutive sampling with the criteria of nurses who are actively working in the prehospital and intra-hospital settings, serving as nurses and filling out questionnaires via google form at the specified time period for data collection, namely July 25, 2021.

2.2.3. Univariate, Bivariate, Multivariate Analysis

Univariate analysis assesses variables and distributes their percentages, in bivariate analysis in this study the chi-square statistical test is a statistical technique used to calculate the relationship between the independent and dependent variables if the data is ordinal with nominal, and multivariate to assess the dominant factor using the logistic regression test (Sugiyono, 2012)

3. Results and Discussion

The research data collection activity was carried out on 136 respondents, namely nurses in the City and Regency of Bandung who filled out an online questionnaire using g.form on July 25 2021, which was measured at one time. The presentation of the data displays an overview of (1) univariate characteristics, Fatigue, Psychological Problems (Depression, Anxiety, Stress), Triage-EWS Screening Covid-19 decision-making abilities, vaccination history, risk of exposure, Actions to Use Personal Protective Equipment (PPE) and Covid incidents -19, (2) Bivariate describes the relationship between variables displayed based on the results of the Chisquare test, (3) Multivariate describes the dominant factors associated with the incidence of Covid-19 displayed based on the results of the logistic regression test.

3.1. Characteristics of Nurses in the Prehospital and Intra-Hospital Areas

The following shows the characteristics of 136 nurses who work in the prehospital and intrahospital settings based on age, gender, level of education in the area where they work can be seen in Table 1.

Table 1: Frequency Distribution of Nurse Characteristics in the Prehospital and Intrahospital Scopes based on Gender, Years of Service, Level of Education, Scope of Work Area and Area of Expertise

No	Gender	F	%
1.	Man	64	47.1%
2.	Woman	72	52.9 %
No	**Years of service**	**F**	**%**
1.	0 – 5 years	28	20.6%
2.	6 – 10 years	27	19.9%
3.	>10 Years	81	59.6%
No	**Level of education**	**F**	**%**
1.	D3	35	25.7%
2.	S1	24	17.6%
3.	Profession	64	47.1%
4.	S2	13	9.6 %
No	**Scope of Work area**	**F**	**%**
1.	Pre-Hospital	26	19,1
2.	Hospital	110	80.9
No	**Areas of expertise**	**F**	**%**
1.	Emergency	48	35.3%
2.	Medical Surgery	32	23.5%
3.	Critical Care	19	14%
4.	Maternity	4	2.9%
5.	Family-Community	10	7.4%
6.	Surgery	10	7.4%
7.	Child	12	8.8%
8.	Elderly	1	0.7%
	Amount	**136**	**100%**

Table 1 can illustrate that of the 136 nurses, 52.9% (72) nurses were female in line with the Covid study, CDC, Team, et al. (2020) which states that most of the workers caring for Covid-19 are women, namely 73% (6,603) (CDC COVID-19 Response Team, 2020).

Table 1 can illustrate that of 136 nurses, the working period of 59.6% (81) nurses was more than 10 years, this is different from the results of research by Jin, et al. (2020) which states that almost half of 44.7% (46) of the officers who treat Covid-19 patients during their working period are at junior level (González-Gil et al., 2021).

Table 1 can describe that of 136 nurses. 47.1% (64) nurses are educated in the nursing profession, in contrast to the research by Firew, et al. (2020) which states that officers who treat Covid-19 patients are Nurses (practitioner, general, registered) 26.80% (546), as well as research Hu, et al. (2020) stated that the average nurse who treats Covid-19 is a bachelor's degree or higher (78.1%) (Firew et al., 2020; Jin et al., 2020).

Table 1 can describe that of 136 nurses. 80.9% (110) of nurses work within the scope of the hospital area, and 25.3% (48) of nurses have emergency expertise, this is in line with the research of Firew, et al. (2020) which states that a small proportion of officers treating Covid-19 patients are in the emergency scope, namely 13.06% (266) (Firew et al., 2020).

3.2. Characteristics of Nurses in the Prehospital and Intra-Hospital Areas

The following shows the fatigue level of 136 nurses working in the prehospital and intrahospital settings measured by the Indonesian version of the Japanese Industrial Fatigue Research Committee (JIFRC) Questionnaire can be seen in Table 2.

Table 2: Frequency Distribution of Nurse Fatigue Levels in Prehospital and Intrahospital

Fatigue Level	Frequency	Percentage (%)
Low	72	52.9%
Currently	61	44.9%
Tall	3	2.2%
Total	**21**	**100%**

From Table 2 it can be illustrated that of the 136 nurses, 52.9% (72) nurses experienced a low level of fatigue, in contrast to research Hu, et al. (2020) which states that the average nurse experiences moderate fatigue, namely EE (mean=23.44, SD=13.80), DP (mean=6.77, SD=7.05) with emotional exhaustion of 60, 5% (1,218) depersonalization 42.3% (853), and personal achievement 60.6% (1,219).

O'Mahony et al. (2018) states that fatigue can be influenced by a person's personality and years of service. 59.6% (81) of the nurses in this study had a working period of more than 10 years, which increases the length of service, the higher the productivity so that they have experience in managing patients.

This study showed that there were incidents of nurses experiencing moderate levels of fatigue, namely 44.9% (61) and high levels of fatigue, namely 2.2% (3). Several studies state that increased fatigue can be influenced by workload and exposure periods and situations of increasing Covid-19 (Hu et al., 2020). In this study 80.9% (110) of nurses worked within the scope of the hospital and this research was conducted in July 2021 where the number of Covid-19 patients in July 2021 experienced a sharp increase due to the covid-19 variant delta, an increase in the number of visits to the hospital for Covid-19 patients. 19 has an impact on nurse fatigue.

3.3. Psychological Problems (Depression, Anxiety, Stress) Nurses in the Prehospital and Intra-Hospital Areas

The following shows the psychological problems (Depression, Anxiety, Stress) of 136 nurses in the prehospital and intrahospital areas measured by the DASS 21 Questionnaire can be seen in Table 3.

Table 3: Frequency Distribution of Nurse Fatigue Levels in Prehospital and Intrahospital

Psychological Problems	Frequency	Percentage (%)
Depression	F	%
Normal	86	63.2%
Light	38	27.9%
Currently	11	8.1%
Heavy	1	0.7%
Worried	**F**	**%**
Normal	30	22.1%
Light	36	26.5%
Currently	63	46.3%
Heavy	6	4.4%
Very heavy	1	0.7%
stress	**F**	**%**
Normal	130	95.6%
Light	4	2.9%
Currently	2	1.5%

Total	**136**	**100%**

Table 3 can illustrate that of the 136 nurses, 63.2% (86) of the nurses did not experience depression or were normal, 46.3% (63) of the nurses experienced moderate levels of anxiety, and 95.6% (130) did not experience stress or were normal. According to research Al Maqbaliet al. (2021).states that about a third of nurses working during COVID-19 suffer from psychological symptoms supported by research Hu, et al. (2020) which states that 40% to 45% of nurses experience anxiety.

Associated with research by Firew, et al. (2020) which states that the higher the number of Covid-19 patients who are treated will increase 50% of working hours in contact with Covid-19 patients which can increase anxiety, anxiety increases with families who have contracted Covid-19. This study shows that psychological problems in nurses are anxiety, when it is associated with the data collection period July 2021 is the peak of the highest deaths due to the delta variant of Covid-19, with a high increase in the number of Covid-19 cases every day, the risk of transmission increases anxiety for nurses.

3.4. Decision Making Ability Triage-EWS Screening Covid-19 Nurses in the Prehospital and Intra-Hospital Areas

The following shows the ability of 136 nurses in the prehospital and intrahospital scopes in making decisions on the TRIASE-EWS Screening Covid-19 can be seen in Table 4.

Table 4: Frequency Distribution of Nurses' Ability in the Prehospital and Intrahospital Scopes in making TRIASE-EWS Screening Covid-19 Decisions

Decision-making	Frequency	Percentage (%)
Not good	38	27.9%
Well	98	72.1%
Total	**136**	**100%**

Table 4 can illustrate that out of 136 nurses, 72.1% (98) nurses have good decision-making skills for Triage-EWS Screening Covid-19. According to Khairina, et al. (2018) length of service is the dominant factor related to nurse decision making with a p value of 0.012 and an odds ratio of 17.856. In this study 59.6% (81) of the nurses had worked for more than 10 years and 47.1% (64) of the nurses had education in the nursing profession (Ners), education, length of work and experience can improve critical thinking skills and accuracy. triage decision.

3.5. Risk of Exposure to Covid-19 for Nurses in the Prehospital and Intra-Hospital Areas

The following shows the risk of exposure to Covid-19 in 136 nurses in the prehospital and intrahospital areas can be seen in Table 5.

Table 5: Frequency Distribution Risk of Exposure to Covid-19 in Nurse in Prehospital and Intrahospital Scope

Exposure Risk	Frequency	Percentage (%)
Not	9	6.6
Yes	127	93.4%
Exposure Level	**F**	**%**
Low	46	33.8%
Currently	49	36%
Tall	41	30.1%
Place of Exposure Risk	**F**	**%**
Public health center	4	2.9%
Hospital	101	74.3%
Emergency Ambulance (119)	5	3.7%
Community Environment	13	9.6%
Clinic	2	1.5%
Family	11	8.1%
Present during the aerosolization action procedure	**F**	**%**
Not	54	39.7%
Yes	57	41.9%
Not sure	25	18.4%
Exposure duration with covid 19 patients (minutes)	**F**	**%**
<2 min	26	19.1 %
2–30 minutes	55	40.4%

	F	%
31–60 minutes	21	15.4%
>60 minutes	34	25.%
Number of Patients Treated	**F**	**%**
0 patients	18	13.2%
1–10 patients	20	14.7%
11–50 patients	38	27.9%
51–100 patients	22	16.2%
>100 patients	38	27.9%

Table 5 illustrates that out of 136 nurses, 93.4% (127) nurses had a risk of exposure to Covid-19, 36% (49) of nurses experienced a moderate level of risk of exposure to Covid-19, 74.3% (101) nurses experienced a risk exposed in the Hospital, 27.9% (38) of nurses caring for 11-50 Patients, 41.9% (57) of nurses Present in Aerosolization Actions, 40.4% (55) of nurses in contact with Covid-19 patients for more than 2- 30 minutes. In line with the research by Firew, et al. (2020), which states that officers who treat Covid-19 patients 19 most of 70.60% (502) treated 11-50 Covid-19 patients and 69.63% (752) were present in aerosolization procedures. The risk of exposure to Covid-19 for 347 respondents, 66% (228) had a low risk and 34% (119) had a moderate risk (Ghinai et al., 2020).

Close contact with confirmed cases is the cause of Covid-19 transmission. (González-Gil et al., 2021) In this study 80.9% (110) of nurses worked in the scope of the hospital area, and 74.3% (101) of nurses experienced a risk of exposure in the hospital. The increase in Covid-19 cases in July 2021 has an impact on increasing the number of visits by Covid-19 patients which has an impact on increasing the risk of Covid-19 exposure in nurses.

3.6. Actions to Use Personal Protective Equipment (PPE) for Nurses in the Prehospital and Intra-Hospital Areas

The following shows the actions of using personal protective equipment (PPE) for 136 nurses in the prehospital and hospital settings can be seen in Table 6.

Table 6: Frequency Distribution Measures to Use Personal Protective Equipment (PPE) on Nurse in Prehospital and Intrahospital scope

Time to Use PPE	Frequency	Percentage (%)
• Half of the time or less (Less than 25%)	50	36.8%
• Most of the time (25%–50% of the time)	65	47.8%
• Every time (More than 50% of the time)	21	15.4%
PPE type	**F**	**%**
Mask	31	22.8 %
Level 1 PPE	24	17.6 %
PPE Level 2	43	31.6 %
PPE Level 3	38	27.9 %
Participate in PPE Use Training	**F**	**%**
Yes	71	52.2%
Not	65	47.8%
Total	**136**	**100%**

Table 6 illustrates that out of 136 nurses, 47.8% (65) nurses use PPE most of the time (25% -50%), 31.6% (43) nurses use PPE level 2, and 52.2% (71)) have attended training on the use of PPE. Factors that cause infection in health workers are PPE and its training and access to PPE, lack of PPE is an increased risk of infection. (Firew et al., 2020) In this study, nurses used PPE 25% -50% of their working time, with level 2 PPE and had received training in using PPE, because since March 19 2020, WHO has recommended using standard PPE when handling positive patients with COVID-19, namely medical masks, gowns , gloves, and goggles.

3.7. Covid-19 Incidence of Nurses in Prehospital and Intra Hospital

The incidence of Covid-19 in 136 nurses in the prehospital and intrahospital areas can be seen in Table 7. From Table 7 it can be illustrated that of the 136 respondents, 50.74% (69) of the nurses experienced a Covid-19 incident, with 12.5% (17) experiencing symptoms of heat/fever. according to Firew, et al. (2020) 26.80% (546) of nurses experienced Covid incidents -19 with symptoms of fever 48.83%. so is research Jin, et al. (2020).which stated that of the 103 Covid-19 patients the most symptoms experienced were fever, namely 48.5%

Table 7: Frequency Distribution Covid-19 incident on Nurse in Prehospital and Intrahospital scope

Covid-19 events	F	%

Not	67	49.26%
Yes	69	50.74%

Symptom	F	%
Loss of Smell or Taste	16	11.8%
Headache	6	4.4%
Hot	17	12.5%
Sore throat	2	1.5%
Have a cold	6	4.4%
Muscle ache	6	4.4%
Diarrhea	2	1.5%
Easily Tired	6	4.4%
Cough	4	2.9%
Congested	2	1.5%
missing	67	49.3%
Total	**136**	**100%**

3.8. History of Vaccination in Nurses Who Experience Covid-19 Events in the Prehospital and Intra-Hospital Areas

The following shows the vaccination history of 136 nurses in the prehospital and intrahospital scope, who experienced the incidence of Covid 19 can be seen in Table 8.

Table 8: Frequency Distribution of Nurse's Vaccination History in the Prehospital and Intrahospital scope in Experiencing Covid 19 Events

Vaccination History	Frequency	Percentage (%)
Not yet	22	16.2%
Already	47	34.6%
Missing System	67	49.3
Total	**136**	**100%**

Table 8 illustrates that out of 136 nurses, 34.6% (47) had already vaccinated. Study Junaedi et al., (2022) stated that in July 2021 there was an increase in thousands of cases of 40-50 thousand with a high daily death rate, at this time the government's program in efforts to deal with Covid-19 was a mass vaccine. Data collection was carried out in July 2021 when the government established a mass vaccine program.

3.9. The Impact of Fatigue Levels on Covid-19 Incidents in Nurses in the Prehospital and Intra-Hospital Environments

Analysis of the impact of fatigue levels on the incidence of Covid-19 in 136 nurses in the Prehospital and intrahospital settings using the Chi-Square test can be seen in Table 9.

Table 9: Analysis of the Impact of Fatigue Level on the Incidence of Covid-19 in Nurses in the Prehospital and Intrahospital Settings

Covid 19 events	Fatigue Level			Total	P-Value
	Low	**Currently**	**Tall**		
Not	41 (56.9%)	31 (50.8%)	1 (33.3%)	73 (53.7%)	0.604
Yes	31 (43.1%)	30 (49.2%)	2 (66.7%)	63 (46.3%)	
TOTAL	72 (100%)	61 (100%)	3 (100%)	136 (100%)	

Table 9 illustrates that the p-value is 0.604 in the Chi-Square test, this shows that the p-value is 0.604> α 0.05 which means that the level of fatigue is not related to the incidence of Covid-19 or there is no impact of fatigue on the occurrence of Covid-19 in nurses in the scope of Prehospital and intrahospital.

Research results are different from research Firew, et al. (2020) 26.80% (546) nurses experienced an incident of Covid-19 19experiencing high fatigue. In this study someone who experienced low, medium and high fatigue levels still had a risk of Covid-19 incident.

3.10. The Impact of Psychological Problems (Depression, Anxiety, Stress) on the Incidence of Covid-19 in Nurses in the Prehospital and Intra-Hospital Areas

Analysis of the impact of Psychological Problems (Depression, Anxiety, Stress) on the incidence of Covid-19 in 136 nurses in the Prehospital and intra-hospital settings using the Chi-Square test can be seen in Table 10.

Table 10: Analysis of the impact of Psychological Problems (Depression, Anxiety, Stress) on the Incidence of Covid-19 in Nurses in the Prehospital and Intrahospital Settings

Covid 19 events	Depression				Total	P-Value
	Normal	Light	Currently	Heavy		
Not	48 (55.8%)	20 (52.6%)	5 (45.5%)	0 (0.0%)	73 (53.7%)	0.652
Yes	38 (44.2%)	18 (47.4%)	6 (54.5%)	1 (100.0%)	63 (46.3%)	
TOTAL	72 (100%)	61 (100%)	3 (100%)	1 (100.0%)	136 (100%)	

Covid 19 events	Worried					Total	P-Value
	Normal	Light	Currently	Heavy	Very heavy		
Not	17 (56.7%)	18 (50.0%)	34 (54.0%)	4 (66.7%)	0 (0.0%)	73 (53.7%)	0.759
Yes	13 (43.3%)	18 (50.0%)	29 (46.0%)	2 (33.3%)	1 (100%)	63 (46.3%)	
TOTAL	30 (100%)	36 (100%)	63 (100%)	6 (100%)	1 (100%)	136 (100%)	

Covid 19 events	stress			Total	P-Value
	Normal	Light	Currently		
Not	72 (55.4%)	1 (25%)	0 (0.0%)	73 (53.7%)	0.150
Yes	58 (44.6%)	3 (75%)	2 (100%)	63 (46.3%)	
TOTAL	130 (100%)	4 (100%)	2 (100%)	136 (100%)	

Table 10 shows that the p-value is 0.652 in the Chi-Square test, this shows that the p-value is 0.652>α 0.05 which means that depression is not related to the incidence of Covid-19 or there is no impact of depression on the incidence of Covid-19 in nurses in the scope of Prehospital and intrahospital. The psychological problem of anxiety also has a p-value of 0.759 in the Chi-Square test, this shows that the p-value is 0.759> α 0.05 which means that the level of anxiety is not related to the incidence of Covid-19 or there is no impact of anxiety on the occurrence of Covid-19 19 on nurses in the Prehospital and intrahospital scopes. Psychological problems Stress also has a p-value of 0.150 on the Chi-Square test, this shows that the p-value is 0.150> α 0, 05 which means that the stress level is not related to the incidence of Covid-19 or there is no impact of stress on the incidence of Covid-19 in nurses in the Prehospital and intrahospital settings. In contrast to the research by Hu, et al. (2020) which stated that officers who experienced Covid incidents -19 suffering from anxiety, stress, depression.

3.11. Actions to Use Personal Protective Equipment (PPE) for Nurses in the Prehospital and Intra-Hospital Areas

Analysis of the impact of the Triage-EWS Screening Covid-19 decision-making ability on the incidence of Covid-19 in 136 nurses in the Prehospital and intra-hospital settings using the Chi-Square test can be seen in Table 11.

Table 11: Analysis of the impact of Triage-EWS Screening Covid-19 Decision-making Ability on the Incidence of Covid-19 in Nurses in the Prehospital and Intrahospital settings

Covid 19 events	Triage-EWS Screening Covid-19 decision-making capabilities		Total	P-Value
	Not good	Well		
Not	24 (63.2%)	49 (50%)	73 (53.7%)	0.185
Yes	14 (36.8%)	49 (50%)	63 (46.3%)	
TOTAL	38 (100%)	98 (100%)	136 (100%)	

In table 11 it is found that the p-value is 0.185 in the Chi-Square test, this indicates that the p-value is 0.185>α 0.05 which means that the Triage-EWS Screening Covid-19 decision-making ability is not related to the incidence of Covid-19 or no impact on the ability to make decisions Triage-EWS Screening Covid-19 on the incidence of covid-19 in nurses in the Prehospital and intrahospital settings. Good decision-making ability in setting TRIASE-EWS Screening Covid-19 cannot guarantee someone will avoid Covid-19

3.12. Impact of Vaccination History on Covid-19 Incidence in Prehospital and Intra-Hospital Nurses

Analysis of the impact of Vaccination History on the incidence of Covid-19 in 96 nurses in Prehospital and intra-hospital settings using the Chi-Square test can be seen in Table 12.

Table 12: Analysis of the Impact of Vaccination History on the Incidence of Covid-19 in Nurses in the Prehospital and Intrahospital Settings

Covid 19 events	Vaccination History		Total	P-Value
	Not yet	Already		
Not	5 (22.7%)	1 (2.1%)	6 (8.7%)	0.011
Yes	17 (77.3%)	46 (97.9%)	63 (91.3%)	
TOTAL	47 (100%)	22 (100%)	69 (100%)	

In table 12 it is found that the p-value is 0.011 in the Chi-Square test, this indicates that the p-value is 0.011> α 0.05 which means that the history of vaccination is related to the incidence of Covid-19 with a significant p-value of 0.011 or there is an impact on history vaccination against the incidence of covid-19 in nurses in the Prehospital and intra-hospital scope.

In line with research Matrajt et al., (2021) Which states that vaccines with ≥50% effectiveness can prevent Covid-19, this is also supported by research Junaedi, et al. (2022). Which states that vaccination has a real effect on cumulative cases of Covid-19 in Indonesia with a coefficient of determination of 0.9923. This study shows that vaccines can prevent the occurrence of covid 19.

3.13. Impact of Prehospital and Intrahospital Nurses Covid-19 Exposure Risk on Covid-19 Incidents in Prehospital and Intrahospital Nurses

Analysis of the impact of the risk of exposure to Covid-19 on the incidence of Covid-19 in 136 nurses in the Prehospital and intra-hospital settings using the Chi-Square test can be seen in Table 13.

Table 13: Analysis of the Impact of the Risk of Exposure to Covid-19 on the Incidence of Covid-19 in Nurses in the Prehospital and Intrahospital Settings

Covid 19 events	Risk of exposure to Covid-19			Total	P-Value
	Low	Currently	Tall		
Not	30 (65.2%)	27 (55.1%)	16 (39%)	73 (53.7%)	0.049
Yes	16 (34.8%)	22 (44.9%)	25 (61%)	63 (46.3%)	
TOTAL	46 (100%)	49 (100%)	41 (100%)	136 (100%)	

In table 13 it is found that the p-value is 0.049 in the Chi-Square test, this shows that the p-value is 0.049>α 0.05 which means that the risk of exposure to Covid-19 is related to the incident of Covid-19 with a significance p-value of 0.049 or there is an impact on the risk of exposure to Covid-19 on the incidence of covid-19 in nurses in the Prehospital and intrahospital scopes

In line with previous research which stated that exposure to Covid-19 patients was the cause of Covid-19 events. (Firew et al., 2020; Jin et al., 2020) This study shows that the higher the risk of exposure, the higher the incidence of Covid-19 in nurses in the hospital and prehospital environment.

3.14. The Impact of the Use of Personal Protective Equipment (PPE) on the Incidence of Covid-19 in Nurses in the Prehospital and Intra-Hospital Environments

Analysis of the impact of the use of Personal Protective Equipment (PPE) on the incidence of Covid-19 in 136 nurses in the Prehospital and intra-hospital settings using the Chi-Square test can be seen in Table 14.

Table 14: Analysis of the Impact of the Use of Personal Protective Equipment (PPE) on the Incidence of Covid-19 among Nurses in the Prehospital and Intrahospital Settings

Covid 19 events	Measures to Use Personal Protective Equipment		Total	P-Value
	Not good	Well		
Not	26 (65%)	47 (49%)	73 (53.7%)	0.094
Yes	14 (35%)	49 (51%)	63 (46.3%)	
TOTAL	40 (100%)	96 (100%)	136 (100%)	

Table 14 illustrates that the p-value is 0.094 in the Chi-Square test, this shows that the p-value is 0.094> α 0.05 which means that the use of personal protective equipment (PPE) is not related to the incidence of Covid-19 or has no impact Actions to use Personal Protective Equipment (PPE) against the incidence of covid-19 in nurses in the Prehospital and intra-hospital settings. The use of PPE is an important condition for preventing Covid-19, in this study it shows that even if someone has used good PPE they can still potentially experience a Covid-19 incident.

3.15. Actions to Use Personal Protective Equipment (PPE) for Nurses in the Prehospital and Intra-Hospital Areas

Analysis of the Dominant Factors Associated with the Incidence of Covid-19 in Prehospital and Intra-hospital Nurses in 136 Prehospital and intra-hospital nurses using a logistic regression test can be seen in Table 15.

Table 15: Analysis of the Dominant Factors Associated with the Incidence of Covid-19 in Nurses in the Prehospital and Intra Hospital Areas

Variables in the Equation

		B	SE	Wald	df	Sig.	Exp(B)
Step 1a	RISK	0.536	0.223	5.791	1	0.016	1710
	Constant	-1.206	0.476	6.418	1	011	0.299
a. Variable(s) entered on step 1: RISK.							

In table 15 it is found that the p-value is 0.015 in the logistic regression test, this shows that the p-value is 0.015> α 0.05 which means that the risk of exposure to Covid 19 is the dominant factor with the incidence of Covid-19 in nurses in the Prehospital and intrahospital settings.

The dominant factor related to the incidence of Covid-19 in nurses in the pre-hospital and in-hospital settings is the risk of exposure to Covid-19. Based on the frequency distribution of the risk of exposure to Covid-19 to nurses in the pre-hospital and intra-hospital scopes, it was found that out of 136 nurses, 93.4% were at risk of experiencing exposure to Covid-19, 36% experienced a moderate level of risk of exposure to Covid-19, 74.3% experience the risk of exposure in the hospital, 27.9% treat 11-50 patients every day, 41.9% attend aerosolization procedures, and 40.4% have contact with Covid-19 patients for more than 2-30 minutes.

Nurses need to be protected from Covid-19 infection. The spread of the virus from human to human occurs due to direct contact and the covid 19 virus can spread the virus via aerosols, the Covid-19 virus can enter the human body, especially the lungs through inhalation such as the nose and mouth (Firew et al., 2020).

Nurses make direct contact with Covid-19 patients for more than 2-30 minutes, nurses including health workers who always make direct contact with these patients are at risk of spreading the Covid-19 virus, the longer nurses have contact with patients, the greater the risk. arise. Many factors influence the risk of transmission of Covid-19 to health workers, especially nurses, one of which is the use of PPE. This is in line with the opinion of Firew, et al (2020) who said that the lack of adequate personal protective equipment (PPE) can place health workers at increased risk of exposure to Covid-19.

The use of PPE is one way for nurses to protect themselves from the threat of transmission of microorganisms or disease in the hospital. Even though based on the results of the study that there was no impact of using personal protective equipment on the incidence of Covid-19, based on calculations there were 36.8% of nurses, it cannot be denied that personal protective equipment is the most important way to increase awareness and prevent the spread of the Covid-19 virus. uncontrollable, especially for nurses who care for patients at close range in the pre-hospital and in-hospital settings. This is in line with research conducted by Jin, et al (2020) that the main factor influencing transmission is not using protective equipment when working at close range and in direct contact with infected people.

In addition to the risk of transmission, significant mental health complaints among health workers have arisen as a result of this pandemic. According to Burrer et al (2020), it has been found that health workers have significant self-reported levels of anxiety, depression, and even symptoms of post-traumatic stress disorder. In addition, several studies have looked at the relationship between risk factors, such as the availability and testing of PPE, with subsequent Covid-19 infection in health workers. Nurses are a pillar in fighting the COVID-19 pandemic, therefore preventing infection is the main thing to do.

4. Conclussion

Based on the results of the study, it was concluded that nurses were good in the prehospital and intrahospital areas: 1) Experiencing low levels of fatigue, 2) Experiencing the highest psychological problem, namely anxiety, 3) Nurses have good decision-making abilities Triage-EWS Screening Covid-19, 4) Nurses experiencing a moderate level of risk of exposure to Covid-19, 5) using good PPE, 6) experiencing an incident of Covid-19, 7) having received a vaccine, 8) factors related to the incidence of Covid-19 in nurses in the Prehospital and intrahospital settings are History of vaccination against the incidence of Covid-19 and the risk of exposure to Covid-19, 9) The risk of exposure to Covid-19 is a dominant factor with the incidence of Covid-19 in nurses in the Prehospital and intra-hospital settings.

Handling of Covid 19 incidents for nurses is important to do, from research results it appears that the risk of exposure to people who are confirmed positive can increase the incidence of Covid 19, so it is necessary to take preventive measures by implementing physical distancing and also increasing activities that increase immunity.

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