

# Factors Associated with Anxiety Towards Omicron (Corona Virus Variant) Among Nurses in Bangli Regency of Bali

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**Abstract:** The COVID-19 pandemic gives massive negative impacts on human life, especially on the economic and health aspects. One COVID-19 variant, Omicron, makes the health situation more severe. Nurses who work at the forefront are prone to experiencing anxiety because of dealing patients with Omicron infections. This study aimed to identify factors associated with nurses' anxiety about the Omicron cases. This study was conducted in the Bangli Regency of Bali, Indonesia. Using a snowball sampling technique, the respondents were selected to participate in this study. Data were collected using a Google Form questionnaire. Univariate, bivariate (Chi-square test), and multivariate analyses (multiple logistic regression) were performed to study the data. This study found that 25.7% of the respondents experienced anxiety about how to handle Omicron cases. Perception and completeness of Personal Protective Equipment (PPE) were significantly associated with nurse anxiety. Nurses need to pay attention to their health safety in serving patients with COVID-19 infections.

## 1 INTRODUCTION


The outbreak of Coronavirus Disease 2019 (COVID-19) has become a threat all over the world. COVID-19 is an infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). SARS-CoV-2 is a new type of coronavirus which has never been previously identified in humans (WHO, 2022b), (Swarjana, Suyasa, & Nuryanto, 2022).


Since the SARS-CoV-2 virus variant was identified in many countries around the world, the World Health Organization (WHO) named the virus as Omicron using the Greek alphabet in May 2021. The virus' name makes it easier for people to track corona virus variants. Omicron or variant B.1.1.529 was first reported to the WHO on November 24, 2021. It was classified as an outbreak on November 26, 2021 under the Technical Advisory Group on Virus Evolution, primarily based on information from South Africa. Omicron has a large number of mutations, causing detrimental changes in the epidemiology of COVID-19 infection and acting

differently from other circulating variants (WHO, 2022a).

Anxiety about COVID-19 has been widely studied in various journals. However, research is limited to study anxiety about variants in general. Very few studies specifically point to specific anxiety about Omicron although a previous study has addressed anxiety about Delta variant (Swarjana, Suyasa, et al., 2022).

Health workers are responsible for handling COVID-19 patients either through preventive or curative measures. With a high demanding situation, they might develop negative psychological response, namely anxiety. Several factors affecting anxiety are gender, work unit, risk perception, age, marital status, years of service, workload, information and training, availability of PPE, and level of education (Uktutias & Drastyanaa, 2022), (Swarjana, Suarmayasa, et al., 2022). Previous studies have also found that age, family status, patient honesty, availability of personal protective equipment, and knowledge of staff anxiety are related to anxiety (Ifdil, Fadli, Suranata, Zola, & Ardi, 2020).

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Health service facilities such as hospitals, health centers, clinics, and others provide health services to people who are at risk of contracting with COVID-19. Being in contact with infected patients, health workers might develop anxiety. With that said, this study aimed to research factors that affect nurse anxiety in the Bangli district of Bali province.

## 2 METHODS

This study used a quantitative cross-sectional design, and it was conducted among nurses in Bangli district of Bali province, Indonesia. The research population involved all nurses working in Bangli Regency or 998 nurses in total. This study gathered 311 nurses as research samples. The sample size was calculated using the Daniel formula (Swarjana, 2022). After that, a snowball sampling technique was performed to select the samples. The inclusion criteria of the respondents were 1) nurses who worked in Bangli district; 2) had a smartphone; and 3) were willing to be a respondent. Meanwhile, nurses who were sick, on leave, or in quarantine at the time of data collection were excluded from the sample.

Data were collected through a questionnaire consisting of 1) demographic data of respondents (age, gender, education, marital status, and place of work); 2) anxiety using The Hamilton Anxiety Rating Scale (HARS) that consists of 14 components with five options (No symptoms, Mild, Moderate and Severe, and Very Severe). 3) Questionnaire on perception consists of 16 items with four options (Strongly Agree, Agree, Disagree, and Strongly Disagree); 4) Questionnaire related to work environment consists of four questions with four options (Strongly Supporting, Supporting, Not Supporting, and Strongly Not Supporting); 5) Questionnaire on completeness of standard PPE consists of "Yes" and "No" options; 6) questionnaire on PPE levels consists of one question with three options: "Level 1", "Level 2", "Level 3"; 7) last questionnaire on co-morbidities history consists of one question with "Yes" and "No" options.

Data were analyzed using univariate, bivariate, and multivariate analyses. Univariate analysis was used to find the frequency, mean, and proportion of each research variable. Bivariate analysis (Chi-square test) was performed to identify the association between dependent and independent variables. Furthermore, multivariate analysis (multiple logistic regression) was used to determine factors associated with anxiety. This study was granted an ethical approval from the Research Ethics Commission of the

Institute of Technology and Health Bali (No: 04.0560/KEPITEKES-BALI/III/2022).

## 3 RESULTS

Data were gathered from 311 nurses in Bangli district. This study presents five tables related to respondents' characteristics, anxiety, perceptions, work environment, completeness of PPE, comorbid history, as well as bivariate and multivariate analyses.

Table 1: Characteristics of respondents (n = 311).

Characteristics	f	(%)
Sex		
Male	102	(32,8)
Female	209	(67,2)
Age (years old)		
24- 30	89	(28,6)
31-40	135	(43,4)
41-50	70	(22,5)
51-60	17	(5,5)
Education		
Diploma 3 of Nursing	86	(27,7)
Bachelor of Nursing	223	(71,7)
Master of Nursing	2	(0,6)
Marital status		
Married	285	(91,6)
Unmarried	26	(8,4)
Work place		
Hospital	241	(77,5)
Health center	65	(20,9)
Clinic	5	(1,6)

Table 1 shows that the majority of respondents are women (67.2%) and are aged 31-40 years (43.4%). Respondents mostly have a Bachelor of Nursing degree (71.7%). Most of the respondents were married (91.6%), and they mostly worked at hospitals (77.5%).

Table 2: Categories of Anxiety (n = 311).

Categories	f	(%)
Normal	231	(74,3)
Mild anxiety	78	(25,1)
Moderate anxiety	2	(0,6)

Table 2 describes that the majority of respondents did not experience anxiety (74.3%) about Omicron variant cases, and neither did others (25.7%). In addition, some respondents experienced mild anxiety (25.1%).

Table 3: Perception, work environment, completeness and levels of PPE, and co-morbidities factors (n = 311).

Variable	f	(%)
Perception		
Fair	271	(87.1)
Good	40	(12.9)
Work environment		
Poor	255	(82.0)
Fair	56	(18.0)
Completeness of PPE		
Complete	307	(98.7)
Incomplete	4	(1.3)
Levels of PPE		
Level 1	58	(81.7)
Level 2	157	(93.5)
Level 3	53.5	(22.2)
Co-morbidities		
No	306	(98.4)
Yes	5	(1.6)

Table 3 explains that out of 311 respondents, respondents mostly have fair perceptions (87.1%). From the aspect of the work environment, most of the respondents had fair work environment (82.0%). Respondents mostly use complete PPE (93.5%) and mostly had no comorbid history (98.4%).

Table 4: Bivariate analysis results between sex, education, marital status, place of work, age, perception, work environment, completeness of PPE, comorbid history, and nurse anxiety towards Omicron variant (n = 311).

Variables	Anxiety Status			p-values
	Not Anxious n (%)	Anxious n (%)	Total n	
<b>Sex</b>				
Male	77 (75.5)	25 (24.5)	102	0.732
Female	154 (73.7)	55 (26.3)	209	
<b>Age (years old)</b>				
24- 30	65 (73.0)	24 (27)	89	0.003
31-40	97 (71.9)	38 (28.1)	135	
41-50	55 (78.6)	15 (21.4)	70	
51-60	14 (82.4)	3 (17.6)	17	
<b>Education</b>				
Diploma 3 of Nursing	68 (79.1)	18 (20.9)	86	0.002
Bachelor of Nursing	161 (72.2)	62 (27.8)	233	
Master of Nursing	2 (100)	0	2	

<b>Marital status</b>				
Married	215 (75.4)	70 (24.6)	285	0.121
Unmarried	16 (61.5)	10 (38.5)	26	
<b>Workplace</b>				
Hospital	177 (73.4)	64 (26.6)	241	0.002
Health center	49 (75.4)	16 (24.6)	65	
Clinic	5 (100)	0	5	
<b>Perception</b>				
Fair	208 (76.8)	63 (23.2)	271	0.009
Good	23 (57.5)	17 (42.5)	40	
<b>Work environment</b>				
Poor	191(74.9)	64 (25.1)	255	0.590
Fair	40 (71.4)	16 (28.6)	56	
<b>Completeness of PPE</b>				
Complete	230 (74.9)	77 (25.1)	307	0.023
Incomplete	1 (25)	3 (75)	4	
<b>Levels of PPE</b>				
Level 1	58 (81.7)	13 (18.3)	71	< 0.001
Level 2	157 (93.5)	11 (6.5)	168	
Level 3	16 (22.2)	56 (77.8)	72	
<b>Co-morbidities</b>				
No	299 (74.8)	77 (25.2)	306	0.077
Yes	2 (40)	3 (60)	5	

In Table 4, this study shows that both male and female respondents mostly did not feel anxious about Omicron. No significant association was found between sex and anxiety about Omicron variant (p = 0.732). The proportion of anxiety and education levels varied between age groups. Age and education were significantly related to anxiety about Omicron variant (p = 0.003; p = 0.002, respectively). However, marital status had no significant relationship with anxiety about Omicron variant (p = 0.121). Respondents who experienced anxiety mostly worked at hospitals. A significant association was found between the workplace and anxiety (p = 0.002). Furthermore, anxiety levels varied according to perceptions. A significant association was discovered between perception and anxiety about Omicron (p = 0.009). Although workspace was related to anxiety,

work environment was not ( $p = 0.590$ ). A different number of patients feeling anxious were found in relation to incomplete and complete PPE. A significant association was found between the completeness of PPE and anxiety about Omicron variant ( $p = 0.023$ ). Anxiety issues were different between the respondents based on the level of PPE; anxiety and the level of PPE were related to each other ( $p < 0.001$ ). Furthermore, from the co-morbidities aspect, the proportion of anxiety was higher in co-morbid respondents, but statistically, there was no association between co-morbid history and respondents' anxiety towards the Omicron Variant of COVID-19 ( $p 0.077$ ).

Table: 5 Multivariate analysis of factors associated with anxiety about Omicron variant in Bangli ( $n = 311$ ).

Variables	B	S. E	OR	95% CI	p-values
Perception	0.892	0.351	2.440	1.227-4.852	0.011
Completeness of PPE	0.936	0.352	2.550	1.280-5.082	0.008
Constanta	5.448	1.444	14.223		0.001

Table 5 presents that a significant association between two variables and anxiety about Omicron variant. The related variables were perception (OR: 2.440; 95% CI: 1.227-4.852;  $p = 0.011$ ), and completeness of PPE (OR: 2.55; 95% CI 1.280-5.082;  $p = 0.008$ ).

## 4 DISCUSSION

Every human being tends to experience anxiety when faced with situations in the form of threats, problems, and others (Swarjana, 2021), including the COVID-19 pandemic (Temsah et al., 2022), (Shan, Liu, Li, & Zheng, 2022). The anxiety levels of nurses in Bangli district of Bali province were not frequent. Respondents mostly did not feel anxious (74.3%) about Omicron variant, and 25.7% of them did. Most respondents experienced mild anxiety (25.1%).

The results of previous studies state that Omicron variant cause fear in the community because it has an extraordinary ability to mutate, causing a high transmission rate (Ren, Wang, Gao, & Zhou, 2022). Anxiety levels in this study involve (1) normal, (2) mild, (3) moderate, (4) severe, and (5) panic levels. (Louise, 2012). However, previous research divides anxiety levels into four: (1) mild, (2) moderate, (3) severe, and (4) panic levels (Videbeck, 2019).

The results of previous research show 22% of health worker respondents who experienced anxiety about Delta variant had various anxiety levels: 52% of mild anxiety, 34% of moderate anxiety, and only 14% of severe anxiety (Swarjana, Suyasa, et al., 2022). Meanwhile, research at the Mangusada Hospital, Badung Regency found different proportions of health workers (nurses and midwives) with anxiety: 14.7% mild anxiety, 4.2% moderate anxiety, and only 3.2% severe anxiety (Swarjana, Suarmayasa, et al., 2022). Another study found that only 8.6% of respondents experienced anxiety (Hou et al., 2022). The other found that 14% of respondents from East Java, Indonesia experienced anxiety (Lusida et al., 2022).

The current results show that perception and completeness of PPE were related to anxiety toward the Omicron variant. Meanwhile, previous study reports that age and health workers are related to anxiety during the COVID-19 pandemic (Lusida et al., 2022). Other studies have also found slightly different findings in which age and gender are related to anxiety (Turna et al., 2021). Other than those variables, marital status, social isolation, employment status, education, income, lifestyle, clinical risk, and personality are likely associated with anxiety (Santabárbara et al., 2021), (Ferré et al., 2022).

### 4.1 Limitations of Study

This study was conducted at one point in time in one district of Bali. Such small scope of research may not be able to explain the causes and effects in the general population of nurses.

## 5 CONCLUSION

This current study found that 25.7% of respondents experienced anxiety toward Omicron variant. Of this percentage, respondents generally experienced mild anxiety. The bivariate analysis found no relationship between sex and marital status with anxiety about Omicron variant experienced by the nurses. Meanwhile, age, education, workplace, perception, completeness of PPE, and levels of PPE were associated with nurse anxiety. The last idea to point is that the multivariate analysis shows that perception and completeness of PPE were significantly associated with nurse anxiety toward Omicron variant.

## RECOMMENDATION

Nurses are expected to pay close attention to two main aspects: perception of Omicron variant and completeness of PPE. To prevent excessive anxiety, nurses need comfortable and safe workplace. Nurses' perceptions of Omicron variant can be improved through socialization and training on the standard operating procedures of PPE by levels and work unit.

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