

## Factors Associated with Anxiety among Nurses and Midwives during the Covid-19 Pandemic in the Emergency Unit and Outpatient Department of the Mangusada Regional Hospital, Badung Regency

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### ABSTRACT

**Introduction:** The Covid-19 pandemic has had a wide impact on society, including healthcare workers on the frontline dealing with Covid-19. The large number of healthcare workers who have been exposed to and died due to Covid-19 causes anxiety for both nurses and midwives who work in hospitals. **Objective:** This study aimed to assess the factors associated with anxiety among nurses and midwives in the emergency unit and outpatient department of Mangusada Regional Hospital. **Methods:** This study used a cross-sectional design involving 95 samples consisting of nurses and midwives working in the emergency unit and the outpatient department of Mangusada Regional Hospital which was selected using a total sampling technique. Data were collected using a questionnaire developed by the researchers. Furthermore, data collection was done online using a Google form that has been shared with respondents. Furthermore, the data were analyzed using univariate, bivariate, and multivariate analysis. **Results:** Of the total 95 respondents, 21 (22.1%) respondents experienced anxiety. Furthermore, multivariate analysis found that family history of exposure to Covid-19 (AOR: 19.39), history of comorbidities (AOR: 10.73), and support from family, colleagues, and superiors (AOR: 7.87) were significantly associated with anxiety among nurses and midwives during the Covid-19 pandemic. **Conclusion:** Hospital management needs to pay special attention to minimizing the anxiety experienced by nurses and midwives during the Covid-19 pandemic through the provision of social support from family, colleagues, and superiors.

**Keyword:** Covid-19, anxiety, nurses and midwives, Mangusada Regional Hospital

### ABSTRAK

**Latar belakang:** Pandemi Covid-19 berdampak luas bagi masyarakat termasuk bagi tenaga kesehatan yang menjadi garda terdepan dalam penanggulangan Covid-19. Banyaknya tenaga kesehatan yang terpapar dan meninggal akibat Covid-19 menimbulkan kecemasan baik bagi perawat maupun bidan yang bekerja di rumah sakit. **Tujuan:** Untuk menganalisis faktor-faktor yang berhubungan dengan kecemasan perawat Instalasi Gawat Darurat (IGD) dan Poliklinik di Rumah Sakit Daerah (RSD) Mangusada. **Metode:** Penelitian ini menggunakan desain cross-sectional yang melibatkan 95 sampel yang terdiri dari perawat dan bidan yang bekerja di IGD dan Poliklinik RSD Mangusada yang dipilih menggunakan teknik total sampling. Data dikumpulkan menggunakan kuisioner yang dikembangkan oleh peneliti. Selanjutnya pengumpulan data dilakukan secara online menggunakan Google form yang disebar ke responden. Data dianalisis menggunakan analisis univariate, bivariate dan multivariate. **Hasil:** Dari total 95 responden, 21 (22,1%) responden mengalami kecemasan. Selanjutnya, analisis multivariate menemukan bahwa riwayat keluarga terpapar Covid-19 (AOR: 19,39), riwayat komorbid (AOR: 10,73) dan dukungan keluarga, teman sejawat serta atasan (AOR: 7,87) secara signifikan berhubungan dengan kecemasan perawat dan bidan selama pandemi Covid-19. **Kesimpulan:** Manajemen rumah sakit perlu memberikan perhatian untuk meminimalisir kecemasan yang dialami oleh perawat dan bidan selama pandemic Covid-19 melalui pemberian dukungan sosial yang dapat berasal dari keluarga, teman sejawat dan atasan.

**Kata Kunci:** Covid-19, kecemasan, perawat dan bidan, Rumah Sakit Daerah Mangusada

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## Introduction:

The current Covid-19 pandemic is a very complex problem faced by almost all countries in the world, including Indonesia. The total world population that has confirmed Covid-19 was 175,306,598 cases with 3,792,777 deaths, while the daily cases on June 13, 2021, reached 387,209 cases. Indonesia is one of the countries in the world that is also facing the complicated problem of Covid-19. Data shows that Indonesia has a total of 1,901,490 confirmed cases of COVID-19 with a total death toll of 52,730 (WHO, 2021).

The Indonesian government through the Ministry of Health continues to promote Covid-19 vaccination, which currently has reached 50% for dose 1 and 28% for dose 2 as targets for stage 1 and 2 vaccinations (Kemenkes, 2021c). However, the very widespread implementation of vaccinations is still not able to give signs of the end of the pandemic. Therefore, the government continues to at least try to protect citizens, especially healthcare workers and other risk groups from the fatal impact of Covid-19. There are many healthcare workers and people who have been vaccinated but are still confirmed positive for Covid-19 (Kemenkes, 2021a).

Healthcare workers, including nurses and midwives, are at the forefront of handling Covid-19 in the hospitals. People who come to the hospital to get health services must be served as well as possible. However, health workers, including nurses and midwives, have a great risk of contracting Covid-19, especially when delivering health services to the patients in the emergency unit or at the hospital's outpatient department (Kemenkes, 2021b). Nurses and midwives who serve patients do not know for sure whether the patients being served are infected with Covid-19 or not due to the Covid-19 test was not carried out unless there is a history of close contact with Covid-19 patients or there are signs that point to Covid-19 (Kemenkes, 2020). The impact of this condition is anxiety on nurses and midwives who work on the frontlines as a result of the high risk of contracting Covid-19, especially from patients who have absolutely no symptoms of Covid-19

but are at risk of transmitting it to the healthcare workers and other patients (Labrague & De los Santos, 2020). The Mangusada Regional Hospital is one of the hospitals that provide services to patients with Covid-19. Mangusada Regional Hospital has a special room equipped with various facilities for treating Covid-19 patients. Meanwhile, healthcare workers, including nurses and midwives at the Mangusada Hospital, must also provide health services to the patients in the emergency unit and at the outpatient department with various health complaints. Given the high risk of contracting Covid-19 and the anxiety of nurses and midwives in serving patients in the emergency unit and at the outpatient department, it was very urgent to study factors associated with the anxiety of nurses and midwives in the emergency unit and outpatient department of the Mangusada Regional Hospital during the Covid-19 pandemic.

## Methods:

The study design used in this study was a cross-sectional approach that conducted during October and November 2021 at Mangusada Regional Hospital of Badung Regency. The population in this study was all nurses and midwives who worked in the emergency unit and outpatient department of Mangusada Regional Hospital. Of total 111 nurses and midwives, 95 of them were participated as samples with total sampling technique. The inclusion criteria of this study were nurses and midwives who work in the emergency unit and outpatient department of Mangusada Regional Hospital, have a minimum one year of work experience, and willing to be respondents. Meanwhile, the exclusion criteria were nurses and midwives who worked in the emergency unit and outpatient department of Mangusada Regional Hospital but they were sick or on leave during data collection period, therefore it was not possible to fill out the questionnaire. The tool of data collection was questionnaires developed by the researchers based on the literature review. The questionnaire consists of several parts including (1) General characteristics of respondents (age, gender,

education, and length of work; (2) Anxiety using the Hamilton Anxiety Rating Scale (HARS) questionnaire; (3) Knowledge about Covid-19 with correct, wrong and doesn't know answers; (4) Attitude towards the risk of contracting Covid-19 using a Likert scale (Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree); (5) Behavior on prevention of Covid-19 transmission using the options of always, often, sometimes, never; (6) Support from family, colleagues and superiors using a Likert scale (Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree); (7) Co-morbid status with yes and no answers; and (8) History of exposure to Covid-19 with yes and no answers. Furthermore, the data collection method was a questionnaire which was filled out by the respondents through online using a Google form. The data analysis used in this study consisting (1) Univariate analysis is known as simple analysis (Swarjana, 2016). Univariate analysis was used to analyze variable data, especially those related to the value of frequency, proportion, and central tendency; (2) Bivariate analysis is the analysis carried out on two variables which were carried out simultaneously (Swarjana, 2016), and in this study to analyze the relationship between 2 research variables using Chi-square; (3) Multivariate analysis, namely multi-variable analysis or analysis on 3 or more variables that are carried out simultaneously (Swarjana, 2016), and in this study using multiple logistic regression to examine the factors associated with anxiety. This research has received approval from the Ethics Commission of Mangusada Regional Hospital (800/7143/RSDM/2021).

## Results:

The results of this study are presented based on three forms of analysis including univariate, bivariate, and multivariate analysis.

### Univariate analysis

Table 1. General Characteristics of Respondents who work in the Emergency Unit and Outpatient Department of Mangusada Regional Hospital (n=95)

Characteristics	F	%
Age (years old)		
≤ 35	50	52.6
> 35	45	47.4
Gender		
Male	19	20.0
Female	76	80.0
Education		
Diploma III	48	50.5
Diploma IV	5	5.3
Bachelor degree	42	44.2
Work unit		
Outpatient	46	48.4
Department		
Emergency installation	49	51.6
Length of work		
≤ 10 years	54	56.8
> 10 years	41	43.2
The family has confirmed Covid-19		
Yes	52	54.7
No	43	45.3
Comorbidities history		
Yes	39	41.1
No	56	58.9

Table 1 explains that from a total of 95 respondents, most of them were ≤35 years old (52.6%) respondents, female respondents (80%), Diploma III (50.5%), working in the emergency installation (51.6%) and most of the respondents worked ≤10 years (56.8%) respondents. Table 1 also shows that most of the respondents have families with a history of having confirmed Covid-19 (54.7%), and the most of respondents had no comorbid history (58.9%).

Table 2. Levels of anxiety among respondents during Covid-19 pandemic in Mangusada Regional Hospital (n=95)

Four levels of anxiety	F	%
Normal	74	77.9
Mild anxiety	14	14.7
Moderate anxiety	4	4.2
Severe anxiety	3	3.2
Two levels of anxiety		
Normal	74	77.9
Anxiety	21	22.1

Table 2 shows the proportion of anxiety levels of nurses and midwives. In the four levels of anxiety, most of the respondents did not have anxiety (77.9%) and the rest were at the level of mild, moderate, and severe anxiety with the respective proportions of 14.7%, 4.2%, and 3.2% of the respondents. Meanwhile, at two levels of anxiety, 22.1% of respondents experienced anxiety.

### Bivariate analysis

Table 3. The association between gender, education, work unit, history of exposure to Covid-19, history of comorbidities, knowledge, attitudes, behavior, and support with categories anxiety during the Covid-19 pandemic among respondents in Mangusada Regional Hospital (n=95)

Variables	Categories of anxiety		Total	p-value
	Anxiety n (%)	Normal n (%)		
<b>Age (years old)</b>				
≤ 35	12 (24)	38 (76)	50	0.639
> 35	9 (20)	36 (80)	45	
<b>Gender</b>				
Male	4 (21)	15 (79)	19	0.902
Female	17 (22)	59 (78)	76	
<b>Education</b>				
Diploma III/IV	12 (23)	41 (77)	53	0.887
Bachelor degree	9 (21)	33 (79)	42	
<b>Work unit</b>				
Outpatient Department	11 (24)	35 (76)	46	0.681
Emergency unit	10 (20)	39 (80)	49	
<b>Length of work (years)</b>				
≤ 10	13 (24)	41 (76)	54	0.596
> 10	8 (20)	33 (80)	41	
<b>The family has confirmed Covid-19</b>				
Yes	19 (36)	33 (64)	52	<0.001*
No	2 (5)	41 (95)	43	
<b>Comorbidities</b>				

Variables	Categories of anxiety		Total	p-value
	Anxiety n (%)	Normal n (%)		
<b>history</b>				
Yes	17 (44)	22 (56)	39	<0.001*
No	4 (7)	52 (93)	56	
<b>Knowledge</b>				
Poor	10 (38)	16 (62)	26	0.048
Moderate	6 (13)	39 (87)	45	
Good	5 (21)	19 (79)	24	
<b>Attitude</b>				
Negative/neutral	9 (33)	18 (67)	27	0.097
Positive	12 (18)	56 (82)	68	
<b>Behavior</b>				
Poor	7 (78)	2 (22)	9	<0.001*
Moderate	5 (13)	35 (87)	40	
Good	9 (20)	37 (80)	46	
<b>Support from family, colleagues, and superior</b>				
Poor/moderate	11 (46)	13 (54)	24	0.001*
Good	10 (14)	61 (86)	71	

\*Chi-square test; significant ( $\alpha$  0,05)

Table 3 shows the result of a bivariate analysis that examines the relationship between the independent and the dependent variables using the Chi-square test. From the table, it can be explained that the anxiety category was initially divided into 4 levels (normal, mild, moderate, and severe anxiety) as shown in table 2. However, because the frequency and proportion of mild, moderate, and severe anxiety are relatively small, for analysis reasons, the four anxiety levels were converted into two categories (normal and anxiety). Furthermore, the variables of age, gender, education, work unit, length of work, knowledge, and attitudes did not have a significant relationship with the anxiety of nurses and midwives during the Covid-19 pandemic. Meanwhile, the family history exposed to Covid-19, having a history of comorbid status, behavior, and family support

had a p-value < alpha 0.05. This means that the four variables statistically had a significant association with the anxiety of nurses and midwives during the Covid-19 pandemic.

### Multivariate analysis

Table 4. Multivariate analysis of factors associated with anxiety among nurses and midwives during the Covid-19 pandemic in Mangusada Regional Hospital (n=95)

Variables	Categories of Anxiety		AOR	95% CI	p-value
	Anxiety n (%)	Normal n (%)			
The family has confirmed Covid-19					
Yes	19 (36)	33 (64)	19.39	3.18-118.26	0.001
No*	2 (5)	41 (95)			
Comorbidities history					
Yes	17 (44)	22 (56)	10.73	2.66-43.33	0.001
No*	4 (7)	52 (93)			
Support from family, colleagues, and superior					
Poor/moderate	11 (46)	13 (54)	7.87	1.79-34.59	0.006
Good*	10 (14)	61 (86)			

AOR: Adjusted Odds Ratio; CI: Confidence Interval; \*Reference group

Table 4 shows the results of a multivariate analysis using multiple logistic regression to examine factors associated with the anxiety of nurses and midwives during the Covid-19 pandemic. There were three variables associated with anxiety, such as (1) Family history of being exposed to Covid-19 (AOR: 19.39; 95% CI: 3.18-118.26; p 0.001). This means that nurses and midwives whose families

have a history of exposure to Covid-19 had a 19.39 times more likely experiencing anxiety compared to those who have families who had no history of exposure to Covid-19; (2) Comorbidities history (AOR:10.73; 95% CI: 2.66-43.33; p 0.001). Nurses and midwives who had a history of comorbidities had a risk of experiencing anxiety 10.73 times more likely than those who did not have a history of comorbidities; and (3) the variable of support from family, peers, and superiors (AOR: 7.87; 95% CI: 1.79-34.59; p 0.006). Nurses and midwives who had low/moderate support had a risk of experiencing anxiety 7.87 times more likely than those who had good support. Of the three variables that were significantly associated, family history of being exposed to Covid-19 was the strongest influence on anxiety, followed by the comorbid history and the support variable from family, peers, and superiors.

### Discussion :

#### Anxiety among nurses and midwives during Covid-19 pandemic

The results of this study found that respondents experienced mild, moderate, and severe anxiety with a proportion of 14.7%, 4.2%, and 3.2%, respectively. Meanwhile, when categorized nominally (anxiety and not anxiety), 22.1% of respondents experienced anxiety.

The results of previous studies on anxiety in health workers (doctors, nurses) showed that the prevalence of anxiety was almost similar but varied between doctors and nurses from 35 countries based on the literature review. The results of this study showed that the prevalence of anxiety among health workers ranged from 22.2% to 33.0%. Furthermore, the prevalence of anxiety among doctors ranged from 17-19.8%. For nurses, the prevalence of anxiety reaches 23-27% (Fernandez et al., 2021). In addition, another study found that the prevalence of anxiety was 26% among hospital staff treating COVID-19 patients (Salari et al., 2020). In Australia, the study revealed that the prevalence of anxiety among nursing students and midwives was 37% (Wynter et al., 2021). Meanwhile, a systematic review found the

prevalence of anxiety ranged from 6-51% (Xiong et al., 2020). Furthermore, a study in China on the mental status of doctors and nurses during the Covid-19 pandemic showed that 9%, 16%, and 35% of doctors and nurses experienced psychological distress, anxiety symptoms, and depressive symptoms, respectively (Liu et al., 2020).

In contrast, a fairly high prevalence of anxiety was found in a study on anxiety and self-efficacy in nurses conducted in the province of East Nusa Tenggara. The results of the study found that the proportion of mild anxiety was 57% and high anxiety was 43% of respondents (Suhamdani, Wiguna, Hardiansah, Husen, & Apriani, 2020). Another study that examined midwives' anxiety levels found that 36.2% of midwives experienced mild anxiety and 8.6% experienced moderate anxiety (Wari, Adiesti, & Yuliani, 2020). Another study in San Bernardino County found a high prevalence of anxiety among hospital nursing staff at 49% (Serrano, Hassamal, Hassamal, Dong, & Neeki, 2021). Another study also conducted in Iran found signs of physical and psychological anxiety reaching 46% and 73%, respectively (Kamali et al., 2021).

The results of this study indicated that the proportion of respondents who experience anxiety was higher than those who had comorbidities. In comparison, 44% of those with comorbidities experienced anxiety compared to those without comorbidities, only 7% experienced anxiety. Statistically, there was a significant difference in the proportion of anxiety between those who had and did not have comorbidities.

In terms of family history with positive for Covid-19, 36% of respondents who had a family with a history of Covid-19 experienced anxiety, compared to those who did not have a family history of Covid-19 who only 5% experienced anxiety. Statistically, there was a significant difference in the proportion of anxiety in respondents with a family history of confirmed COVID-19 and those without a family history of confirmed Covid-19.

Regarding behavior in conducting health protocol, anxiety was much more common in

those with poor behaviors who experienced more anxiety (78%), compared to those who had moderate behavior (13%) and good behavior (20%) in carrying out health protocols. Furthermore, regarding family support, respondents with low/moderate family support had a much higher proportion of anxiety (46%) compared to those with high family support, who only experienced anxiety at 14%.

Meanwhile, the anxiety experienced by health workers such as nurses and midwives or other health workers had various impacts. A study on the impact of Covid-19 on anxiety, stress, and types of coping among nurses working in the emergency department and fever clinic in China found that participants with the following characteristics had more mental health problems, including female respondents, fear of transmission to family, regret being a nurse, lack of rest time, more night shifts, having children, lack of confidence in dealing with contagion, not attending emergency protection training and negative professional attitude (Cui et al., 2021).

Another study conducted on the impact of Covid-19 on nurses' mental health in Portugal found that nurses' sleep quality and symptoms of depression, anxiety, and stress showed positive variations in the COVID-19 outbreak. The only factors that were directly related to the COVID-19 outbreak and that were associated with positive variation in the symptoms of depression, anxiety, and stress in nurses were the fear of transmitting the disease to others and the fear of being infected increased symptoms of depression, anxiety, and stress (Sampaio, Sequeira, & Teixeira, 2021).

### **Factors associated with anxiety**

The results of the multivariate analysis found that there were three variables associated with anxiety including a family history of exposure to Covid-19, history of comorbidities, support from family, peers, and superiors. Nurses and midwives with families having a history of exposure to Covid-19 were 19.39 times more likely to experience anxiety compared to those with families who have no history of exposure to Covid-19. Meanwhile,

nurses and midwives who had a history of comorbidity were 10.73 times more likely to experience anxiety compared to those who did not have a history of comorbidities. Furthermore, the results of the study also found that the variable of family support, colleagues, and superiors were significantly associated with anxiety of nurses and midwives during the Covid-19 pandemic. Nurses and midwives who have low/moderate support were 7.87 times more likely to experience anxiety than nurses and midwives who have high support. Meanwhile, the place of work of nurses and midwives was not significantly related to anxiety, both in bivariate and multivariate analysis. This is also supported by the proportion of anxiety in nurses or midwives who work in outpatient department (24%) is not much different from those who work in emergency units (20%). This may be because those who work in both places do not directly treat patients who are confirmed positive for Covid-19, so the proportion of their anxiety is not significantly different.

A systematic review found that several risk factors were associated with anxiety including female, younger age 40 years, having a chronic disease, unemployment, status as a student, and frequency of exposure to social media or news that focuses on discussing the pandemic (Xiong et al., 2020). Meanwhile, a study in an urban area in Iran found that female and having a history of exposure to Covid-19 were significantly associated with anxiety experienced by health workers during the Covid-19 pandemic (Motahedi et al., 2021). Another study in Iran found factors associated with anxiety were age and being male (Kamali et al., 2021).

Meanwhile, a study found that the Covid-19 pandemic hurt the lives, work, and psychology of nurses. Even nurses also have a phobia of Covid-19. The study showed that 75% of nurses' psychological well-being was explained by the neglect of life, fear of Covid-19, and the nurse's work-life balance. (Yayla & Eskici İlgin, 2021). Several factors related to anxiety were being female, students who were almost completing their studies, those who feel

their health conditions were not healthy (Wynter et al., 2021).

Furthermore, a study in Pakistani on mental health in nurses found that social support was not very constructive during a pandemic. However, it is suggested that social support is the best thing to encourage nurses to eliminate their anxiety and minimize negative emotions (Xu, Manzoor, Jiang, & Mumtaz, 2021). Meanwhile, a study in NTT Province found that there was a significant relationship between self-efficacy and anxiety in nurses during the Covid-19 pandemic in the province (Suhamdani et al., 2020).

### Research Limitations

This study used a small sample so that it can only be generalized to the population of nurses and midwives who work in the emergency unit and the outpatient department of RSD Mangusada. A questionnaire was used and asks about the anxiety experienced by nurses and midwives during the Covid-19 pandemic which has reached two years. Thus, there is a possibility that the respondent is less precise in determining their anxiety, considering that the current Covid-19 case has been sloping compared to when the delta variant existed in almost all parts of Indonesia, so that anxiety may be felt differently. In addition, booster vaccinations that have been received by health workers may also reduce respondents' anxiety.

### Conclusions:

Of the total 95 respondents, 21 (22.1%) respondents experienced anxiety. The results of the bivariate analysis found that family history of being exposed to Covid-19, history of comorbid status, behavior, and family support were significantly associated with the anxiety among nurses and midwives during the Covid-19 pandemic. Meanwhile, the results of the multivariate analysis found that family history of being exposed to Covid-19, history of comorbidities, and support from family, peers, and superiors were significantly associated with the anxiety of nurses and midwives during the Covid-19 pandemic. Considering that the Covid-19 pandemic is still ongoing with various

new variants, it is better for hospital to carry out early detection to find out the anxiety experienced by health workers in the future, so that the anxiety experienced by health workers will not interfere with health services. In the next stage, the hospital can provide intervention by providing support or motivation to health workers who experience anxiety, especially moderate and severe anxiety. Thus, a support system in hospital and good work teams need to be created in a hospital environment to reduce anxiety for nurses and midwives during the Covid-19 pandemic. Meanwhile, the two other factors, such as a history of comorbidities and a history of exposure to Covid-19, can be overcome by providing an understanding that if you are disciplined with the Covid-19 health protocol and vaccination, maintain body stamina, and avoid stress, then this can prevent the risk of Covid-19 transmission.

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