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PREDICTORS OF MIDWIVES' ANXIETY DURING THE COVID-19 PANDEMIC

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ABSTRACT
Midwives are healthcare workers who make the first physical contact with newborns during delivery. They bear significant responsibilities in preventing COVID-19, which can contribute to increased anxiety levels. Many factors are associated with healthcare workers' anxiety, yet studies specifically focusing on predictors of anxiety among midwives remain limited. This analytical study utilized a cross-sectional approach to identify predictors of anxiety among midwives during the COVID-19 pandemic in Nagan Raya District. The study involved a sample of 533 midwives, with data collected via Google Forms. Multivariate analysis was conducted using multiple logistic regression tests with a 95% confidence level. The study found that 43 midwives (81.24%) experienced anxiety during the COVID-19 pandemic. Factors significantly associated with anxiety included age ≥32 years (p-value = 0.006; OR = 1.86; 95% CI: 1.20–2.89), workload (p-value = 0.000; OR = 2.43; 95% CI: 1.53–3.84), independent midwifery practice (p-value = 0.044; OR = 4.44; 95% CI: 1.04–18.95), and acting as the primary birth attendant (p-value = 0.032; OR = 1.61; 95% CI: 1.04–2.49). The most dominant factor associated with anxiety was high workload (p-value = 0.000; OR = 2.35; 95% CI: 1.46–3.79). Midwives with high workloads were 2.35 times more likely to experience anxiety during the COVID-19 pandemic compared to those with lower workloads. It is recommended that midwives reduce their workloads and manage their tasks by creating structured work plans. Additionally, midwives should improve their managerial skills to distribute workloads effectively among team members.

Keywords: COVID-19 anxiety; midwives; workload

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INTRODUCTION

The coronavirus (COVID-19) was first identified in Wuhan, China, in December 2019, among patients experiencing pneumonia (Sun *et al.*, 2020). This outbreak quickly became a global health threat, spreading rapidly across the world, prompting countries to implement lockdowns to curb the spread of COVID-19 (WHO, 2019). The virus, officially named Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), spreads rapidly through direct human-to-human contact (Li *et al.*, 2020). As of October 13, 2021, WHO reported over 238 million confirmed COVID-19 cases and more than 4.8 million deaths globally. Although the number of confirmed cases and deaths has begun to decline, COVID-19 cases in specific regions remain significant. Reported cases include 91.5 million in the Americas, 72.4 million in Europe, 43.4 million in Southeast Asia, 16.03 million in the Eastern Mediterranean, 8.9 million in the Western Pacific, and 6.09 million in Africa. In Indonesia, over 4.2 million confirmed cases and 142,811 deaths were recorded. The decline in cases began on July 12, 2021 (WHO, 2021).

Healthcare workers, as the frontline responders in managing, preventing, and treating COVID-19 patients, are at high risk of contracting the virus (World Health Organization, 2020). Those directly involved in diagnosing, treating, and caring for patients are particularly

susceptible to psychological stress and other health symptoms. Factors such as the surge in confirmed cases, increased workload, shortages of personal protective equipment (PPE), extensive media coverage, scarcity of certain medications, and feelings of inadequate support contribute to the mental burden on healthcare workers (Lai *et al.*, 2020). These conditions lead to stress, depression, and anxiety among healthcare personnel (Antonijevic *et al.*, 2020; Wang *et al.*, 2020), with those in direct contact with patients or experiencing excessive workloads reporting higher levels of depression (Urzúa *et al.*, 2020).

The growing number of positive cases and fatalities due to COVID-19 has posed significant challenges for healthcare systems. Limited resources have resulted in immense pressure and distress, particularly for healthcare providers (Catton, 2020; Lancet, 2020). A comprehensive understanding of the psychological burden on healthcare workers during the pandemic is crucial for providing effective psychological support, enhancing mental health services, and strengthening resilience (Bao *et al.*, 2020). The government has implemented protocols to improve mental health and psychosocial support for healthcare workers managing COVID-19 patients. These efforts include promotive, preventive, curative, and reintegration measures (Kemenkes RI, 2020). Midwives, as part of the healthcare workforce, play a crucial role on the frontlines, assisting pregnant women, delivering mothers, postpartum care, and providing care for newborns and toddlers. Beyond their clinical duties, midwives also serve as educators, managers, and researchers (Anggraini *et al.*, 2020). Anxiety is a common experience, particularly for midwives whose work involves dynamic and high-stress situations with laboring mothers. Anxiety levels exceeding normal thresholds can disrupt self-stability and life balance (Islami & Nasriyah, 2021).

According to data from the Indonesian Midwives Association in Aceh Province, 345 midwives from 1,199 Independent Midwifery Practices tested positive for COVID-19. In Nagan Raya, 23 midwives from 39 Birthing Centers were confirmed positive. Interviews with 10 midwives frequently involved in deliveries revealed that 8 expressed anxiety about contracting COVID-19. Given these circumstances, this study aims to identify predictors of anxiety among midwives during the COVID-19 pandemic in Nagan Raya District. Midwives have significant responsibilities in preventing COVID-19, which can lead to heightened anxiety levels. While literature identifies various factors associated with healthcare workers' anxiety, few studies specifically examine predictors of anxiety among midwives assisting deliveries or the relationship between their workplace settings and anxiety levels. This study aims to determine the prediction of midwives' anxiety during the Covid-19 pandemic.

METHOD

The research design used was an observational analytic study with a cross-sectional approach to identify predictors of anxiety among midwives during the COVID-19 pandemic in Nagan Raya District. The study was conducted in the working area of Nagan Raya District from February 16 to March 25, 2022. The sample consisted of all midwives who completed the Google Form, totaling 533 respondents. The sampling technique employed was total sampling. Data analysis included univariate analysis, bivariate analysis using logistic regression tests, and multivariate analysis using multiple logistic regression tests. Variables included in the multivariate analysis were those with a p-value <0.25 in the bivariate analysis. Data were analyzed using Stata version 15.

Data on maternal characteristics were collected using a questionnaire consisting of one question for each variable, including age (based on the last birthday), education level, having children aged 0–59 months, pregnancy status, and the presence of comorbid conditions. Behavioral data collected included Knowledge about COVID-19, measured using a

questionnaire developed by Bhagavathula *et al.* (2020), Attitude toward PPE usage, assessed using a questionnaire from Alao Alao *et al.* (2020), and perception of COVID-19, evaluated using a questionnaire adapted from Bhagavathula Bhagavathula *et al.* (2020). Environmental data collected included Stigma, measured using a questionnaire adopted from Mostafa *et al.* (2020) and interpersonal support, assessed using the Interpersonal Support Evaluation List (ISEL), which consists of 12 questions (Merz *et al.*, 2014). Data on workload were measured using a questionnaire adapted from Nursalam (2015). Additional data collected included the workplace setting and the midwife's role in assisting deliveries. Anxiety related to COVID-19 was measured using the COVID-19 Anxiety Scale (CAS) questionnaire developed (Silva *et al.*, 2020).

RESULT

Tabel 1.
Distribusi variabel independen dan variabel dependen

Variables	f	%	Mean	Median	Min – Max
Age			33,91	32	21 – 61
<32 Years	237	44,47			
≥32 Years	296	55,53			
Education					
3-year diploma	417	78,24			
4-year diploma	110	20,64			
Midwife Profession	6	1,13			
Having Children (0-59 Months)					
There isn't any	235	47,47			
Any	280	52,53			
Pregnancy					
No	499	93,62			
Ya	34	6,38			
Comorbid Diseases					
There isn't any	494	92,68			
Any	39	7,32			
Knowledge			6,39	7,00	2 – 7
High	272	51,03			
Low	261	48,97			
Attitude of Use of Personal Protective			6,57	7,00	19 – 48
Equipment	312	58,54			
Positive	221	41,46			
Negative					
Perception			6,09	6,00	2 – 7
Good	454	85,18			
Not Good	79	14,82			
Stigma			3,54	4,00	2 – 7
Good	281	57,72			
Not Good	252	47,28			
Social Support			33,21	32,00	1 – 6
Social Support	304	57,04			
Lack of Support	229	42,96			
Workplace					
Health Center	321	60,23			
Hospital	175	32,83			
Independent Midwife Practice	37	6,94			
Workload			30,19	30,00	13 – 52
Low	264	49,53			
High	269	50,47			
Birth Assistant					
No	226	41,40			
Yes	307	57,60			

Variables	f	%	Mean	Median	Min – Max
Anxiety					
No Worries	100	18,76			
Worried	433	81,24			

Table 2.
Relationship between characteristic, environmental, behavioral, and work factors with anxiety levels during the covid-19 pandemic (logistic regression analysis; n=533)

Variables	Anxiety Level				OR (95% CI)	P-value
	No Worries		Worried			
	n	%	n	%		
Age						
<32 Years	57	24,05	180	75,95	1,86 (1,20 – 2,89)	
≥32 Years	43	14,53	253	85,47		0,006
Education						
3-year diploma	84	20,14	333	76,86	1,59 (0,88 – 2,89)	
4-year diploma	15	13,64	95	83,36	1,26 (0,14 – 10,9)	0,123
Midwife Profession	1	16,67	5	83,33		0,833
Having Children (0-59 Months)						
There isn't any	54	21,34	199	78,66	1,38 (0,89 – 2,13)	0,148
Any	46	16,43	234	83,57		
Pregnancy						
No	95	19,04	404	80,96	1,36 (0,51 – 3,61)	0,533
Ya	5	14,71	29	85,29		
Comorbid Diseases						
There isn't any	93	18,83	401	81,17	1,06 (0,45 – 2,47)	0,893
Any	7	17,95	32	82,05		
Knowledge						
High	53	19,49	219	80,51	1,10 (0,71 – 1,70)	0,662
Low	47	18,01	214	81,99		
Attitude of Use of Personal Protective Equipment						
Positive						
Negative	64	20,51	248	79,49	1,32 (0,84 – 2,08)	0,219
	36	16,29	185	83,71		
Perception						
Good	88	19,38	366	80,62	1,34 (0,69 – 2,58)	0,380
Not Good	12	15,19	67	84,81		
Stigma						
Good	61	21,71	220	78,29	1,51 (0,97 – 2,36)	0,067
Not Good	39	15,48	213	84,52		
Social Support						
Social Support	53	17,43	251	82,57	0,81 (0,52 – 1,26)	0,366
Lack of Support	47	20,52	182	79,48		
Workplace						
Health Center	65	20,25	256	79,75	1,09 (0,68 – 1,74)	
Hospital	33	18,86	142	81,14	4,44 (1,04 – 18,95)	0,710
Independent Midwife Practice	2	5,41	35	94,59		0,044
Workload						
Low	67	25,38	197	74,62	2,43 (1,53 – 3,84)	0,000
High	33	12,27	236	87,24		

Variables	Anxiety Level				OR (95% CI)	P-value
	No Worries		Worried			
	n	%	n	%		
Birth Assistant						
No	52	23,01	174	76,99	1,61 (1,04 – 2,49)	0,032
Yes	48	15,64	256	84,36		

Table 3.
The most dominant factors associated with the level of anxiety regarding the covid-19 pandemic in midwives in nagan raya district (multiple logistic regression; n=533)

Variables	Model 1		Model 2		Model 3		Model 4	
	OR (95% CI)	p-value	OR (95% CI)	p-value	OR (95% CI)	p-value	OR (95% CI)	p-value
Age ≥32 years	1,91 (1,22 – 2,99)	0,005	1,86 (1,18 – 2,92)	0,007	1,81 (1,15 – 2,85)	0,010	1,65 (1,01 – 2,67)	0,042
Diploma 4 Education	1,53 (0,83 – 2,80)	0,165	1,49 (0,81– 2,74)	0,190	1,47 (0,80 – 2,71)	0,135	1,33 (0,71 – 2,47)	0,359
Midwife Professional Education	1,46 (0,16 – 13,01)	0,730	1,46 (0,16 – 12,95)	0,731	1,69 (0,19 – 15,12)	0,691	0,69 (0,06 – 7,44)	0,761
Having Children (<59 Months)	1,53 (0,98 – 2,40)	0,059	1,56 (0,99 – 2,44)	0,051	1,56 (0,99 – 2,44)	0,087	1,60 (1,01 – 2,53)	0,044
Negative Attitudes Towards Using PPE			1,24 (0,78 – 1,97)	0,360	1,20 (0,75 – 1,91)	0,284	1,13 (0,70 – 1,81)	0,612
Bad Stigma					1,42 (0,90 – 2,24)	0,081	1,38 (0,86 – 2,21)	0,174
High Workload							2,17 (1,34 – 3,52)	0,002
Working in a Hospital							1,12 (0,67 – 1,86)	0,650
Working in an Independent Midwife Practice							4,08 (0,84 – 19,74)	0,080
Birth Assistant							1,59 (1,002 – 2,52)	0,049
Pseudo R2	0,0256		0,0273		0,0319		0,0714	

Table 1, the average age of the midwives was 33.91 years. The majority (78.24%) had a diploma-level education (D3). Midwives working in community health centers (Puskesmas) accounted for 60.23%, while 52.53% had children aged 0–59 months. Among the midwives, 6.38% were pregnant, and 7.32% had comorbidities. Midwives with low knowledge about COVID-19 constituted 48.97%, and those with a negative attitude toward PPE usage were 41.46%. Additionally, 14.82% of midwives had poor perceptions of COVID-19, and 47.28% reported negative stigma related to the virus. Midwives with inadequate social support accounted for 42.96%. Regarding workload, 50.47% of midwives reported high workloads, and 6.94% worked in independent midwifery practices (BPM). A total of 57.60% of midwives were actively involved in assisting deliveries. Furthermore, 81.24% of midwives experienced anxiety during the COVID-19 pandemic.

Based on Table 2, the factors associated with anxiety levels during the COVID-19 pandemic among midwives in Nagan Raya District were age ≥32 years (p-value = 0.006; OR = 1.86; 95% CI: 1.20–2.89), high workload (p-value = 0.000; OR = 2.43; 95% CI: 1.53–3.84), working in independent midwifery practices (BPM) (p-value = 0.044; OR = 4.44; 95% CI: 1.04–18.95), and assisting with deliveries (p-value = 0.032; OR = 1.61; 95% CI: 1.04–2.49). Based on Table 3, Model 1 was constructed to evaluate the contribution of maternal characteristics (age, education, and having children) to anxiety during the COVID-19 pandemic. The statistical test results showed that the most dominant factor associated with anxiety levels was age ≥32 years (p-value = 0.005; OR = 1.91; 95% CI: 1.22–2.99). Midwives aged ≥32 years were 1.91 times more likely to experience anxiety during the pandemic compared to those aged <32 years.

Model 2 was built to assess the contribution of Model 1 and behavioral factors (attitude toward PPE usage) to COVID-19-related anxiety. The results indicated that the most dominant factor remained age ≥32 years (p-value = 0.007; OR = 1.86; 95% CI: 1.18–2.92). Midwives aged ≥32 years were 1.86 times more likely to experience anxiety during the pandemic compared to those aged <32 years. Model 3 incorporated the contributions of Model 2 and environmental factors (stigma) to COVID-19-related anxiety. It concluded that

age ≥32 years was still the most dominant factor (p-value = 0.010; OR = 1.81; 95% CI: 1.15–2.85). Midwives aged ≥32 years were 1.81 times more likely to experience anxiety compared to those aged <32 years. Model 4 expanded to include the contributions of Model 3 and occupational factors (workload, workplace, and assisting deliveries) to anxiety levels. The results indicated that high workload became the most dominant factor (p-value = 0.002; OR = 2.17; 95% CI: 1.34–3.52). Midwives with high workloads were 2.17 times more likely to experience anxiety during the pandemic compared to those with lower workloads. Model 5 explained only 7.14% of the factors predicting anxiety among midwives during the COVID-19 pandemic.

DISCUSSION

The most dominant factor associated with anxiety levels during the COVID-19 pandemic among midwives in Nagan Raya is workload. Midwives with a high workload are 2.17 times more likely to experience anxiety during the COVID-19 pandemic compared to those with a low workload. This finding aligns with a study conducted in China, which showed that increased workload and work fatigue are independent risk factors for anxiety (OR 2.238, 95% CI 1.503–3.361) (Chen et al., 2021). According to Yörük & Güler (2021), healthcare workers who work 49 hours or more per week are at higher risk of experiencing anxiety. Women, particularly female nurses, are more affected by mental health issues. Frontline nurses work in close contact with patients for extended hours, which can lead to fatigue, stress, and anxiety (Si et al., 2020). The strongest factors associated with anxiety symptoms are work burnout (AOR = 2.53) and personal fatigue (AOR = 5.61) (Båtsman et al., 2020). Workload refers to the volume of tasks assigned to workers, both physical and mental, that become their responsibility (Mahawati *et al.*, 2021). According to Regulation of the Minister of State Apparatus Empowerment and Bureaucratic Reform of the Republic of Indonesia No. 36 of 2019, one of the midwife's duties is to provide services to pregnant women, women in labor, postpartum women, as well as family planning and reproductive health services. The tasks assigned to midwives are adjusted based on the level of healthcare service.

Working hours per week for healthcare workers can affect the anxiety they experience. The more hours healthcare workers spend in hospitals or COVID-19 isolation units, the higher the risk of exposure to the virus, which also increases the likelihood of experiencing mental health issues such as anxiety, worry, fear, loss, and trauma (Rana *et al.*, 2020). Excessive workload impacts the psychological well-being of midwives. Several studies prior to the COVID-19 pandemic indicated that a lack of supervision and heavy workloads caused young midwives to experience stress in labor wards. This is because midwives work hard to provide care for women in busy environments (Wardani *et al.*, 2022). Midwives working in delivery wards face constant challenges in providing adequate care under difficult conditions (Mardliyataini HS, 2022). According to a review by Khazin *et al.* (2022) the workload of healthcare workers before and during the pandemic was significantly different, with many healthcare workers losing their lives due to COVID-19 during the pandemic.

Midwives assisting with deliveries face dilemmas and anxiety during the COVID-19 period. One preventive measure for COVID-19 transmission is maintaining physical distance, but midwives must make direct contact while assisting in deliveries. The public's lack of trust in COVID-19 also led many people to prefer delivering in private midwife clinics (BPM). Some even refused to undergo swab tests. This created additional anxiety for midwives assisting with deliveries. During the COVID-19 pandemic, midwives not only assisted with deliveries, but also had increased workloads, such as finding solutions for managing COVID-19 cases, continuing maternal and child health (MCH) services, screening for COVID-19, and assisting with COVID-19 vaccinations. Factors such as age, workplace, and midwives assisting with

deliveries were also associated with anxiety levels in Nagan Raya. Midwives aged ≥32 years were 1.86 times more likely to experience anxiety during the COVID-19 pandemic compared to those aged <32 years. This finding aligns with research in the United States, which showed that anxiety disorders began to emerge around the age of 31. Healthcare workers aged 31–40 years were more concerned about infecting their families, while those over 50 years old experienced more stress due to patient deaths. For staff aged 41–50, safety concerns were also significant. Older healthcare workers experienced increased stress due to work fatigue (Cai et al., 2020).

Additionally, midwives working in BPMs were 2.43 times more likely to experience anxiety during the COVID-19 pandemic compared to those working in community health centers (Puskesmas). This finding is consistent with a study by Mwape et al. (2021), which found an association between the workplace and COVID-related anxiety. Midwives, as part of primary healthcare services, play an important role in health protection and promotion within the public health system. It is crucial for midwives to manage their own anxiety to provide healthy psychosocial care to pregnant women during pregnancy, labor, and postpartum (Sögüt et al., 2020).

A limitation of this study is that it was conducted in early 2022, by which time the general public, including midwives, had already gained a deeper understanding of COVID-19. As a result, midwives had developed coping mechanisms to prevent anxiety during the pandemic, so fewer factors were found to be associated with anxiety levels. Additionally, the number of confirmed COVID-19 cases had started to decline, and all healthcare workers were required to receive COVID-19 vaccinations to prevent transmission. However, the results of this study show that high workload remains a major factor contributing to anxiety, particularly among midwives assisting with deliveries.

CONCLUSION

The most dominant factor associated with anxiety levels during the COVID-19 pandemic among midwives in Nagan Raya is high workload (p-value = 0.002; OR = 2.17; 95% CI: 1.34 – 3.52). Midwives with a high workload are 2.17 times more likely to experience anxiety during the COVID-19 pandemic compared to those with a low workload. It is recommended that midwives reduce excessive workload by organizing a work plan, creating shift schedules for midwives working in healthcare facilities, and improving team cooperation with other midwifery services. It is also hoped that the health department will coordinate and evaluate the workload of midwives with each healthcare service institution, as well as conduct training and seminars to prevent anxiety during the COVID-19 pandemic among healthcare workers.

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