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Factors associated with burnout syndrome: a cross-sectional study among nurse anesthetists in Indonesia

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ABSTRACT

Burnout syndrome is a very common psychological problem experienced by health workers in hospitals, including doctors, anesthesiologists, and nurse anesthetists. Burnout syndrome has a serious impact on health workers' performance and the quality of services provided to patients. This study aims to determine the factors associated with burnout syndrome among nurse anesthetists in Indonesia. A cross-sectional study was conducted in Indonesia involving 405 respondents selected using cluster sampling. A questionnaire was employed for data collection. Univariate analysis (frequency and proportion) was used to measure burnout, and bivariate analysis (chi-square) and multivariate analysis (multiple logistic regression) were used to determine the factors associated with burnout syndrome. This study found that the majority of respondents had experienced low levels of burnout, particularly burnout for emotional exhaustion (EE) at 76.8% and depersonalization (DP) at 64.2%. However, a high level of personal accomplishment (PA) was reported by only 53.1% of subjects. Furthermore, workload factors (AOR: 3.75) and social support (AOR: 0.52) were significantly associated with EE. The factors of workload (AOR: 2.27), social support (AOR: 0.59) and reward (AOR: 1.66) were significantly related to DP. Social support factors (AOR: 2.84) and interpersonal relationships (AOR: 2.28) were significantly associated with PA. This study concludes that the majority of nurse anesthetists reported burnout. Therefore, workplaces need to perform occupational health surveillance for early detection of burnout and health promotion programs to prevent burnout among nurse anesthetists.

Key words:
burnout syndrome; nurse anesthetists; Indonesia.

INTRODUCTION

Burnout is one of the main problems that negatively impact work.[1] The term "burnout" was first introduced by Graham Greene in 1961 in a novel entitled *A Burn-Out Case*. The American Psychiatrist Herbert Freudenberger described burnout as a psychological syndrome that arises in response to stressors at work and is characterized by various clinical manifestations. This condition finally became known as burnout syndrome[1-3]. WHO defined burnout as a syndrome that results from chronic workplace stress that has not been successfully managed.[4] Meanwhile, Maslach and Jackson, in 1981, characterized three main dimensions of burnout syndrome. The first dimension, emotional exhaustion (EE), is characterized by emotional tension and the inability to fulfill obligations. The second dimension is depersonalization (DP), which is characterized by a sense of decreased competence and cynical and callous feelings toward other colleagues. The last is a decrease in personal accomplishment (PA) characterized by feelings of dissatisfaction with oneself, work, and even life[5] [6].

Burnout syndrome is highly likely to occur in health care providers, including nurse anesthetists. Nurse anesthetists work in the operating room and provide anesthetic services to patients. The operation room is a stressor workplace and negatively impacts the well-being of healthcare providers, including nurse anesthetists.[7] In addition, the work environments and teamwork of nurse anesthetists were considered to be the most stressful compared to other nursing specialties.[8] [9] Nurse anesthetists had a higher proportion of occupational stress compared to nurses in general, at 87% and 83%, respectively.[7] Sanfilippo et al.[10] stated that anesthesiologists, including nurse anesthetists, carry a high degree of responsibility during surgery and are often faced with stressful scenarios, such as those involving airway management, cardiac arrest, and other life-threatening emergencies. These complex work situations tend to increase the incidence of burnout syndrome[11]. Burnout syndrome affects an individual's ability to perform optimally, not only in work but also in personal life, and is associated with mental disorders that pose a significant burden of disease[12]. Burnout syndrome in nurses is the main factor that affects the quality of health services[13]. West et al.[14] have described the impact of burnout syndrome, including a decrease in the quality of health services, medical errors, longer recovery times, decreased patient satisfaction, reduced nurse productivity, increased nurse turnover, increased financing, and depression and drug abuse in nurses. Other negative (individual and organizational) burnout outcomes during the COVID-19 pandemic are low quality of care, high turnover intention, Post Traumatic Stress Disorder (PTSD), depression and suicide, and high rates of malpractice litigation.[15] [16, 17]

Previous studies in the health sector have generally assessed burnout syndrome among doctors, anesthesiologists, and nurses in general. As far as we know, no results have yet been published on burnout syndrome specifically for nurse anesthetists in Indonesia, and they are very limited worldwide. Before the COVID-19 pandemic, the prevalence of burnout syndrome among doctors was 67%,[18] general nurses in Iran 54%,[19] [20] and the volunteers red cross was 8%, 36%, and 24% for EE, DP, and low PA, respectively,[21] and previous studies have resulted in varying findings, ranging from 10–41% with a high risk[10]. Meanwhile, during the pandemic, the prevalence of burnout syndrome among healthcare workers (doctors and general nurses) was 50%.[22] According to the demands and resources theory and from the literature review, several factors, such as physical,

psychological, organizational, and social aspects, may contribute to burnout or can also be classified into individual and organizational factors.[23]

This study was therefore conducted to examine burnout syndrome among nurse anesthetists in Indonesia, as well as factors associated with burnout syndrome. The results of this study are useful for hospitals, nurse anesthetists' associations, and nurse anesthetists in Indonesia because the prevention of burnout syndrome can improve the welfare of nurse anesthetists and the quality of anesthetists' nursing services.

METHODS

Study design and population

This cross-sectional study was conducted to identify burnout among nurse anesthetists in Indonesia during April and May 2021. The total population was 4,741 nurse anesthetists employed in Indonesian hospitals.

Sample size and sampling procedure

The sample size was calculated using Daniel sample size formula[24].

$$n = \frac{z^2 pq}{d^2} = \frac{1.96^2 0.5*0.5}{0.05^2} = 384.16$$
= 385 + 5% of non-response = 405

Formula 1. Sample Size Formula

Therefore, 405 nurse anesthetists were involved and selected using cluster sampling. Of the 34 provinces in the country, 16 provinces were selected. Sample selection in each cluster was then done through simple random sampling. The inclusion criteria were being employed as a nurse anesthetist, possessing an ID card from the Indonesia Nurse Anesthetists Association (IPAI), and having an active Nurse Anesthetist Registration Certificate. Members of the IPAI Organization who were not working during the data collection were excluded.

Data collection

In this study, a questionnaire was used as the data collection instrument. The questionnaires consisting of three parts were used for data collection. Part 1 collected information on the general characteristics of the respondents (age, gender, marital status, education level, and number of children). Part 2 examined burnout syndrome, assessed by the Maslach Burnout Inventory - Human Services Survey (MBI-HSS) consisting of 22 items of questions ("never", "seldom", "sometimes", "often", "always"). Part 3 explored respondents' work patterns ("one shift", "rotation shift"), the number of hours worked ("≤ 48 hours", "> 48 hours"), years of experience ("< 10 Years", "≥ 10 years"), employment status ("Official government", "non-official government"), rewards ("Suitable", "non- suitable"), workload consisting of 8 items of questions ("never", "seldom", "sometimes", "often", "always"), availability of human resources ("small number", "large number"), interpersonal relationships consisting of 10 items of questions ("never", "seldom", "sometimes", "often", "always"), social support consisting of 8 items of questions ("never", "seldom", "sometimes", "often", "always"), and alcohol consumption habits ("yes", "no"). Content validity was conducted, and reliability tests were carried out involving responses from 30 subjects. All parts of the questionnaire were reliable (Cronbach's alpha > 0.70). The workload, interpersonal relationships, social support, and dimensions of burnout syndrome were categorized based on Bloom's cuts-off point: < 60% (low), 60%–79% (medium), and 80%–100% (high). Respondents were then grouped into two categories for analysis (low and moderate/high for EE; low/moderate and high for interpersonal

relationship, social support and PA; and low and high for workload and DP).

Data collection was carried out by contacting the Head of IPAI in each province. The nurse anesthetists who were selected were then invited to join a Whatsapp group, where they were provided with an explanation of the study. After the prospective respondents agreed to participate, they were asked to provide informed consent. They then filled out the questionnaire that was distributed.

Furthermore, this study was approved by the Research Ethics Committee of the Institute of Technology and Health Bali (ITEKES BALI; No.04.0234/KEPITEKES-BALI/III/2021), and permission was obtained from the Association of Nurse Anesthetists of Indonesia Committee (IPAI; No.0025/DPP-IPAI/SP/II/2021). In this study, each respondent was given informed consent, and the respondents' data were kept confidential.

Data analysis

Entry of data and analysis were performed by using Statistical Package for Social Science (SPSS, version 20). Univariate analysis was conducted to find the frequency distribution and percentage of variables, and bivariate analysis (Chi square) was used to measure the associations among the variables. Furthermore, the variables that were found statistically significant were subsequently included in the multivariate analysis (binary logistic regression) to determine the factors associated with burnout syndrome.

RESULTS

As displayed in Table 1, out of a total of 405 respondents, the majority of respondents were under the age of 45 years (68.4%), male (80.5%), married (89.9%), had achieved a Diploma 3 of Nursing (68.9%), and had two or fewer children (72.6%).

Table 1 General characteristics of respondents (n=405)

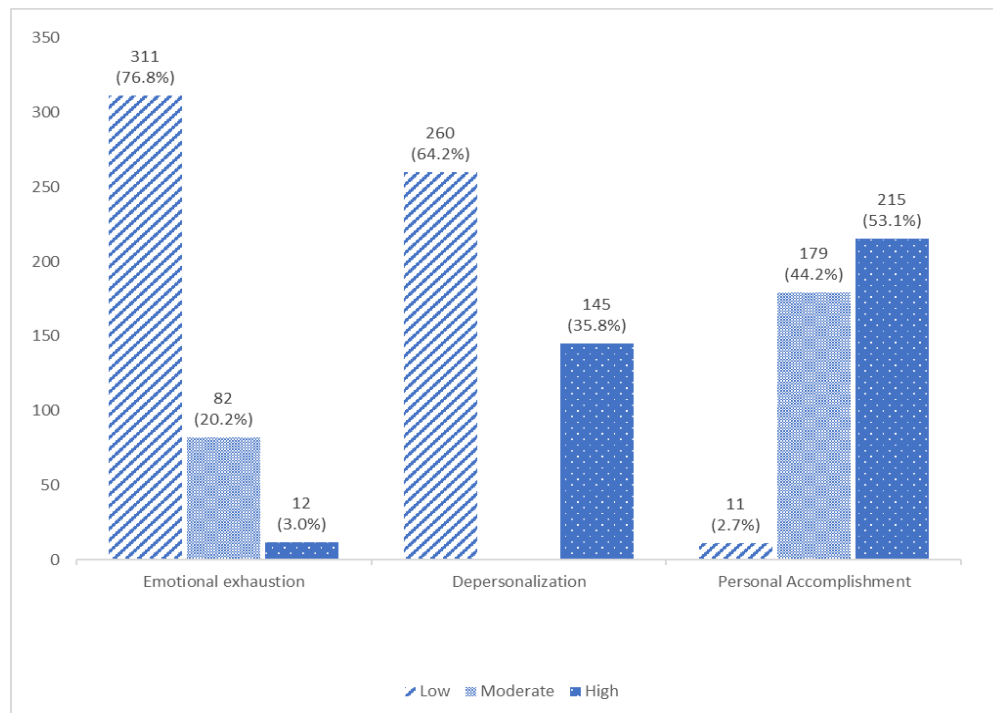| Characteristics	n (%)
Age (years old)	
≤ 45	277 (68.4)
> 45	128 (31.6)
Gender	
Male	326 (80.5)
Female	79 (19.5)
Marital status	
Married	364 (89.9)
Not married	34 (8.4)
Divorced	7 (1.7)
Education	
Diploma 3 in nursing	279 (68.9)
Bachelor degree	126 (31.1)
Number of children	
≤ 2 children	294 (72.6)
> 2 children	111 (27.4)

Figure 1 Proportion of burnout syndrome among nurse anesthetists (n=405)

Figure 1 illustrates that the majority of nurse anesthetists have low EE (76.8%), low DP (64.2%), high PA (53.1%).

Table 2. The relationship between general characteristics, occupation, interpersonal relationships, social support, and alcohol consumption with burnout syndrome among nurse anesthetists in Indonesia (n=405)

Factors	Emotional Exhaustion		Depersonalization		Personal Accomplishment	
	Low n (%)	Moderate/ High n (%)	Low n (%)	High n (%)	Low/ Moderate n (%)	High n (%)
Age (years old)						
≤ 45	211 (76.2)	66 (23.8)	176 (63.5)	101 (36.5)	130 (46.9)	147 (53.1)
> 45	100 (78.1)	28 (21.9)	84 (65.6)	44 (34.4)	60 (46.9)	68 (53.1)
Gender						
Male	246 (75.5)	80 (24.5)	211 (64.7)	115 (35.3)	152 (46.6)	174 (53.4)
Female	65 (82.3)	14 (17.7)	49 (62.0)	30 (38.0)	38 (48.1)	41 (51.9)
Marital status						
Married	277 (76.1)	87 (23.9)	232 (63.7)	132 (36.3)	169 (46.4)	195 (53.6)
Not married/divorced	34 (82.9)	7 (17.1)	28 (68.3)	13 (31.7)	21 (51.2)	20 (48.8)

Factors	Emotional Exhaustion		Depersonalization		Personal Accomplishment	
	Low n (%)	Moderate/High n (%)	Low n (%)	High n (%)	Low/Moderate n (%)	High n (%)
Education						
Diploma 3 in nursing	214 (76.7)	65 (23.3)	180 (64.5)	99 (35.5)	134 (48.0)	145 (52.0)
Bachelor degree	97 (77.0)	29 (23.0)	80 (63.5)	46 (36.5)	56 (44.4)	70 (55.6)
Number of children						
≤ 2 children	232 (78.9)	62 (21.1)	188 (63.9)	106 (36.1)	134 (45.6)	160 (54.4)
> 2 children	79 (71.2)	32 (28.8)	72 (64.9)	39 (35.1)	56 (50.5)	55 (49.5)
Work pattern						
One shift	178 (78.4)	49 (21.6)	148 (65.2)	79 (34.8)	104 (45.8)	123 (54.2)
Rotation shift	133 (74.7)	45 (25.3)	112 (62.9)	66 (37.1)	86 (48.3)	92 (51.7)
p-value	0.382		0.635		0.617	
Working hours						
≤ 48	101 (80.8)	24 (19.2)	82 (65.6)	43 (34.4)	65 (52.0)	60 (48.0)
> 48	210 (75.0)	70 (25.0)	178 (63.6)	102 (36.4)	125 (44.6)	155 (55.4)
p-value	0.202		0.694		0.171	
Years of experience						
< 10 years	145 (78.0)	41 (22.0)	119 (64.0)	67 (36.0)	87 (46.8)	99 (53.2)
≥ 10 years	166 (75.8)	53 (24.2)	141 (64.4)	78 (35.6)	103 (47.0)	116 (53.0)
p-value	0.608		0.932		0.959	
Status of nurse anesthetist						
Official government	200 (76.6)	61 (23.4)	165 (63.2)	96 (36.8)	125 (47.9)	136 (52.1)
Non-official government	111 (77.1)	33 (22.9)	95 (66.0)	49 (34.0)	65 (45.1)	79 (54.9)
p-value	0.917		0.580		0.595	
Reward						
Suitable	119 (84.4)	22 (15.6)	104 (73.8)	37 (26.2)	70 (49.6)	71 (50.4)
Not suitable	192 (72.7)	72 (27.3)	156 (59.1)	108 (40.9)	120 (45.5)	144 (54.5)
p-value	0.008*		0.003*		0.421	
Workload						
Low	207 (86.3)	33 (13.8)	174 (72.5)	66 (27.5)	121 (50.4)	119 (49.6)
High	104 (63.0)	61 (37.0)	86 (52.1)	79 (47.9)	69 (41.8)	96 (58.2)
p-value	<0.001*		<0.001*		0.088	
Availability of nurse anesthetists						
Small number	173 (76.2)	54 (23.8)	144 (63.4)	83 (36.6)	102 (44.9)	125 (55.1)
Large numbers	138 (77.5)	40 (22.5)	116 (65.2)	62 (34.8)	88 (49.4)	90 (50.6)
p-value	0.755		0.718		0.367	
Interpersonal relationships						
Low/moderate	67 (72.8)	25 (27.2)	51 (55.4)	41 (44.6)	65 (70.7)	27 (29.3)
High	244 (78.0)	69 (22.0)	209 (66.8)	104 (33.2)	125 (39.9)	188 (60.1)
p-value	0.306		0.046*		<0.001*	

Factors	Emotional Exhaustion		Depersonalization		Personal Accomplishment	
	Low n (%)	Moderate/ High n (%)	Low n (%)	High n (%)	Low/ Moderate n (%)	High n (%)
Social support						
Low/moderate	83 (68.6)	38 (31.4)	67 (55.4)	54 (44.6)	79 (65.3)	42 (34.7)
High	228 (80.3)	56 (19.7)	193 (68.0)	91 (32.0)	111 (39.1)	173 (60.9)
p-value	0.011*		0.016*		<0.001*	
Alcohol consumption						
No	302 (77.2)	89 (22.8)	255 (65.2)	136 (34.8)	184 (47.1)	207 (52.9)
Yes	9 (64.3)	5 (35.7)	5 (35.7)	9 (64.3)	6 (42.9)	8 (57.1)
p-value	0.330		0.024*		0.757	

*Significance

Table 2 reveals that reward (p 0.008), workload (p < 0.001), and social support (p 0.011) are associated with EE. The majority of nurse anesthetists (84.4%) rewarded in accordance with their workloads reported low EE, most subjects (86.3%) with low workloads had low EE, and the majority of those (80.3%) with high social support had low EE.

Factors related to DP included reward (p = 0.003), workload (p < 0.001), interpersonal relationships (p = 0.046), social support (p = 0.016), and alcohol consumption habits (p = 0.024). Most nurse anesthetists (73.8%) with reward matching their workloads demonstrated low DP, as did the majority of respondents (72.5%) with low workloads, more than a half (66.8%) of those with strong interpersonal relationships, a majority of subjects (68.0%) with high social support, and majority of nurse anesthetists (65.2%) who never consumed alcohol.

The factors associated with PA were interpersonal relationships (p < 0.001) and social support (p < 0.001). The majority of nurse anesthetists (60.1%) with high interpersonal relationships also had high PA, as did the majority of those with high social support (60.9%).

Table 3 Multivariate analysis factors associated with burnout syndrome among nurse anesthetists (n=405)

Factors	B	SE	Adj. OR	95%CI	p-value
EE					
Workload					
Low*					
High	1.32	0.25	3.75	2.30 – 6.12	<0.001
Social support					
Low/moderate*					
High	-0.66	0.26	0.52	0.31 – 0.85	0.010
DP					
Workload					
Low*					
High	0.82	0.22	2.27	1.48 – 3.48	<0.001

Factors	B	SE	Adj. OR	95%CI	p-value
Social support					
Low/moderate*					
High	-0.52	0.23	0.59	0.38 – 0.93	0.023
Reward					
Suitable*					
Not suitable	0.51	0.24	1.66	1.04 – 2.63	0.032
PA					
Interpersonal relationships					
Poor/fair*					
Good	1.04	0.27	2.84	1.68 – 4.80	<0.001
Social support					
Low/moderate*					
High	0.82	0.24	2.28	1.43 – 3.64	0.001

Reference Group

Table 3 indicates that nurse anesthetists with high workloads were at 3.75 times greater risk of experiencing EE than those with low workloads (adj. OR = 3.75; 95% CI 2.30–6.12; p < 0.001). Nurse anesthetists with high levels of social support had 48% less risk of experiencing EE than those with low/moderate levels of social support (adj. OR = 0.52; 95% CI 0.31 – 0.85; p 0.010).

Respondents with high workloads had a 2.27 times greater risk of experiencing DP compared to those with low workloads (adj. OR = 2.27; 95% CI 1.48 – 3.48; p < 0.001). Those with high social support had a 41% lower risk of developing DP than those with low/moderate social support (adj. OR = 0.59; 95% CI 0.38 – 0.93; p 0.023). Nurse anesthetists who earned rewards that were not appropriate to their workload had a 1.66 times higher risk of experiencing DP compared with those whose rewards were appropriate to their workload (adj. OR = 1.66; 95% CI 1.04 – 2.63; p 0.032).

Nurse anesthetists who scored high on interpersonal relationships were 2.84 more likely to experience high PA compared to those with low/moderate scores on interpersonal relationships (adj. OR = 2.84; 95% CI 1.68 – 4.80; p < 0.001). Those with high social support were 2.28 times more likely to have high PA than those with low/moderate social support (adj. OR = 2.28; 95% CI 1.43–3.64; p = 0.001).

DISCUSSION

The current study found that most nurse anesthetists experienced low EE, DP, and high PA. Meanwhile, previous studies revealed that most nurses experienced a moderate level of burnout. Burnout is an unsafe condition caused by a high workload and stressful working environment, and burnout may cause physical and mental disorders,[25] and employee turnover for nurse anesthetists.[26] The independency related to job characteristics and leave, and personality were associated with burnout.[27]

Emotional Exhaustion

The majority (76.8%) of respondents reported low levels of EE. Similarly, previous studies also found the majority with low levels of EE, such as in France (75%),[28] and Spain (57%).[29] EE has negative implications for work. Alharbi et al.[30] stated in their research that high EE is related to the desire of workers to leave their workplace. One factor that has a significant relationship with EE is workload. The existence of a positive

correlation between workload and EE is in line with research conducted by Magalhães et al.[31], all of which indicated that workload has a significant effect on EE. Dall'Ora et al.[32] examined 13 studies, of which five found that high workloads affect EE. This finding is in line with the theory that the heavier one's workload, the higher the fatigue, and vice versa[33]. The impact of an increased workload includes a worsening of staff performance, as well as patient satisfaction, patient safety[33], and the risk of staff leaving their jobs.[34] [26]

Social support was also significantly related to EE. The result is in line with research conducted by Lrago et al.[35] among doctors in Ethiopia, which found that social support from family and organizations had a significant effect on EE. Sonpaveerawong et al.[36] found that social support reduced psychological pressure; respondents with high social support demonstrated a 51.70% lower risk of experiencing psychological pressure. Fernandez et al.[37] also found social support to be protective against mental stress. Moreover, social support from other nurses or team work can decrease and manage negative emotional effects[38], and family support was a good way in minimizing burnout[39].

Depersonalization

The results of this study found that the majority of respondents were experiencing low DP (64.2%). Similarly, low rates of DP were found in a study conducted by Sillero & Zabalegui[29] in Spain, where the majority (78.5%) of operating room nurses had low DP. In this study, the first factor that demonstrated a significant relationship with DP was workload. These results are in line with research conducted by Magalhães et al.[31] and Sussman & Paul[40], which stated that workload was significantly related to DP. Dall'Ora et al.[32] stated that 3 out of 13

studies found that high workloads affect DP.

The second factor significantly related to DP was reward. These results are similar to those of a study conducted by Lrago et al.[35] on doctors in Ethiopia who found that monthly salary affected DP. The third factor related to DP was social support. These results aligned with previous research conducted by Lrago et al.[35] which demonstrated that social support from family and organizations had a negative correlation with DP. Fradelos et al.[41] also stated that social support could reduce DP. Adriaenssens et al.[42] found that social support from superiors, coworkers, peers and family is negatively related to DP. Social support minimizes feelings of isolation that can arise due to problems at work and helps create networks that facilitate learning and the exchange of experiences[43]. Nurses who receive sufficient social support from family, co-workers, superiors, and the community are able to adapt, manage, solve problems, and make appropriate decisions in difficult situations[44]. It can be concluded that with high social support, a person is better equipped to overcome problems at work and with colleagues and make appropriate decisions to face any problem.

Personal Accomplishment

The majority of respondents had high PA (53.1%). This finding aligns with research conducted by Sillero & Zabalegui[29] in Spain, in which the majority (53.1%) of operating room nurses demonstrated high PA. The first factor correlated with PA was interpersonal relationships. The results of this study are similar to those of a study by Roomaney et al.[45] which found a relationship between interpersonal conflict and PA. In addition, relationships may lead to the opportunity for a higher income, as workers often become involved in other operations

outside the main hospital. This is supported by Vania & Purba[46] which states that nurses who have good interpersonal communication have greater job satisfaction. Nurses who are satisfied with their work tend to perform beyond normal estimates, leading to a sense of personal satisfaction.

The second factor associated with PA was social support. The results of this study are in line with the research of Lrago et al.[35], which demonstrated a relationship between social support from families and organizations and PA. Fradelos et al.[41] also found that social support influenced PA. Social support has an important role in facilitating a person in finding motivation, advice, constructive criticism and suggestions, and those with high social support tend to be more involved with family and work activities, which influences personal achievement[46]. Social support has been demonstrated to influence the way nurses cognitively assess situations; those with high social support tend to view stress as a challenge to overcome[44]. Successfully dealing with these challenges causes an increase in PA.

In contrast, a previous study in French found that gender, status, and tenure in the team were predictors of EE. For DP and PA, the predictor was only the status of the anesthetist. The status (single and married) was consistent as a predictor for EE, DP, and PA. The cause may be that being married and having children is related to low job satisfaction and a high level of burnout.[28]

In addition, implementing interdisciplinary and new strategies and approaches is very important to apply during the COVID-19 pandemic for the health and safety of health workers, including nurse anesthetists. Some interventions can be conducted to decrease stress and burnout, such as animal-assisted intervention, and spiritual and religious activities.[47 48 49]

LIMITATIONS OF THE STUDY

This study used data with a cross-sectional approach; therefore, the cause and effect relationships cannot be definitively concluded. Additionally, this research was conducted during the COVID-19 pandemic, and the Indonesia Government was implementing various restrictions to prevent the transmission of COVID-19, meaning data collection could not be done face-to-face but was instead done online using the Google form.

CONCLUSION

The results of this study provide a better and more detailed understanding of burnout, including the factors associated with each burnout dimension. The majority of nurse anesthetists were classified as having EE and DP in the low category (76.8% and 64.2%, respectively). However, a high level of PA was experienced by only half of the nurse anesthetists (53.1%). Multivariate analysis found that rewards and social support were significantly associated with EE. Workload, social support and interpersonal relationships were significantly associated with DP. Meanwhile, social support and interpersonal relationships were associated with PA. Of the three dimensions of burnout, PA could use the most improvement, possibly through the use of social activities to strengthen social support and interpersonal relationships. The EE dimension could also use improvement through a re-analysis of workers' workload and making changes to workload-related regulations. Meanwhile, hospitals need to develop a policy such as occupational health surveillance to detect burnout syndrome earlier and implement hospital health promotion programs and workload regulations to prevent burnout syndrome or stress among nurse anesthetists.

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REFERENCES

1. Vargas M, Spinelli G, Buonanno P, Iacovazzo C, Servillo G, De Simone S. Burnout Among Anesthesiologists and Intensive Care Physicians: Results From an Italian National Survey. Inquiry. 2020;57:46958020919263. doi: 10.1177/0046958020919263

2. Rössler W. Stress, burnout, and job dissatisfaction in mental health workers. Eur Arch Psychiatry Clin Neurosci. 2012;262 Suppl 2:S65-9. doi: 10.1007/s00406-012-0353-4

3. Freudenberger HJ. Staff burn-out. J Soc Issues. 1974;30(1):159-65.

4. World Health Organization. Burn-out an "occupational phenomenon": International Classification of Diseases Geneva: World Health Organization [Internet]. 2019 [cited 2022 December 2]. Available from: https://www.who.int/news/item/28-05-2019-burn-out-an-occupational-phenomenon-international-classification-of-diseases.

5. Slezáková Z, Vörösová G, Mičinová G. Burnout syndrome in neurological nursing. Act Nerv Super Rediviva. 2015;57(4):122-7.

6. Chirico F. The forgotten realm of the new and emerging psychosocial risk factors. J Occup Health. 2017;59(5):433-5.

7. Yosef B, Woldegerima Berhe Y, Yilkal Fentie D, Belete Getahun A. Occupational Stress among Operation Room Clinicians at Ethiopian University Hospitals. J Environ Public Health. 2022;2022:2077317. doi: 10.1155/2022/2077317

8. Van der Wal RAB, Wallage J, Bucx MJL. Occupational stress, burnout and personality in anesthesiologists. Curr Opin Anaesthesiol. 2018;31(3):351-6.

9. Kassa MW, Bedada AG. Job Satisfaction and Its Determinants among Nurse Anesthetists in Clinical Practice: The Botswana Experience. Anesthesiol Res Pract. 2021;2021:5739584.

10. Sanfilippo F, Noto A, Foresta G, Santonocito C, Palumbo GJ, Arcadipane A, et al. Incidence and Factors Associated with Burnout in Anesthesiology: A Systematic Review. Biomed Res Int. 2017;2017:8648925. doi: 10.1155/2017/8648925

11. Meeusen VC, Van Dam K, Brown-Mahoney C, Van Zundert AA, Knape HT. Understanding nurse anesthetists' intention to leave their job: how burnout and job satisfaction mediate the impact of personality and workplace characteristics. Health Care Manage Rev. 2011;36(2):155-63. doi: 10.1097/HMR.0b013e3181fb0f41

12. Eslava-Schmalbach J, Garzón-Orjuela N, Martínez NT, Gonzalez-Gordon L, Rosero E, Gómez-Restrepo C. Prevalence and Factors Associated with Burnout Syndrome in Colombian Anesthesiologists. Int J Prev Med. 2020;11:5. doi: 10.4103/ijpvm.IJPVM_150_18

13. Abedi-Gilavandi R, Talebi F, Abedi-Taleb E, Nateghi S, Khedmat L, Amini F, et al. Burnout Among Nursing Staff in Ziaeian Hospital. Mater Sociomed. 2019;31(1):10-3. doi: 10.5455/msm.2019.31.10-13

14. West CP, Dyrbye LN, Shanafelt TD. Physician burnout: contributors, consequences and solutions. J Intern Med. 2018;283(6):516-29. doi: 10.1111/joim.12752

15. Chirico F, Leiter M. Tackling stress, burnout, suicide and preventing the "great resignation" phenomenon among healthcare workers (during and after the COVID-19 pandemic) for maintaining the sustainability of healthcare systems and reaching the 2030 sustainable development goals. J Health Soc Sci. 2022:9-13.

16. Magnavita N, Chirico F, Sacco A. COVID-19: from hospitals to courts. Lancet. 2021;397(10284):1542. doi: 10.1016/S0140-6736(21)00472-4

17. Chirico F, Magnavita N. Burnout Syndrome and Meta-Analyses: Need for Evidence-Based Research in Occupational Health. Comments on Prevalence of Burnout in Medical and Surgical Residents: A Meta-Analysis. Int J Environ Res Public Health. 2020;17(3). doi: 10.3390/ijerph17030741

18. Rotenstein LS, Torre M, Ramos MA, Rosales RC, Guille C, Sen S, et al. Prevalence of Burnout Among Physicians: A Systematic Review. JAMA. 2018;320(11):1131-50. doi: 10.1001/jama.2018.12777

19. Khammar A, Dalvand S, Hashemian AH, Poursadeghiyan M, Yarmohammadi S, Babakhani J, et al. Data for the prevalence of nurses' burnout in Iran (a meta-analysis dataset). Data Brief. 2018;20:1779-86. doi: 10.1016/j.dib.2018.09.022

20. Chirico F, Afolabi AA, Ilesanmi OS, Nucera G, Ferrari G, Sacco A, et al. Prevalence, risk factors and prevention of burnout syndrome among healthcare workers: an umbrella review of systematic reviews and meta-analyses. J Health Soc Sci. 2021;6(4):465-91.

21. Chirico F, Crescenzo P, Sacco A, Ricco M, Ripa S, Nucera G, et al. Prevalence of burnout syndrome among Italian volunteers of the Red Cross: a cross-sectional study. Ind Health. 2021;59(2):117-27.

22. Nishimura Y, Miyoshi T, Hagiya H, Kosaki Y, Otsuka F. Burnout of healthcare workers amid the COVID-19 pandemic: A Japanese cross-sectional survey. Int J Environ Res Public Health. 2021;18(5):2434.

23. Edú-Valsania S, Laguía A, Moriano JA. Burnout: A review of theory and measurement. Int J Environ Res Public Health. 2022;19(3):1780.

24. Daniel WW, Cross CL. Biostatistics: a foundation for analysis in the health sciences: Wiley; 2018.

25. Zareei M, Tabanejad Z, Oskouie F, Ebadi A, Mesri M. Job burnout among nurses during COVID-19 pandemic: A systematic review. J Educ Health Promot. 2022;11.

26. Joshua Lea D, Doherty I, Reede BL, Mahoney CB. Predictors of burnout, job satisfaction, and turnover among CRNAs during COVID-19 surging. AANA journal. 2022;90(2):141.

27. Mahoney CB, Lea J, Schumann PL, Jillson IA. Turnover, burnout, and job satisfaction of certified registered nurse anesthetists in the United States: Role of job characteristics and personality. AANA journal. 2020;88(1):39-48.

28. Chiron B, Michinov E, Olivier-Chiron E, Laffon M, Rusch E. Job satisfaction, life satisfaction and burnout in French anaesthetists. J Health Psychol. 2010;15(6):948-58.

29. Sillero A, Zabalegui A. Organizational factors and burnout of perioperative nurses. Clin Pract Epidemiol Ment Health. 2018;14:132-42.

30. Alharbi AA, Dahinten VS, MacPhee M. The relationships between nurses' work environments and emotional exhaustion, job satisfaction, and intent to leave among nurses in Saudi Arabia. J Adv Nurs. 2020;76(11):3026-38.

31. Magalhães E, Oliveira ÁCMdS, Govêia CS, Ladeira LCA, Queiroz DM, Vieira CV. Prevalencia del síndrome de burnout entre los anestesistas del

Distrito Federal. Rev Bras Anestesiol. 2015;65(2):104-10.

32. Dall'Ora C, Ball J, Reinius M, Griffiths P. Burnout in nursing: a theoretical review. Hum Resour Health. 2020;18(1):1-17.

33. Vanchapo AR. Beban kerja dan stres kerja. Jawa Timur: Penerbit Qiara Media; 2020.

34. Phillips C. Relationships between workload perception, burnout, and intent to leave among medical–surgical nurses. JBI Evidence Implementation. 2020;18(2):265-73.

35. Lrago T, Asefa F, Yitbarek K. Physicians' burnout and factors in southern Ethiopia affecting it. Ethiop J Health Sci. 2018;28(5):589-98.

36. Sonpaveerawong J, Limmun W, Chuwichian N. Prevalence of psychological distress and mental health problems among the survivors in the flash floods and landslide in Southern Thailand. Walailak J Sci Technol. 2019;16(4):255-64.

37. Fernandez A, Black J, Jones M, Wilson L, Salvador-Carulla L, Astell-Burt T, et al. Flooding and mental health: A systematic mapping review. PlOS ONE. 2015;10(4):e0119929.

38. Chang HE, Cho SH. The influence of social support on the relationship between emotional demands and health of hospital nurses: A cross-sectional study. Healthcare. 2021;9(2):1-13.

39. Shrestha MV, Manandhar N, Joshi SK. Burnout among healthcare professionals in Nepal: an analytical study. Int J Occup Saf Health. 2021;11(2):89-94.

40. Sussman D, Paul JE. The impact of transitioning from a 24-hour to a 16-hour call model amongst a cohort of canadian anesthesia residents at McMaster University–a survey study. Adv Medical Educ Pract. 2015;6:501-6.

41. Fradelos E, Mpelegrinos S, Mparo C, Vassilopoulou C, Argyrou P, Tsironi M, et al. Burnout syndrome impacts on quality of life in nursing professionals: The contribution of perceived social support. Progress in Health Sciences. 2014;4(1):102-9.

42. Adriaenssens J, De Gucht V, Maes S. Causes and consequences of occupational stress in emergency nurses, a longitudinal study. J Nurs Manag. 2015;23(3):346-58.

43. Velando-Soriano A, Ortega-Campos E, Gómez-Urquiza JL, Ramírez-Baena L, De La Fuente EI, Cañadas-De La Fuente GA. Impact of social support in preventing burnout syndrome in nurses: A systematic review. Jpn J Nurs Sci. 2020;17(1):e12269.

44. Choowichian N, Thapinta D, Sethabouppha H, Thungjaroenkul P. Factors predicting stress among nurses in the situation of unrest of the four southern border provinces of Thailand. Walailak J Sci Technol. 2020;17(3):269-84.

45. Roomaney R, Steenkamp J, Kagee A. Predictors of burnout among HIV nurses in the Western Cape. Curationis. 2017;40(1):1-9.

46. Vania L, Purba SD. Pengaruh job satisfaction terhadap organizational citizenship behavior (OCB) dengan organizational commitment sebagai variabel intervening pada Rumah Sakit Pantai Indah Kapuk di Jakarta. Jurnal Manajemen. 2014;11(2):99-119.

47. Chirico F, Sacco A, Ferrari G. Total Worker Health" strategy to tackle the COVID-19 pandemic and future challenges in the workplace. J Health Soc Sci. 2021;6(4):452-7.

48. Acquadro Maran D, Capitanelli I, Cortese CG, Ilesanmi OS, Gianino MM, Chirico F. Animal-Assisted Intervention and Health Care Workers' Psychological Health: A Systematic

Review of the Literature. Animals. 2022;12(3):383.

49. Chirico F. Spirituality to cope with COVID-19 pandemic, climate change and future global challenges. J Health Soc Sci. 2021;6(2):151-8.