

# COPING STRATEGIES POTENTIALLY REDUCE BURNOUT SYNDROME IN ANESTHESIOLOGISTS

Kusuma Dewi Sugiharto<sup>1,3</sup>, Hartono<sup>1,2</sup>, Purwoko<sup>1,3</sup>, Ari Probandari<sup>1,4</sup>

<sup>1</sup>Doctoral Program of Medical Science, Faculty of Medicine, Universitas Sebelas Maret, Indonesia

<sup>2</sup>Department of Physiology, Faculty of Medicine, Universitas Sebelas Maret, Indonesia

<sup>3</sup>Department of Anesthesiology and Intensive Therapy, Dr. Moewardi Hospital, Central Java Province, Indonesia

<sup>4</sup>Department of Public Health, Faculty of Medicine, Universitas Sebelas Maret, Indonesia

Corresponding Author: Kusuma Dewi Sugiharto

Academic Degree: Medical Doctor, Master of Health

Address: Jl. Letjend Sutoyo 116, Mojosongo, Surakarta, Central Java, Indonesia

Phone numbers: +62 815-4263-3292

Facsimile numbers: (+6271) 639292

E-mail: suksesdokortahunini@gmail.com

## Abstract

**Objective:** Anesthesiologists are prone to have chronic stress due to their high-pressure job causing mental illness. One of the work-related mental illnesses is burnout syndrome. This study aimed to determine the relation between coping and burnout in anesthesiologists.

**Methods:** A cross-sectional study was conducted in anesthesiology residents at Dr. Moewardi Hospital, Surakarta, Indonesia. A total of 60 participants fulfilled our inclusion criteria. Coping and burnout were assessed by Brief Coping Orientation to Problems Experienced and Maslach Burnout Inventory, respectively. All variables were analyzed using univariate and multivariate linear regressions.

**Results:** Coping was significantly correlated with emotional exhaustion ( $B = 0.184$ ;  $p = 0.019$ ). In depersonalization, coping was significantly correlated, both in bivariate ( $B = 0.182$ ;  $p = 0.003$ ) and multivariate analyses ( $B = 0.232$ ;  $p \leq 0.001$ ). In bivariate ( $B = 0.265$ ;  $p = 0.005$ ) and multivariate analyses ( $B = 0.246$ ;  $p = 0.006$ ), coping showed significant results with low personal achievement. Other variables that were significantly correlated with burnout were smoking, working hours, and emotional support.

**Conclusion:** Coping is correlated with burnout in anesthesiologists. Approach coping reduces the incidence of burnout in anesthesiologists. Working hours as a burnout aggravating factor is also significantly correlated with burnout.

**Keywords:** Anesthesiologists, adaptation, burnout, mental illness, stress

**Corresponding Author:** Kusuma Dewi Sugiharto

Academic Degree: Medical Doctor, Master of Health

Address: Jl. Letjend Sutoyo 116, Mojosongo, Surakarta, Central Java, Indonesia

Phone numbers: +62 815-4263-3292

Facsimile numbers: (+6271) 639292

E-mail: suksesdokortahunini@gmail.com

## Coping Strategies Potentially Reduce Burnout Syndrome In Anesthesiologists

work. Anesthesiologists are responsible for health services for 24 hours and sometimes they also have administrative and research responsibilities while maintaining interpersonal relationships [1]. This high pressure causes them to work with great demands and responsibilities [2]. This also makes anesthesiologists prone to chronic stress. Difficulty in concentrating, decreased motor skills, and difficulty in clinical decision-making, as well as short-term memory loss, are some of the signs of stress commonly experienced by anesthesiologists [3].

One of the ways through which anesthesiologists deal with stress is coping strategies [4]. Coping strategies consist of actions, behaviors, or thoughts that are developed to deal with stress. The Brief Coping Orientation to Problems Experienced (COPE Brief) is the most common tool for identifying the nature of the coping strategies and exploring those strategies. There are two characteristics of coping strategies in dealing with stress, namely avoidant and approach [5,6]. Stress at low levels is still possible to overcome with coping strategies, while stress at high levels can result in ineffectiveness of the coping strategies, which will then have an impact on one's psychological state [1].

The impact of psychological stress that is not handled properly may cause mental illness. One of the work-related chronic mental illnesses is burnout. Burnout is a syndrome characterized by depersonalization, emotional exhaustion, and reduced personal achievement. Several studies show that anesthesiologists jobs put them at high risk for burnout, measured with Maslach Burnout Inventory (MBI). This measure is the gold standard used for assessing burnout risk in health care professionals

[1,2].

Studies in various countries show that the prevalence of burnout syndrome in anesthesiologists is above 50% [1,4]. This high prevalence rate is concerning because burnout has a direct impact on delivering of health services to patients. A very few studies on the correlation of coping with burnout among anesthesiologists in Indonesia encouraged us to conduct this study in anesthesiologists working in Dr. Moewardi Hospital in Surakarta, Central Java, Indonesia.

### METHODS

This cross-sectional study was conducted in Dr. Moewardi Hospital, Surakarta, Central Java Province, Indonesia, in June 2020. It used a total population sampling method. A previous study, using a sample of 52 subjects (7). All anesthesiology residents, 85 in total, were invited to enroll in the study. The participants included in the study agreed to participate and signed an informed consent form. The samples were all anesthesiology residents who were willing to enroll in the study by signing informed consent. Anesthesiology residents in paid leave during the study period that did not fill out the questionnaire completely and had critical illness were excluded from the study. Seventy-one residents were assessed for eligibility. Of these, 60 samples met our criteria (Figure 1). Nevertheless, this study has limited time subjects in completing the questionnaire. This is due to the limited time our subjects had due to their many responsibilities.

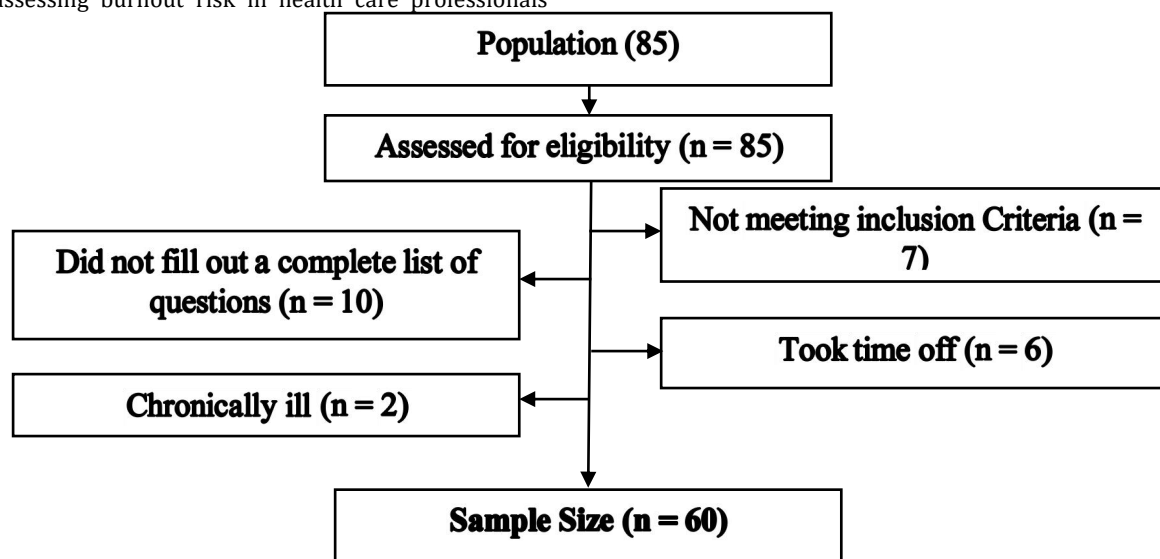


Figure 1. Sample Selection Mechanism

### Subject Characteristics

The basic characteristics of the subjects recorded were age, sex, and years of residency. Work-pattern data such as number of work hours each week, number of overtime hours each week, average number of critical patients attended to every day, number of scientific assignments each month, and number of sleep hours each day was also obtained in this study. The habits of each participant such as smoking, drinking alcohol and coffee, or chocolate consumption were also recorded.

### Assessment Tools

#### Coping

Previous studies have used Brief COPE to assess coping [5,7]. The Brief COPE questionnaire used in the study is the modified Indonesian version, comprising self-interruption, active adapting, denial, substance use, use of passionate help, use of instrumental help, behavioral separation, venting, positive reframing, planning, humor, acceptance, religion, and self-fault. These items were subscaled into either avoidant or approach. In general, approach coping is related to great outcomes while avoidant coping has less effective outcomes.

#### Burnout

Burnout was assessed with MBI, as in previous studies [2,8]. It scores independently for emotional exhaustion,

# Coping Strategies Potentially Reduce Burnout Syndrome In Anesthesiologists

depersonalization, and low personal achievement, which are then classified by severity into low, moderate, or high level of burnout. The emotional exhaustion was grouped utilizing the cut-off scores of low ( $\leq 18$ ), moderate (19–26), and high ( $\geq 27$ ). The depersonalization area was grouped by the scores of low ( $\leq 6$ ), moderate (7–12), and high ( $\geq 13$ ). For low personal achievement, the cut-off scores were low ( $\leq 33$ ), moderate (34–39), and high ( $\geq 40$ ). In low personal achievement, the lower the score the higher the level of burnout.

## STATISTICAL ANALYSIS

All analyses were performed using SPSS statistical software for Windows version 22.0. (IBM Corp., Armonk, NY, USA). All statistical tests were two-sided and the significance level was set at  $p < 0.05$ . Descriptive statistics of subjects' characteristics information, coping, and burnout variables were indicated with mean, standard deviation, number, and percentage (%) as appropriate. Simple linear regression was used to examine correlations among coping and burnout. Other characteristics were also analyzed in this study as confounding variables with the same test. Multivariate analysis used multiple linear regression.

## Ethic Statement

This study was approved by two Committees on Health Research Ethics of Dr. Moewardi Hospital (number 786/VI/HREC/2020). Composed/oral educated assent was received by the Declaration of Helsinki (59th WMA General Assembly, 2009).

## RESULTS

Sixty subjects met our inclusion criteria. Of these, 48 were male (80%) and 12 were female (20%). The average age of our subjects was  $32.20 \pm 3.08$  (26–39) y.o. and most subjects were in year two of residency. Only 10 (16.7%) subjects who had sleep for less than 8 hours. Based on the habits of the subjects, 10 of them were smokers and only one consumed alcohol regularly. Routine consumptions of chocolate and coffee were found in 35 (58.3%) and 37 (61.7%) subjects, respectively (Table 1). The work patterns of the subjects are also described in Table 1. Within one day, the subjects' working range was 7–24 ( $11.98 \pm 4.15$ ) hours and the average number of critical patients encountered was  $2.63 \pm 2.27$  (0–14). Every week, subjects had an average of overtime hours (night and weekend shift) of  $2.73 \pm 1.61$  (1–9). Additionally, the subjects received on average  $1.03 \pm 0.66$  (0–4) monthly scientific assignments (Table 1).

**Table 1.** Basic characteristics of the subjects

In dealing with problems, none of the subjects admitted to receive emotional support and no one had ever faced a problem with an open mind. However, almost all subjects, 58 (96.7%), referred religion for the main grip in their lives, especially in dealing with problems. Forty-one (68.3%) subjects had a hobby and 35 (51.7%) subjects exercised regularly.

**Figure 1.** Participant coping mechanisms and severity of burnout on each characteristic

Figure 1 illustrates the coping mechanisms of the study subjects; the outcomes of the avoidant and approach copings were not significantly different. For the avoidant mechanism demonstrated by 31 (51.7%) subjects and the

mechanism of approach 29 (48.3%) subjects. The study subjects who experienced burnout at a high level in emotional exhaustion was only 1 (1.7%), while other subjects had moderate (13 [21.7%]) and low (46 [76.7%]) levels. In depersonalization, burnout was experienced by most of them at a moderate level, as many as 30 (50%) subjects, while the rest of them were at a low (18 [30%]) and high levels (12 [20%]). Personal achievement revealed the severities of burnout were low, moderate, and high levels, 33 (55.0%), 18 (30%), and 9 (15%) respectively (Figure 1).

**Table 2.** Correlation between coping mechanisms and emotional exhaustion (MBI)

The analysis was performed based on each burnout characteristic. Bivariate and multivariate analyses between coping mechanisms as well as confounding variables and emotional exhaustion are demonstrated in Table 2. Based on bivariate analysis, the coping mechanism was not significantly correlated with burnout ( $B = 0.155$ ; 95% confidence interval [CI] =  $-0.011-0.322$ ;  $p = 0.67$ ), while working hours ( $B = 0.378$ ; 95% CI =  $0.163-0.593$ ;  $p = 0.001$ ) and smoking ( $B = -0.620$ ; 95% CI =  $-5.145-0.095$ ;  $p = 0.042$ ) were significantly correlated with burnout. Interestingly, multivariate analysis demonstrated that the coping mechanism ( $B = 0.184$ ; 95% CI =  $0.031-0.337$ ;  $p = 0.019$ ) and emotional support ( $B = -1.976$ ; 95% CI =  $-3.656-0.296$ ;  $p = 0.022$ ) were significantly correlated with burnout. Both bivariate and multivariate analyses showed that working hours ( $B = 0.340$ ; 95% CI =  $0.141-0.538$ ;  $p = 0.001$ ) and smoking ( $B = -2.683$ ; 95% CI =  $-4.873-0.494$ ;  $p = 0.017$ ) were significantly correlated with burnout. (Table 2).

**Table 3.** Correlation between coping mechanisms and depersonalization (MBI)

In depersonalization, the coping mechanism was significantly correlated with burnout, both in the bivariate analysis ( $B = 0.182$ ; 95% CI =  $0.067-0.298$ ;  $p = 0.003$ ) and multivariate analysis ( $B = 0.232$ ; 95% CI =  $0.133-0.331$ ;  $p \leq 0.001$ ). Other variables that were significant as confounders in the bivariate analysis in the aspect of depersonalization were the number of daily working hours ( $B = 0.249$ ; 95% CI =  $0.089-0.409$ ;  $p = 0.003$ ) and smoking ( $B = -2.200$ ; 95% CI =  $-4.020-0.380$ ;  $p = 0.019$ ). Smoking ( $B = -2.397$ ; 95% CI =  $-3.826-0.969$ ;  $p = 0.001$ ) and number of daily working hours ( $B = 0.204$ ; 95% CI =  $0.075-0.333$ ;  $p = 0.003$ ) also obtained significant results in multivariate analysis. The result of bivariate analysis in emotional support was not significant ( $B = -1.003$ ; 95% CI =  $-2.348-0.342$ ;  $p = 0.141$ ). However, in the multivariate analysis, emotional support was significantly correlated with burnout ( $B = -2.114$ ; 95% CI =  $-3.198-1.031$ ;  $p \leq 0.001$ ) (Table 3).

**Table 4.** Correlation between coping mechanisms and personal achievement (MBI)

The results of our analysis in personal achievement did not differ greatly from those of the depersonalization, whereas coping mechanisms, smoking, and number of working hours each day were significantly correlated with a burnout. Bivariate and multivariate analyses of coping mechanisms obtained  $B = 0.265$ ; 95% CI =  $0.082-0.448$ ;  $p = 0.005$  and  $B = 0.246$ ; 95% CI =  $0.074-0.417$ ;  $p = 0.006$ , respectively. Bivariate analysis of smoking and

## Coping Strategies Potentially Reduce Burnout Syndrome In Anesthesiologists

working hours had  $B = -3.100$ ; 95% CI =  $-5.977-0.223$ ;  $p = 0.035$  and  $B = 0.334$ ; 95% CI =  $0.078-0.590$ ;  $p = 0.011$ , respectively. The multivariate analysis of smoking is  $B = -2.946$ ; 95% CI =  $-5.555-0.338$ ;  $p = 0.028$ . and the working hours each day value is  $B = 0.268$ ; 95% CI =  $0.074-0.417$ ;  $p = 0.006$ , respectively (Table 4).

### DISCUSSION

In our study, the incidence of burnout among anesthesiologists at moderate-to-high levels reached 70% for depersonalization and 23.3% for emotional exhaustion. Meanwhile, low personal achievement obtained 55% subjects. These findings are similar to those of previous studies conducted in different countries, which were summarized in a systematic review study [4]. Working in stressful disciplines, unpredictable working hours, commitments outside working hours, and patient management in a life-threatening situation make anesthesiologists' work significantly related to burnout [2].

Our study also revealed that approach coping is a positive coping mechanism proven to reduce the risk of burnout in anesthesiologists. Approach coping is characterized by means of the subscales of lively coping, advantageous reframing, planning, acceptance, seeking emotional support, and in search of informational support. Approach coping is associated with more beneficial responses to adversity, such as adaptive sensible adjustment, higher physical health outcomes, and steadier emotional responses. Avoidant coping comprises denial, substance use, venting, behavioral disengagement, self-distraction, and self-blame. Avoidant coping is related to poorer physical fitness. Compared to approach coping, avoidant coping is shown to be less efficient at managing anxiety and burnout [5,7,9].

Emotional support and smoking are a part of coping; emotional support is part of approach coping while smoking is part of avoidant coping [5,8]. Anesthesiologists who seek or get emotional support from family or coworkers have been shown to suffer less from burnout [10]. Smoking habits, categorized as substance abuse, can be a behavioral manifestation to reduce work stress as well as to pursue pleasure that they cannot get in their daily work activities due to bad working conditions. Constant stress situations lead anesthesiologist to smoke, which is used as a relaxant, tranquilizer, and anxiolytic [8].

Systematic review studies reported that the work patterns and difficult time management of anesthesiologists result in a greater risk of burnout compared to other clinicians in hospitals. Excessive work hours, many night shifts, and possible call of duty calls on weekends, are patterns of work triggering burnout events for anesthesiologists. This can occur because the anesthesiologist has difficulty in managing time, does not have a solid work plan, complex tasks, and has great responsibilities that must be carried out [1]. Working on the night shift is one of the most common similarities which anesthesiologists have with burnout. In this study, working on the night shift and working on holidays and weekends were included in overtime shifts. Our study subjects did not admit that working overtime causes burnout. This is different from the findings of previous studies, which showed that overtime shifts have a significant effect on burnout [4].

In this study work, patterns significantly correlation with burnout is long working hours. Long working hours force anesthesiologists to do time management and to increase

the workload. The longer the working hours, the more likely they are to experience fatigue. Long working hours also cause anesthesiologists to have difficulty in balance work and personal life. In the end, personal life is sacrificed and causes burnout. This finding is in line with previous studies conducted by Sanfilippo et al. (2017) and Sun et al. (2019), which reported that long working hours are associated with a higher incidence of burnout [4,10].

### CONCLUSION

Coping is correlated with burnout in anesthesiologists; approach coping reduces the incidence of burnout among anesthesiologists. Burnout is also strongly correlated with smoking and emotional support. Long working hours are also significantly correlated with burnout as it aggravates burnout. Research about the correlation of coping with burnout among anesthesiologists is still rarely found up to date. We hope that this study will serve as a preliminary study that attracts researches to study the work of anesthesiologists. Based on this study, we recommend that anesthesiologists change their mindset and try to orient themselves to the approach coping mechanism because it has been shown to be more efficacious when dealing with burnout.

### ACKNOWLEDGEMENT

We would like to thank Department of Anesthesiology and Intensive Therapy, Dr. Moewardi Hospital, Central Java Province, Indonesia, for supporting this study.

### REFERENCES

1. Rama-Maceiras P, Jokinen J, Kranke P. Stress and burnout in anaesthesia: A real world problem? *Current Opinion in Anaesthesiology*. 2015.
2. Brakke T, Thompson A, Shillcutt SK, Augoustides JG. Burnout in Cardiothoracic Anesthesiology—Expert Perspectives in the Contemporary Era. *J Cardiothorac Vasc Anesth*. 2019;
3. Gupta B, Bajwa SS, Malhotra N, Mehdiratta L, Kakkar K. Tough times and Miles to go before we sleep- Corona warriors. *Indian J Anaesth* [Internet]. 2020 May 1 [cited 2020 Jul 14];64(14):120. Available from: <http://www.ijaweb.org/text.asp?2020/64/14/120/284920>
4. 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. Vol. 2017, *BioMed Research International*. 2017.
5. Baumstarck K, Alessandrini M, Hamidou Z, Auquier P, Leroy T, Boyer L. Assessment of coping: a new french four-factor structure of the brief COPE inventory. *Health Qual Life Outcomes* [Internet]. 2017 [cited 2020 Jul 14];15. Available from: [/pmc/articles/PMC5225566/?report=abstract](https://pubmed.ncbi.nlm.nih.gov/3125566/)
6. Monzani D, Steca P, Greco A, D'Addario M, Cappelletti E, Pancani L. The situational version of the brief COPE: Dimensionality and relationships with goal-related variables. *Eur J Psychol*. 2015;11(2):295–310.
7. Nishimura K, Nakamura F, Takegami M, Fukuhara S, Nakagawara J, Ogasawara K, et al. Cross-sectional survey of workload and burnout among Japanese physicians working in stroke care the nationwide survey of acute stroke care capacity for proper designation of comprehensive stroke center in Japan (J-aspect) study. *Circ Cardiovasc Qual Outcomes*. 2014;7(3):414–22.
8. Nevill RE, Haverkamp SM. Effects of mindfulness,

## *Coping Strategies Potentially Reduce Burnout Syndrome In Anesthesiologists*

coping styles and resilience on job retention and burnout in caregivers supporting aggressive adults with developmental disabilities. *J Intellect Disabil Res* [Internet]. 2019 May 1 [cited 2020 Jul 14];63(5):441–53. Available from: <https://pubmed.ncbi.nlm.nih.gov/30687982/>

9. Fernandes LS, Nitsche MJT, De Godoy I. Association between burnout syndrome, harmful use of alcohol and smoking in nursing in the ICU of a university hospital. *Cienc e Saude Coletiva*. 2018;
10. Roche A, Ogden J. Predictors of burnout and health status in Samaritans' listening volunteers. *Psychol Heal Med*. 2017;
11. Sun H, Warner DO, Macario A, Zhou Y, Culley DJ, Keegan MT. Repeated Cross-sectional Surveys of Burnout, Distress, and Depression among Anesthesiology Residents and First-year Graduates. *Anesthesiology*. 2019;131(3):668–77.