Australian Journal of Science and Technology

ISSN Number (2208-6404)
Volume 5; Issue 3; September 2021

Original Article

Resilience, depression, and life quality of rural nurses in the coronavirus disease pandemic: A pilot cross-sectional study

Ika Febianti Buntoro, Giovanny Matulessy, Nicholas Edwin Handoyo, Christina Olly Lada, Rr. Listyawati Nurina

Department of Tropical Medicine, Faculty of Medicine, Universitas Nusa Cendana, Nusa Tenggara Timur Province, Indonesia

ABSTRACT

Health care workers are at higher risk of experiencing mental disorders, including depression, during the coronavirus disease (COVID-19) outbreak than the general population. The high prevalence of the health care provider's mental health problems may lead to an impending failure of the health system. Many nurses experience depression during the COVID-19 outbreak, which may affect their life quality. Working in a rural area with many limitations and uncertainties complicates the problem further and may increase depression. On the contrary, resilience is related to better well-being and quality of life (QoL). This study aimed to measure the rural nurses' resilience, depression, QoL, and their associations in rural Indonesia. An online survey was implemented in September-October 2020, assessing rural nurses' resilience, depression, and QoL. The study participants were nurses caring for COVID-19 at least for 1 month in the main provincial hospital, aged >18 years, living in Kupang City, and gave consent to participate. The exclusion criterion was suffered from any chronic disease. The result of this study has demonstrated that one-third of the participants experienced depression, and two-third had a low QoL. The resilience levels are significantly higher in the non-depressed and high life quality groups. Our study concluded that nurses need help (33% of the nurse participants experienced depression, and 67% had low QoL). Prioritizing efforts in building nurse resilience may prevent future depression and promotes a higher life quality.

Keywords: Coronavirus disease, depression, health personnel, quality of life

Submitted: 12-08-2021, **Accepted:** 18-08-2021, **Published:** 30-09-2021

INTRODUCTION

Health care workers are at higher risk of experiencing mental disorders, including depression, during the coronavirus disease (COVID-19) outbreak than the general population.[1] Even more for nurses because nurses are the frontline health care workers in the COVID-19 pandemic and hold the highest risk of contracting COVID-19.[2] A meta-analytic study involving 33.062 participants reported that 22.8% of health care workers experience depression in the pandemic era in the whole world.[3] The depression prevalence was higher in females than males.[3-5] The high prevalence of the health care provider's mental health problems may lead to an impending failure of the health system.

The high prevalence of COVID-19 cases has caused additional psychological pressure compared to working in a normal condition. Besides increasing the nurses' workload, the requirement to use personal protective equipment has caused further inconvenience to them. Furthermore, a caring profession involving emotional attachment, like nurses, is prone to burnout, disappointment, grief, and guilt.[6] All of these factors may lead the nurse to depression.

Depression is significantly associated with poor quality of life (QoL) among nursing technicians and nursing assistants in Brazil[7] among female nurses in China, and emergency department nurses during COVID-19 in China.[8] QoL is the individual subjective perception of health status, psychosocial, and other aspects of one's life.[9]

Furthermore, working in rural areas is more challenging than working in the city. Rural areas pose people with more uncertainties than their urban counterparts.[10] Rural-related limitations, such as limited public facilities, health equipment,

Address for correspondence: Ika Febianti Buntoro, Universitas Nusa Cendana, Faculty of Medicine, Nusa Tenggara Timur Province, Indonesia. E-mail: ika.febianti.buntoro@gmail.com

drugs, and referrals, may drive health professionals to leave rural area.[11] It is emotionally demanding for nurses to work in challenging health care environments, resulting in stress.[12] Thus, it is logical that nurses working in rural areas during the COVID-19 pandemic are more likely to experience distress and other mental disorders affecting their QoL.

On the other side, resilience is a capacity to moderate stress and maintain well-being.[13,14] It is also a capacity to adapt, recover from adversities, and even thrive amid difficulties.[15,16] It is illustrated as a rubber ball returning to its original form after being squeezed.[10] Resilience is related to better health, well-being, and QoL.[13] It is also believed to be a key component of well-being and essential for health professionals to overcome challenges, stress, and adversities.[17] Resilience protects against depression and anxiety, even increasing the odds of not being depressed twofold.[4] For those in the caring professions, resilience is found to help in adapting and coping to a stressful working environment.[12] However, one's resilience is not always in the same state but changing over time depending on the context and situation.[10,16,18] Resilience can also be developed through training and is recommended in health professional training to strengthen their capacity to deal with work stress.[13,19,20]

In summary, the COVID-19 pandemic increases depression among healthcare workers, especially nurses. Depression leads to low QoL. Logically, working in a rural area with many limitations and uncertainties complicates the problem further and may increase depression. On the contrary, resilience is related to better well-being and QoL. Resilience also protects people against depression.

This study aimed to find out the association between resilience, depression, and the QoL among nurses in rural areas amid the COVID-19 pandemic. We hypothesize that depression is negatively associated with resilience and QoL, and resilience is positively associated with QoL.

MATERIALS AND METHODS

This study was conducted through an online survey with a cross-sectional design. This study was conducted in the main provincial hospital of Nusa Tenggara Timur, Kupang city, rural Indonesia, from September to October 2020. At that time, the hospital was one among the three hospitals caring for COVID-19 in the province, with the other two hospitals located on different islands.[21]

The study participants were nurses caring for COVID-19 at least for 1 month in the main provincial hospital, aged >18 years, living in Kupang City, and gave consent to participate. The exclusion criterion was suffered from any chronic disease. All 44 nurses who worked in the hospital participated in the study.

The personal resilience questionnaire uses 5 point Likert scales ranging from 1 (strongly disagree) to 5 (strongly agree). There are five questions for each dimension, and the score ranged from 5 to 25 for each dimension.

Depression was measured using Beck Depression Inventory-II. This scale is intended for use in people aged 13 or more. There are 21 items with 4 points on the Likert scale (score 0–3).[22] The QoL was measured using WHOQOL-BREF (WHO QoL).[9]

RESULTS

This study has demonstrated that 33% of the participants experienced depression, and 67% had low QoL. The nurses' resilience levels are significantly higher in the non-depressed (except the comfort-zone dimension) and the high QoL groups (all dimensions) compared to their counterparts. Also, there was a significant weak association between depression and QoL. Table 1 presents their demographics.

Most participants had a high level of resilience in each dimension (between 79.5 and 97.7%), with the life-calling dimension the highest mean score. No participant had a low level of resilience, except one in the comfort-zone dimension [Table 2].

The result of the independent *t*-test analysis showed that the depressed groups had a significantly lower score of resilience in all dimensions except the comfort-zone dimension [Table 3].

The result of the independent sample Mann-Whitney *U* test analysis showed that the resilience scores were significantly higher in the high QoL than the low QoL group in all dimensions [Table 4]. The Chi-square test result showed a significant weak association between depression and QoL ($P = 0.01$, $r = 0.388$) [Table 5].

Table 1: Participants' demographics

Factor	*n*	%
Age (years)		
<30	1	2.3
30–40	36	81.8
>40	7	15.9
Female	38	86.4
Maried	38	86.4
Workplace		
NICU	5	11.4
Ward	19	43.2
ICU	20	45.5

DISCUSSION

This study aimed to find out the association between resilience, depression, and the QoL among nurses in rural areas amid the COVID-19 pandemic. The hypothesis was partially met, the resilience levels are significantly higher in the non-depressed (except the comfort-zone dimension) and the high QoL groups (all dimensions). Also, depression is weakly related to QoL.

The findings of this study aligned with a previous study in which 43% of nurses in China experienced depression during the COVID-19 pandemic and this proportion was increased compared to 2013 or before the pandemic in which only 25% experienced depression.[23-25] Those with depression had a lower QoL either before or after the pandemic.[24,26] However, different contexts may have different levels of depression. For example, a study in the UK showed that only 17.2% of the nurses experienced depression during the COVID-19 pandemic compared to 43% in China. This difference may be attributed to different health systems implemented and different supports given to nurses in other countries.

Table 2: Resilience dimensions profiles

Resilience dimension	Mean	SD	Level of resilience		
			Low	Moderate	High
			n (%)	*n* (%)	*n* (%)
Determination	3.96	0.43		9 (20.5)	35 (79.5)
Endurance	4.07	0.48		4 (9.1)	40 (90.9)
Adaptability	4.00	0.46		8 (18.2)	36 (81.8)
Recuperability	3.99	0.47		7 (15.9)	37 (84.1)
Comfort-zone	4.00	0.52	1 (2.3)	5 (11.4)	38 (86.4)
Life calling	4.46	0.48		1 (2.3)	43 (97.7)

There are several possible causes of depression in these nurses. According to cognitive-behavioral theory, three central dysfunctional beliefs were dominating depressed people: (1) I am defective or inadequate, (2) all of the experiences result in failures, (3) the future is hopeless (*Cognitive Theories of Major Depression - Aaron Beck*, n.d.). Experiencing pandemic and the new normal are related to those three beliefs. The uncertainty of the situation and having no power to stop the pandemic may cause one to feel inadequate and tend to see the hopeless future. On the contrary, the familiarity with the workplace, confidence in caring for COVID-19 patients (including self-protection and work safety), belief in the family readiness to cope with the pandemic, and willingness to participate in the frontline work significantly influenced depression.[25] Depression is also positively correlated with skin lesions caused by personal protective equipment worn excessive workload, fatigue, helplessness, and fear of getting infected and spreading the virus to their family.[25,26] Furthermore, the tertiary hospital nurses looking after COVID-19 patients, as the participants in our study, were more likely to suffer from depression.[26]

The nurses' resilience levels are significantly higher in the non-depressed (except the comfort-zone dimension) compared to the depressed group. These findings aligned with previous studies in which depression negatively correlated with resilience.[9,25,27,28] A systematic review also found that resilience may moderate the adverse effects of job demands (e.g., stress, burnout, fatigue, anxiety, depression, post-traumatic stress disorder, and workplace bullying).[8] Hence, it is logical that nurses with a higher level of resilience experience less depression. A possible reason why the comfort zone is not different between groups in this study is that the sample is too homogenous because they work in the same institution facing the same problem. They might also earn the same amount of income. The comfort zone

Table 3: Resilience and depression

Dimension	Depression	*n*	Mean	Std. Deviation	Sig.	95% CI
Determination	Non-depressed	29	4.07	0.432	0.023*	0.044–0.574
	Depressed	15	3.76	0.372		
Endurance	Non-depressed	29	4.23	0.424	0.001*	0.203–0.746
	Depressed	15	3.76	0.422		
Adaptability	Non-depressed	29	4.13	0.451	0.009*	0.097–0.645
	Depressed	15	3.76	0.372		
Recuperability	Non-depressed	29	4.13	0.448	0.004*	0.136–0.686
	Depressed	15	3.72	0.384		
Comfort zone	Non-depressed	29	4.08	0.557	0.181	−0.108–0.553
	Depressed	15	3.85	0.417		
Life calling	Non-depressed	29	4.57	0.403	0.026*	0.041–0.623
	Depressed	15	4.24	0.541		

*Significant at $P<0.05$. CI: Confidence interval

Table 4: Resilience and quality of life

Dimension	Quality of life	N	Mean	SD	Sig.
Determination	High	14	4.30	0.462	0.004*
	Low	30	3.81	0.322	
Endurance	High	14	4.39	0.620	0.004*
	Low	30	3.93	0.308	
Adaptability	High	14	4.29	0.530	0.021*
	Low	30	3.87	0.358	
Recuperability	High	14	4.33	0.512	0.011*
	Low	30	3.83	0.353	
Comfort Zone	High	14	4.33	0.487	0.013*
	Low	30	3.85	0.466	
Life Calling	High	14	4.71	0.374	0.014*
	Low	30	4.34	0.476	

*Significant at $P<0.05$. SD: Standard deviation

Table 5: Depression and quality of life

Depression	Quality of life		Total	Sig.	r
	High	Low			
	n (%)	*n* (%)	*n* (%)		
Non-depressed	13 (30)	16 (36)	29 (66)	0.01*	0.388
Depressed	1 (2.3)	14 (32)	15 (34)		
Total	14 (32)	30 (68)	44 (100)		

*Significant at $P<0.05$. SD: Standard deviation

is one's capacity to accept and be satisfied with whatever their current situation is, including financial.[29,30]

The nurses' resilience levels are significantly higher in the high QoL groups (all dimensions) than its counterpart. An explanation for this may be that resilience may lead to increased job satisfaction, job retention, and the general well-being of nurses.[8] This study also found a significant weak association between QoL and depression, consistent with previous findings in which depressed nurses reported lower QoL.[26,28] The weak association explains that many factors, not only depression, influence QoL. Those other factors include physical health, level of independence, social relationships, personal beliefs, and the relationship with the environment.[9] Because of the detrimental impact of depression on QoL and quality of care, a previous study suggested regular depression screening, financial support, and online psychological counseling to the nurses.[26]

In conclusion it is essential to pay attention to develop and maintain resilience in nurses. Many researchers suggest building nurses' resilience to improve their mental health, especially during the COVID-19 pandemic, and function better and be more successful at work.[25,31,32] Several types of resilience training are suggested for health professionals, including mindfulness-based training, mind-body skill training, interactive and reflective writing, and cognitive behavioral therapy.[32,33] However, the effectiveness of the training varies with longer sessions, and a longer duration of the intervention is more effective.[34] Walsh suggested that developing resilience should not start after one becomes a registered nurse but should be initiated early during nursing education. She also recommended teaching and learning activities to improve resilience in nursing education with five key learning and teaching methods (e.g., peer activities, reflective practice, self-directed study, problem-based learning, and experiential learning).[34]

CONCLUSION

Our study suggests that nurses need help (33% of the nurse participants experienced depression, and 67% had low QoL). Attention needs to be given to developing and maintaining nurses' resilience to prevent depression and promote a higher QoL. The resilience-building effort should start early in nursing education.

ETHICAL APPROVAL

Ethical approval was obtained from the Ethical Committee, University of Nusa Cendana, Indonesia (letter-number 56/UN15.16/KEPK/2020).

ACKNOWLEDGMENTS

The authors would like to thank all nurses who had participated in the study. This work was supported by The University of Nusa Cendana, Medical School, under grant number 366/PP/2020.

DECLARATION OF INTEREST

Authors declared no conflict of interest.

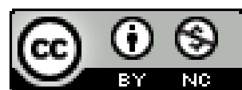
AUTHORS' CONTRIBUTIONS

All authors (IB, GM, COL, LN, NH) have made substantive intellectual contributions to this study. IB, GM, COL, LN designed the study. GM collected the data. GM and NH analyzed the data. IB wrote the first manuscript draft. GM, COL, LN, NH reviewed and revised the manuscript. All authors approved the manuscript.

REFERENCES

1. Huang Y, Zhao N. Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 outbreak in China: A web-based cross-sectional survey. Psychiatry Res 2020;288:1315.
2. World Health Organization. COVID-19 : Occupational Health and Safety for Health Workers. Geneva: World Health

Organization; 2021. p. 1-16. Available from: https://www.who.int/publications/i/item/WHO-2019-nCoV-HCW_advice-2021.1
3. Pappa S, Ntella V, Giannakas T, Giannakoulis VG, Papoutsi E, Katsaounou P. Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. Brain Behav Immun 2020;88:901-7.
4. Edward KL. Resilience: A protector from depression. J Am Psychiatr Nurs Assoc 2005;11:241-3.
5. Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, *et al*. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. JAMA Network Open 2020;3:e203976.
6. Clark S. From burnout to resilience: A general practice perspective. N Z Med J 2011;124:76-80.
7. Rios KA, Barbosa DA, Belasco AG. Evaluation of quality of life and depression in nursing technicians and nursing assistants. Rev Latin Am Enferm 2010;18:413-20.
8. Yu F, Raphael D, Mackay L, Smith M, King A. Personal and work-related factors associated with nurse resilience: A systematic review. Int J Nurs Stud 2019;93:129-40.
9. World Health Organization. Programme on Mental Health: WHOQOL User Manual. Geneva: World Health Organization; 2009. Available from: https://www.who.int/tools/whoqol. [Last accessed on 2020 Sep 29].
10. Hegney DG, Buikstra E, Baker P, Rogers-Clark C, Pearce S, Ross H, *et al*. Individual resilience in rural people: A Queensland study, Australia. Rural Remote Health 2007;7:620.
11. Handoyo NE, Prabandari YS, Rahayu GR. Characteristics of Rural Doctors: A Phenomenological Study in Nusa Tenggara Timur [University of Gadjah Mada]. In University of Gadjah Mada; 2012. Available from: https://www.fdokumen.com/reader/full/dr-nicholas-edwin-handoyo-mmeded. [Last accessed on 2020 Sep 6].
12. Walsh P, Owen PA, Mustafa N, Beech R. Learning and teaching approaches promoting resilience in student nurses: An integrated review of the literature. Nurse Educ Pract 2018;45:102748.
13. Tempski P, Martins MA, Paro HB. Teaching and learning resilience: A new agenda in medical education. Med Educ 2012;46:345-6.
14. Wald HS, Anthony D, Hutchinson TA, Liben S, Smilovitch M, Donato AA. Professional identity formation in medical education for humanistic, resilient physicians. Acad Med 2015;90:753-60.
15. Taormina RJ. Adult personal resilience: A new theory, new measure, and practical implications. Psychol Thought 2015;8:35-46.
16. Tusaie K, Dyer J. Resilience: A historical review of the construct. Holist Nurs Pract 2004;18:3-8.
17. Eley DS, Cloninger CR, Walters L, Laurence C, Synnott R, Wilkinson D. The relationship between resilience and personality traits in doctors: Implications for enhancing well-being. PeerJ 2013;1:e216.
18. Notter ML, MacTavish KA, Shamah D. Pathways toward resilience among women in rural trailer parks. Family Relations 2008;57:613-24.
19. McAllister M, McKinnon J. The importance of teaching and learning resilience in the health disciplines: A critical review of the literature. Nurse Educ Today 2009;29:371-9.
20. McDonald GE. Surviving and Thriving in the Face of Workplace Adversity: An Intervention to Improve Personal Resilience in Nurses and Midwives. Dissertation Abstracts International Section C: Worldwide, 75(1-C), No-Specified. 2010. Available from: http://www.ovidsp.ovid.com/ovidweb.cgi?T=JS and PAGE=reference and D=psyc14 and NEWS=N and AN=2017-51411-242. [Last accessed 2020 Jul 12].
21. Kompas TV. NTT Corona Update Wednesday (23/09): Added 18 cases, Corona in NTT is Increasing Uncontrollably. Kompas.Tv; 2020. Available from: https://www.kompas.tv/article/110597/update-corona-ntt-rabu-23-09-tambah-18-kasus-corona-di-ntt-meningkat-tak-terkendali. [Last accessed on 2020 Sep 30].
22. Ginting H, Näring G, Van Der Veld WM, Srisayekti W, Becker ES. Validating the beck depression inventory-II in Indonesia's general population and coronary heart disease patients. Int J Clin Health Psychol 2013;13:235-42.
23. Terok MP, Bawotong J, Untu FM. Social support and quality of life in pulmonary tuberculosis patients at the pulmonary polyclinic BLU RSUP Prof. Dr. R.D. Kandou Manado. J Nurs 2012;1:1-10.
24. An JG, Gao XM, Ma YX, Xiao SX. Relation between depression, anxiety, and quality of life among female nurses in Shaanxi province: A cross-sectional study. Lancet 2015;386:S3.
25. Hu D, Kong Y, Li W, Han Q, Zhang X, Zhu LX, *et al*. Frontline nurses' burnout, anxiety, depression, and fear statuses and their associated factors during the COVID-19 outbreak in Wuhan, China: A large-scale cross-sectional study. EClinicalMedicine 2020;24:424.
26. An Y, Yang Y, Wang A, Li Y, Zhang Q, Cheung T, *et al*. Prevalence of depression and its impact on quality of life among frontline nurses in emergency departments during the COVID-19 outbreak. J Affect Disord 2020;276:312-5.
27. Roberts NJ. McAloney-Kocaman K, Lippiett K, Ray E, Welch L, Kelly C. Levels of resilience, anxiety and depression in nurses working in respiratory clinical areas during the COVID pandemic. Respir Med 2020;176:106219.
28. Bulloch AG, Williams JV, Lavorato DH, Patten SB. The depression and marital status relationship is modified by both age and gender. J Affect Disord 2017;223:65-8.
29. Bulloch AG, Williams JV, Lavorato DH, Patten SB. The relationship between major depression and marital disruption is bidirectional. Depression Anxiety 2009;26:1172-7.
30. Kessler RC, Essex M. Marital status and depression: The importance of coping resources. Soc Forces 1982;61:484-507.
31. Handoyo N, Rahayu G, Claramita M, Ash J, Schuwirth L. Personal resilience and rural doctors retention: A study in Indonesia. Rural Remote Health 2020;20:6097.
32. Pearlin LI, Johnson JS. Marital status, life-strains and depression. Am Soc Rev 1977;42:704-15.
33. Wei W, Taormina RJ. A new multidimensional measure of personal resilience and its use: Chinese nurse resilience, organizational socialization, and career success. Nurs Inq 2014;21:346-57.
34. Cleary M, Kornhaber R, Thapa DK, West S, Visentin D. The effectiveness of interventions to improve resilience among health professionals: A systematic review. Nurse Educ Today 2008;71:247-63.



This work is licensed under a Creative Commons Attribution Non-Commercial 4.0 International License.