Stress of Nurses during the COVID-19 Pandemic: A Literature Review

Gunawan[1], Yuly Peristiowati[2], Agusta Dian Ellina[3]
[1,2,3]Institute of Health Sciences of Strada Indonesia
Email: gunganinglakipadada@gmail.com

Abstract

The COVID-19 pandemic is caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-Cov-2), has caused a total of 1,531,005 people in Indonesia confirmed positive for COVID-19 and 42,000 people died. The increasing number of COVID-19 cases in Indonesia has made nurses stress as front-liner. This study aims to identify the description of stress in nurses. This study is a systematic literature review by identifying cross-sectional study, published in 2019-2021, in English and Indonesian, and full-text. The electronic database that used was Google Scholar with the keywords "Nurses" AND "Stress" AND "COVID-19". The results obtained 10 articles that related to stress in nurses and factors that caused it. All of studies stated that nurses were stress from mild to severe. Demographic factors that caused stress include age, gender, education level, having children, working status, and years of services. Meanwhile, situational factors were the inconvenience of continuous and strict use a personal protective equipment, being in isolation room, lack of understanding in treating COVID-19 patients, fear of being infected and transmitting the virus to family, and homesickness. An adaptive coping mechanism is needed to reduce stress levels for nurses as the front line in the COVID-19 pandemic.

***Keywords**: Nurses, Stress, and COVID-19.*

– – – – – – – – – – ◆ – – – – – – – – – –

A. INTRODUCTION

The COVID-19 pandemic is caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-Cov-2), the first occurred in Wuhan, China, in early December 2019 (Sepulveda-Loyola et al., 2020). It has spread to Indonesia in March 2020, a total of 1,531,005 people confirmed positive for COVID-19 and 42,000 people died (*Kesiapsiagaan Menghadapi Infeksi COVID-19*, 2021).

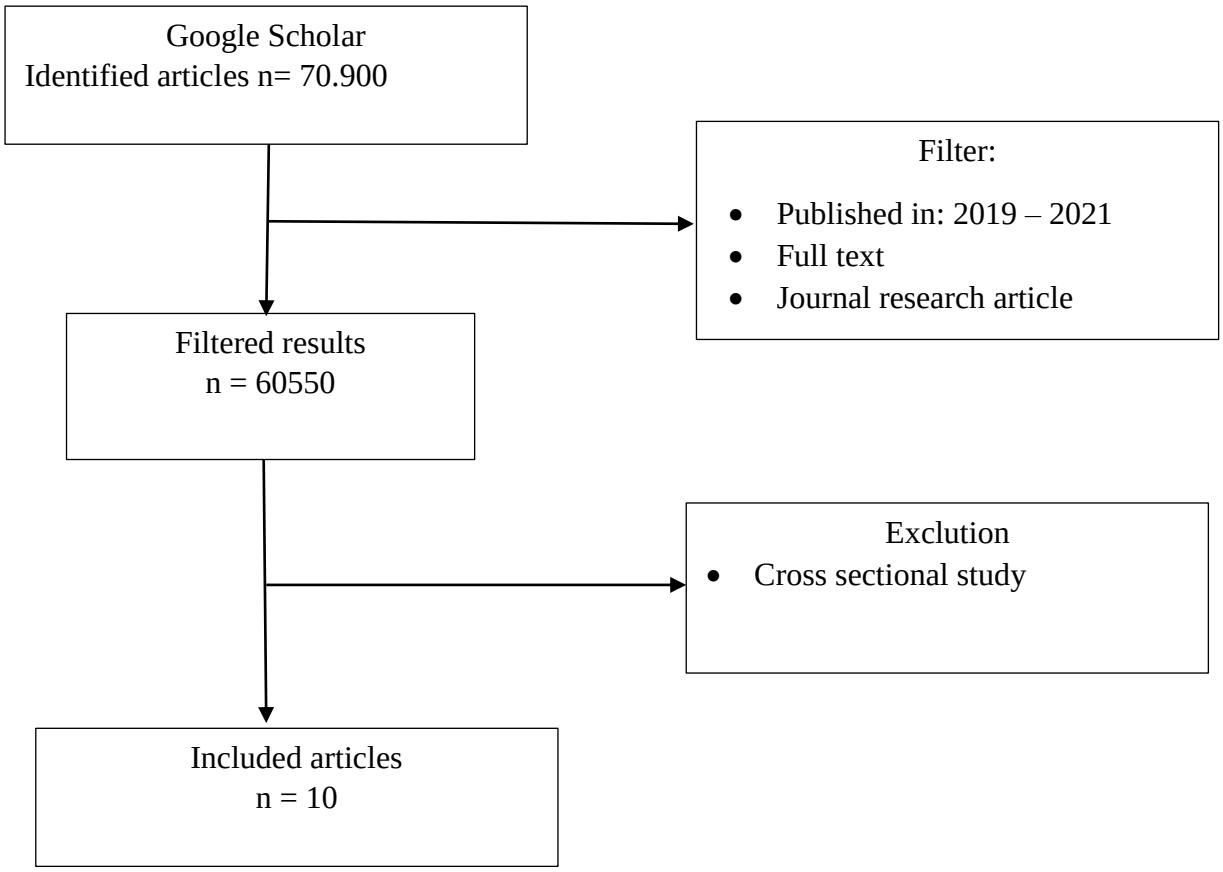
The increasing number of COVID-19 cases in Indonesia has made nurses difficult as front-liner. COVID-19 patients require prophylactic measures to prevent or contain the spread of the virus to other patients: donning protective garments, specific decontamination procedures, isolated areas (Lucchini, Lozzo, & Bambi, 2020). All these measures increase nursing workload (Giuliani et al., 2018), not only for the time required of their implementation but also for their organization and management. All of these things needed time, organization, and management for their implementation so the workload of nurses increased (Giuliani et al., 2018). Exhaustion due to workload increased, insufficient personal protective equipment, fear of being infected and infecting other, and feeling powerless to handle the patient's condition made nurses were in a stressful situation (Liu et al., 2020). In addition, perceived stress and excessive workloads in nurses can affect their work engagement and quality of care to COVID-19 patients (Zhang et al., 2020).

Based on the issues above, researcher was interested to identify stress in nurses during the COVID-19 pandemic by conducting a literature review from Indonesia and other countries.

B. RESEARCH METHODS

This study was a systematic literature review by identifying all types of articles about stress in nurses during the COVID-19 pandemic. The researcher summarized, analyzed, and synthesized the number of related literature so the hypotheses could be tested and new theories were developed (Xiao & Watson, 2017). The electronic database that used in this study was Google Scholar.

The researcher limited the years of literature from 2019 to 2021 and a cross-sectional study. The keywords used in the literature search were: "Nurses" AND "Stress" AND "COVID-19". The total of 70,900 articles were obtained and 10 articles were selected based on criteria and related to stress in nurses during the COVID-19 pandemic.



Picture 1. Algorithm of Article Searched

Table 1. Articles Synthesis

Writer/ Country	Research Objectives	Research Design	Samples	Variables and Instruments	Results
(Cui et al., 2021), China	To identify the psychological impacts of COVID-19 to nurses in China in emergency department and fever clinic.	A cross-sectional	Used snowball sampling, a total of 453 respondents. Inclusion criteria: registered nurse, work in hospital in Jiangsu province, nurses of emergency unit and fever clinic, exposed to COVID-19 for more than 1 month	Variables: • Anxiety level, Self-rating anxiety scale (SAS) • Stress, Perceived Stress Scale (PSS) • Coping mechanism, Simplified Coping Style Questionnaire (SCSQ)	• As many as 32.23% of nurses were stress in emergency unit and fever clinic • Stress risk factors: regret being a nurse, not receiving emergency protection training, fear of infecting families, excessive night shifts.
(Oktovin, Basit, & Peni., 2021), Indonesia	To identify the phenomenon that related to psychological stress in Indonesian nurses during the COVID-19 pandemic	A cross sectional	Used non probability sampling and convenience sampling, a total of 157 samples. Inclusion criteria: nurses working in the hospital, public health care, polyclinic and the other of health care facilities, minimum level of education is diploma of nursing, willing to fill out a questionnaire in google form. Exclusion criteria: nurses who worker in structural and did not face the patient directly	Variables: sources of stress for nurses in work, stress reactions of nurses and stress control performed by nurses, the questionnaire was compiled by the researcher	• Nurses in Indonesia were mild to moderate stress during the COVID-19 pandemic. • Most of the stress experienced by female nurses. • Nurses who were stress were diploma graduates. • Sources of stress during the pandemic were the direct contact to the COVID-19 patients and couldn't refuse it because it is the responsibility of the profession. • The ways of nurses control stress were praying, watching TV, using social media, making jokes with friends, and relaxing.

Writer/ Country	Research Objectives	Research Design	Samples	Variables and Instruments	Results
(Aziznejadroshan, Qalehsari, & Zavardehi., 2020), Iran	To identify the relationship between stress, anxiety, depression and characteristics of nurses who provide care to COVID-19 patients.	A cross sectional	Used purposive sampling, a total of 224 samples. Inclusion criteria: aving a bachelor's or master's degree in nursing, being directly involved in providing care for COVID-19 patients in one of the wards of the two aforementioned hospitals, at least a year experience of working in the hospital and willingness to participate in the study.	Variable: Depressions, anxiety, stress, *Depression, Anxiety, and Stress Scale* – 21 (DASS-21)	• Age, work experiences, having children, and work status have significant relationship with stress level
(Pasaribu & Ricky, 2021), Indonesia	To identify level stress in nurses during the COVID-19 pandemic in Advent Bandar Lampung hospital	A cross sectional	Used non probability sampling with random sampling, a total of 75 samples. Inclusion criteria: 21 years old and over, nurses who work in Advent Bandar Lampung hospital	Variables: stress level using The COVID-19 Pandemic Mental Health Questionnaire/ COPAQ)	As many as 71.85% of nurses experience severe stress and the source of stress was the fear of to be infected
(Alnazly et al., 2020)	s to assess the respective levels of fear, anxiety, depression,	A cross sectional,	A total of 365 health worker in Amman, Yordania, used prospective sampling	Variables: • The fear of pandemic, The fear of COVID-19 scale (FCV-19S) • Stress, anxiety,	• All respondents who experienced stress and aged above 40 years having a higher stress level • Health workers

Writer/ Country	Research Objectives	Research Design	Samples	Variables and Instruments	Results
	stress, social support, and the associated factors, experienced by Jordanian health-care workers during the COVID-19 Pandemic.		Inclusion criteria: Inclusion criteria for participation were: 1) being a health-care worker, 2) residing in Amman/ Jordan, and 3) providing care for patients at the time of the survey. The exclusion criterion was not working the week prior to the data-collection period.	depression level, *The Depression, Anxiety, Stress Scale* (DASS) • Perception of adequate social support from family and friends, and others, *The Multidimensional Scale of Perceived Social Support* (MSPSS)	feel they receive high social support during pandemic • Clinical experience and social supports have positive and low significant correlation with fear, depression, anxiety, and stress, r<0.20
(Musu & Saelan, 2021), Indonesia	To identify the description of stress in emergency during the COVID-19 pandemic in Brayat Minulya Surakarta hospital	A cross sectional	Used total sampling, a total of 20 samples	Variables: level of work related stress	As many as 75% of nurses experience severe stress Factors that affect stress: gender, education level, marital status, years of service Cause of stress: the large of workload, the use of personal protective equipment, and the number of the COVID-19 patients
(Zhang et al., 2020), China	To identify stressors and burnout among frontline nurses caring for COVID-19 patients in Wuhan and Shanghai and to explore	A cross sectional	Used *prospective sampling*, a total of 110 samples Inclusion criteria: Participants had worked on the frontline for more than 1 month, and all participants cared for severe	Variables • Stressor, coping mechanism, and effective support measurement, using COVID-19 questionnaire adopted from psychological impacts of SARS	• . Homesickness was most frequently reported as a stressor (96.3%). • In Coping Strategies, the top 5 common strategies indicated by participants to cope with stress were: Taking

Writer/ Country	Research Objectives	Research Design	Samples	Variables and Instruments	Results
	perceived effective morale support strategies.		and critically ill COVID-19 patients.	• Burnout, *Maslach Burnout Inventory*	preventive measures; Actively learning about COVID19; Actively learning professional knowledge; Adjusting attitude and facing the COVID-19 epidemic positively; and Chatting with family and friends • The top five ranked most effective support measures to reduce stress as perceived by the study participants were: Support from supervisors; Sufficient material supply; Allowance provided by government; Clear instruction on treatment procedures; and Adequate knowledge of COVID-19
(Puspitasari, Suprayitno, & Bustami, 2021)	To identify stress level in nurses who work in emergency unit	A cross sectional	Used total sampling, a total of 22 samples.	Variables: Stress level, *Depression, anxiety, stress scales* (DASS 42)	As many as 9% of nurses experience mild stress, 23% moderate stress, 32% severe stress, and 36% very severe stress
(Chowdhury et al., 2021) Bangladesh	to determine the effects of the COVID-19 pandemic on the mental health of Bangladeshi nurses, as	A cross sectional	A total of 547 respondents using convenience sampling	Variables: Mental health, *The Depression Anxiety Stress Scale* (DASS-21) and *Impact of Event Scale-Revised* (IES-R)	• 41.7% nurses experience stress • Nurses with lower education level experience less psychological impact from the COVID-19, had lower DASS

Writer/ Country	Research Objectives	Research Design	Samples	Variables and Instruments	Results
	well as the relationship between occupational factors and mental health symptoms.				score, and lower mental distress than higher education level • There is no significant relationship between psychological conditions due to the COVID-19 and work position
(Muliantono et al., 2021) Indonesia	To identify psychological response in nurses during the COVID-19 pandemic in Indonesia	A cross sectional	A total of 535 nurses who work in 119 hospitals of 24 provinces in Indonesia using *purposive sampling*	Variables: psychological response , *Depression, anxiety, stress scales* (DASS 42)	• All respondents experience symptoms of mild anxiety, stress, and depression every day • The reasons for nurses experiencing psychological distress: insufficient of understanding about virus, risk exposure to patients, lack of prevention, prolonged workload • The psychological conditions depends on workplace unit

C. RESULT AND DISCUSSION

From the literature review, it was found that research conducted by Puspitasari, Suprayitno, & Bustami (2021), 9% of nurses were in mild stress, 23% moderate stress, 32% severe stres, and 35% very severe stress. Research conducted by Cui et al (2021) on nurses in China, identified as many as 32.23% of nurses were stress with risk factors: regret for choosing nurses as their profession, did not receive emergency protection training, fear of infecting families, and more night shifts. Meanwhile, in a study by Aziznejadroshan, Qalehsari, & Zavardehi (2020) in Iran, it was stated that nurses' stress levels had a significant relationship with age, work experience, having children, and working status. This is almost the same as the

research by Musu & Saelan (2021) in Indonesia, that 75% of nurses were stress and the factors were gender, level of education, marital status, and work status. Chowdhury et al (2021) also explained that stress in nurses was related to education level and task unit, but not related to position.

Several studies revealed the causes of stress in nurses during the COVID-19 pandemic. Research conducted by Musu & Saelan (2021) stated that causes of stress were the excessive workload, the use of personal protective equipment which is very strict, and the number of patients confirmed positive of COVID-19. Research by Pasaribu & Ricky (2021) in Indonesia added that as many as 71.85% of nurses were in severe stress and the cause was the fear of being infected. According to Muliantono et al. (2021), the reasons of stress in nurses were insufficient understanding of the virus, the risk of exposure to the COVID-19 patients, lack of prevention, and prolonged excessive workload. Meanwhile, according to Zhang et al (2020) in China, homesickness was the most reported stressor as many as 96.3% of nurses.

The way nurses deal with stress was also obtained from the literature. According to Oktovin, Basit, & Peni (2021) in Indonesia, the ways nurses control stress include worship, watched TV, used social media, made jokes with friends, and relaxed. Meanwhile, according to Alnazly et al. (202), nurses' coping strategies in dealing with stress were taking preventive measures, actively learn professional knowledge, and adjust attitudes and face the pandemic positively.

Nurse is one of the most stressful job in the world. Stress in nurses is defined as physical and emotional reactions that occur when nurses' abilities and resources imbalance with demands and requests of their work (Baye et al., 2020). The total of 130 professions that can cause mental health problems, the U.S. The Occupational Safety and Health Institute placed the nursing at 27th position, with a higher level of stress compared to other health worker (Elahi, Mohammadi, & Khoshknab, 2016). In the COVID-19 pandemic, the stress in nurses has increased even more. Some literatures stated that all nurses in hospitals have experienced stress, ranging from mild t severe (Puspitasari, Suprayitno, & Bustami, 2021; Cuit et al., 2021; Musu & Saelan, 2021).

Several studies have identified stressors for nurses during the COVID-19 pandemic based on their demographics. Some also identified stressors based on situational factors. Based on demographics, the factors that caused stress in nurses were age, gender, educational level, having children, working status, and years of service (Qalehsari & Zavardehi, 2020; Musu & Saelan, 2021). According to Alnazly et al. (2020), aged less than 40 years tend to have higher stress level. In addition, gender also affected stress where women were twice as susceptible to stress as men (Wilson et al., 2020). Nurses with lower level of educational were less psychological impact from the COVID-19 pandemic, had lower DASS scores, and lower mental distress than the higher education (Chowdhury et al., 2021). Nurses with longer years of service have more clinical experience, making it easier to adapt to patients care,

especially during a pandemic like this. Clinical experience had a positive correlation and weak significance with stress (Alnazly et al., 2020).

Having direct contact with the COVID-19 patients was a situational factor causing stress in nurses. The discomfort of continuous and tight use of personal protective equipment, being in an isolation room, lack of understanding in the care of the COVID-19 patients were major stressor for nurses (Wang et al., 2020). Even though they have used complete personal protective equipment, the nurses were still worried that they would be infected and transmit the virus to their families (Wang et al., 2020). Therefore, nurses in charge of caring for the COVID-19 patients would be given time to self-isolate in a separate place from their family. This made nurses spend longer without seeing their families so homesickness was also a source of stress in nurses (Zhang et al., 2020).

Work-related stress has been recognized as a major challenge for the nursing profession worldwide and has negative emotional, physical, and psychological impacts in nurses (Baye et al., 2020). Stress reduces immunity and making nurses more vulnerable to the COVID-19 (Simionescu, Pellegrini, & Bordea, 2021). Therefore, adaptive coping mechanism are neede to help reduce stress in nurses. Coping is defined as thoughts and behaviors that are carried out to manage internal and external stressful situations (Algorani & Gupta, 2021). Some nurses thought that praying, watching TV, using social media, making jokes with friends, relaxing, actively learning about the COVID-19, and adjusting attitudes and dealing with the pandemic positively can be used as effective coping (Oktovin, Basit, & Peni, 2021; Alnazly et al., 2020).

D. CONCLUSION

From the literature review, all nurses were stress ranging from mild to severe during the COVID-19 pandemic. Stress was caused by demographic and situational factors. Based on demographic factors include age, gender, education level, having children, and years of service. Meanwhile, situational factors were the inconvenience of continuous and strict use of personal protective equipment, being in an isolation room, lack of understanding in treating the COVID-19 patients, fear of being infected and transmitting the virus to the family, and homesickness. An adaptive coping mechanism is needed to reduce stress level in nurses.

REFERENCES

1. Akbar, R. E.; Elahi, N.; Mohammadi, E.; Khoshknab, M. F. (2016). What strategies do the nurses apply to cope with job stress?: A qualitative study. *Glob. J. Health Sci., 8*, 55.
2. Algorani EB, Gupta V. *Coping Mechanisms*. [Updated 2021 May 3]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK559031/
3. Alnazly et al. (2020). Anxiety, depression, stress, fear, and social supporting during COVID-19 pandemic among Jordanian healthcare workers, *PLoS ONE*,

16(3). https://doi.org/10.1371/journal. pone.0247679
4. Aziznejadroshan, P., Qalehsari, M., & Zavardehi, F. (2020). Stress, anxiety, depression among nurses caring for COVID-19 patients in babol, iran: a logestic regression. *Research Square,* 1-26. https://doi.org/10.21203/rs.3.rs-98099/v1
5. Baye Y, Demeke T, Birhan N, Semahegn A, Birhanu S (2020) Nurses' work-related stress and associated factors in governmental hospitals in Harar, Eastern Ethiopia: A cross-sectional study. PLoS ONE 15(8): e0236782. https://doi.org/ 10.1371/journal.pone.0236782
6. Chowdhury et al. (2021). Mental health symptoms among the nurses of Bangladesh during the COVID-19 pandemic. *Middle East Current Psychiatry,* 28(23), 1-8. https://doi.org/10.1186/s43045-021-00103-x
7. Cui et al. (2021). Impact of COVID-19 on anxiety, stress, and coping style in nurses in emergency departments and fever clinics: a cross-sectional survey. *Risk Management and Healthcare Policy,* 14, 585-594. http://doi.org/10.2147/RMHP.S289782
8. Giuliani, E., Lionte, G., Ferri, P., Barbieri, A., (2018). The burden of not-weighted factors – Nursing workload in a medical Intensive Care Unit. Intensive Crit. Care Nurs. 47, 98–101. https://doi.org/10.1016/j.iccn.2018.02.009.
9. *Kesiapsiagaan Menghadapi Infeksi COVID-19*. (2021). Kementrian Kesehatan Republik Indonesia. https://www.kemkes.go.id/article/view/20012900002/Kesiapsiagaan-menghadapi-Infeksi-Novel-Coronavirus.html
10. Liu, S.; Lithopoulos, A.; Zhang, C.Q.; Garcia-Barrera, M.A.; Rhodes, R.E. Personality and perceived stress during COVID-19 pandemic: Testing the mediating role of perceived threat and efficacy. Personal. Individ. Differ. 2021, 168, 110351.
11. Lucchini, A., Lozzo, P., Bambi, S., (2020). New issues in nursing management during the COVID-19 pandemic in Italy. Am. J. Crit. Care 29 (4), e92–e93. https://doi. org/10.4037/ajcc2020937.
12. Muliantono et al. (2021). Psychological responses among Indonesian nurses in the outbreak of the COVID-19 pandemic. *JNC,* 4(2), 98-103.
13. Musu, E., Murharyati, A., & Saelan. (2021). Gambaran stres kerja perawat IGD di masa pandemi COVID-19 di rumah sakit surakarta. *Jurnal Gawat Darurat,* 3(1), 1-10.
14. Pasaribu, P., & Ricky, D. (2021). Tingkat stres perawat terkait isu COVID-19. *Jurnal Penelitian Perawat Profesional,* 3(2), 287-294
15. Puspitasari, D., Suprayitno, E., & Bustami. (2021). Tingkat stres kerja perawat instalasi gawat darurat pada masa pandemi COVID-19. *Wiraraja Medika: Jurnal Kesehatan,* 11(1), 25-29.
16. Oktovin., Basit, M., & Peni, M. (2021). Psychological stress of nurses during the COVID-19 pandemic. *KnE Life Science,* 256-267. https://doi.org/10.18502/kls.v6i1.8613
17. Sepúlveda-Loyola, W., Ganz, F., Maciel, R. P. T., Lopes, R. D. S., Negri, P. S.,

Solorza, E. M., Caro, H. G., & Probst, V. S. (2020). Social participation is associated with better functionality, health status and educational level in elderly women. *Brazilian Journal of Development*, *6*(4), 20690–20701. https://doi.org/10.34117/bjdv6n4-299

18. Simionescu, M., Pellegrini, A., & Bordea, E. (2021). The effect of COVID-19 pandemic on stress vulnerability of nursing students according to labour market status. *Healthcare,* 9, 633. https:// doi.org/10.3390/healthcare9060633.
19. Wang, H.; Liu, Y.; Hu, K.; Zhang, M.; Du, M.; Huang, H.; Yue, X. Healthcare workers' stress when caring for COVID-19 patients: An altruistic perspective. Nurs. Ethics 2020, 27, 1490–1500
20. Wilson, W.; Raj, J.P.; Rao, S.; Ghiya, M.; Nedungalaparambil, N.M.; Mundra, H.; Mathew, R. Prevalence and predictors of stress, anxiety, and depression among healthcare workers managing COVID-19 pandemic in India: A nationwide observational study. Indian J. Psychol. Med. 2020, 42, 353–358.
21. Xiao, Y., & Watson, M. (2017). Guidance on conducting a systematic literature review. *SAGE Journals,* 39(1), 93-112. https://doi.org/10.1177/0739456X17723971
22. Zhang et al. (2020). Influence of perceived stress and workload on work engagement in front-line nurses during COVID-19 pandemic. *Journal of Clinical Nursing*, 30, 1584-1595. https://doi/epdf/10.1111/jocn.15707.