ORIGINAL ARTICLE

Interventions Addressing Nurses' Psychological Well-being during COVID-19 Pandemic: A Systematic Review

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ABSTRACT

Objective. The study aimed to identify some interventions to improve the psychological well-being of nurses during the COVID-19 pandemic.

Methods. The data used in this study are *EBSCOhost*, *ProQuest*, *Taylor & Francis*, *Science Direct*, and *JSTOR*. These studies were searched for available full-text articles. We used tools for risk of bias assessment, namely, the quality assessment checklist of Joanna Bright Institute tools for cross-sectional studies, cohort studies, and randomized controlled trials.

Results. A total of eight studies were included in this review. The interventions in dealing with the psychosocial problems of COVID-19 nurses consisted of 2 categories: (1) interventions to prevent psychosocial problems - simulation-based teamwork training, mental health promotion strategies, and pre-examination, triage, prevention, and control of Coronavirus disease 2019 (COVID-19) evaluation training; and (2) interventions to overcome psychosocial problems experienced by COVID-19 nurses - mobile wellness programs, intervention FOREST, emotional freedom techniques, tele-counselling and mental health interventions.

Conclusion. Despite limitations, we were able to perform a complete assessment of the risk of bias in included studies that provide reliable information on the studies. It is recommended that hospitals can provide interventions to improve the psychological well-being of nurses.

Keywords: strategy, psychosocial, pandemic

INTRODUCTION

COVID-19 pandemic has an impact on nurses as the frontline health services. COVID-19 causes nurses to experience various biological, psychological, and socio-cultural stressors causing physical and psychological disturbances. Biological stressors experienced by nurses occur due to close contact with COVID-19 patients that puts them at risk of dying. Approximately 6-10% of healthcare workers were infected with COVID-19 across the country; more than 60,000 nurses were infected in Iran, about 67,320 were infected in Mexico.[1] The number of nurse deaths due to COVID-19 in 59 countries until the beginning of 2021 is 2710 people. Meanwhile, in Indonesia, the data from the Indonesian National Nurses Association (PPNI) showed that during the pandemic, more than 15,000 nurses were exposed to the virus and 274 people died.[2] The majority of Indonesian nurses who died are 41-50 years (40%), working

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in hospitals (65%), caring for inpatients (70%); the rest work in the emergency room, ICU, polyclinic, and others. About 91% of nurses' deaths were caused by caring for COVID-19 clients.[3]

Nurses experience psychological stressors due to the traumatic experience of seeing and caring for family or colleagues due to COVID-19. The results showed that nurses' past experience of seeing family or friends experiencing COVID-19 becomes a stressor and causes psychosocial problems.[4] Since traumatic experiences can change the brain and the way of responding to the subsequent stressors.[5] The socio-cultural stressor experienced by nurses due to COVID-19 is that nurses are victims of discrimination from society (public stigma) and experience self-stigma. Public stigma is carried out by labeling nurses and families as dangerous and can transmit COVID-19. They accept rejection at home or work.[6] Study showed about 20% of nurses in Japan experienced some discriminations.[1] Feelings of not being able to work, being ostracized by the community, unable to worship in proper places, unable to carry out activities with friends and family, worry about discrimination from the community are also socio-cultural stressors for nurses.[7]

Biological, psychological, and socio-cultural stressors experienced by nurses had caused psychosocial problems. Psychosocial problems or emotional disorders that occur in individuals include anxiety and depression. Psychosocial problems are also defined as symptoms of emotional distress in the absence of physical pathological disorders and serious psychiatric illnesses.[8] Psychosocial problems experienced by nurses due to COVID-19 vary; such as anxiety, Post-Traumatic Stress Disorder (PTSD), distress, and other psychological problems.[9] Study showed that nurses who worked in the emergency room experienced persistent stress due to traumatic events while caring for patients and they did not have time to recover or relieve their stress.[10] The pandemic causes anxiety, frustration, and fears.[11] The results of other studies showed that anxiety and PTSD can occur in nurses due to COVID-19.[9] Research conducted in the operating room in Wuhan, China found that nurses had higher levels of anxiety and depression during pandemic.[12] Almost 36.2% of nurses were depressed and 50% of nurses experienced anxiety.[13] The results of research in RSU Dr. Soetomo Surabaya also showed that 33% of nurses had severe anxiety during the pandemic.[14] Another study found that 15.3% of nurses experienced anxiety, 12.7% mild depression, and 60.73% moderate stress during pandemic.[7]

Nurses' psychosocial problems lead to decreased immune responses, increasing the risk of infection and mental health problems.[15] Psychosocial problems experienced by nurses caused decreasing work productivity, decreasing quality of care, client satisfaction, medical errors, decision-making errors, substance abuse, depression, and suicide.[16] The above phenomenon shows that the impact caused by nurses' psychosocial problems is very dangerous since it can threaten the safety of nurses and patients; therefore, it is very important to seek intervention in dealing with psychosocial problems of COVID-19 nurses.

Although several studies have been done regarding the psychological impact experienced by nurses during the pandemic, the interventions that have been carried out have not been seen. This systematic review was conducted to provide evidence on interventions that can be implemented to address the psychological well-being of nurses during the COVID-19 pandemic. This review is important for summarizing and disseminating research findings on interventions to treat or prevent psychosocial problems among nurses.

METHODS

This study used the PIO framework, namely Population, Intervention and Outcome to identify relevant articles. The focus of this study is nurses on COVID-19. Research Question in this study was intervention for Psychosocial Problems of Nurses on COVID-19. Ethics approval has been obtained from the Ethics Commission in Nursing Faculty USU (2605/VI/SP/2022).

Search Strategy

The databases used are EBSCOhost, ProQuest, Taylor & Francis, Science Direct, and JSTOR. To get relevant articles, the literature search keyword was used, namely Nurses AND COVID-19 AND Intervention OR therapy AND "psycosocial problem". We used MeSH terms for COVID-19. The search was performed from January until June 2022 and there was restriction on the year of publication was observed. Any studies related to Interventions Addressing Nurses' Psychological Wellbeing during the COVID-19 Pandemic in hospitals were included in the review. Only studies with accessible full-text articles were included.

Data Selection

The inclusion criteria in this study were research articles related to interventions carried out in dealing with psychosocial problems of COVID-19 nurses with randomized or non-randomized controlled trials, pre/post or quasi-experimental, cohort and cross-sectional designs. The exclusion criteria were articles that did not explain the interventions carried out in dealing with psychosocial problems of COVID-19 nurses. All articles found in the search strategy were imported into *Mendeley* and duplicated articles were removed by the researcher. Researchers consider the quality and relevance of evidence reported in studies with the aim of a review for ethical considerations. Researchers use PRISMA to maintain standard quality and accuracy.

Extraction Data

Data were obtained using a developed data extraction tool. Two reviewers independently extracted data from eligible studies. Disagreements were resolved through consensus. Extraction forms are used to retrieve information related to

the study, namely; (1) Study identification: first author, title, year of publication; (2) Study characteristics: country, design (3) Population characteristics: sample (4) Characteristics of the intervention applied: type of intervention, psychometric instruments used to assess psychosocial problems in COVID-19 nurses. Each included article was created in Excel and notes were made about the characteristics of the interventions. Furthermore, interventions were grouped in two main categories: interventions to prevent psychosocial problems and interventions to address psychosocial problems in COVID-19 nurses.

Risk of bias in individual studies

The risk bias in eligible studies was assessed using Joanna Bright Institute checklist form.[17] It is used by the researcher adjusted to the design of research articles obtained, namely the checklist form for RCT, Cohort and Cross-sectional. The checklist form for RCT has 13 items, Cohort 11 items and Cross-sectional have 8 items. The articles with good quality fulfill two-thirds of the total items that have been determined (total score).[18] For RCT design, it is said to be good if it meets 8-13 items, moderate meets 4-7 and be bad if it is 0-3. For the Cohort design, it is said to be good if it meets 8-11, moderate if it is 4-7 and bad if it is 0-3. Meanwhile, the cross-sectional design is said to be good if it meets 6-8, moderate 3-5 and poor 0-2.

RESULTS

Study Selection

The search that was carried in EbscoHost, Proquest, Science Direct, JSTOR, and Taylor & Francis yielded a total of 135 publications with the details from EbscoHost (n=22), Proquest (n=60), Science Direct (n-45), JSTOR (n=6), and Taylor & Francis (n =2). Twenty duplicate studies were removed and among 135 studies left, we identified 10 studies as potentially relevant. These 10 studies underwent independent full text screening. After the assessment, 8 studies were eligible for inclusion (Figure 1).

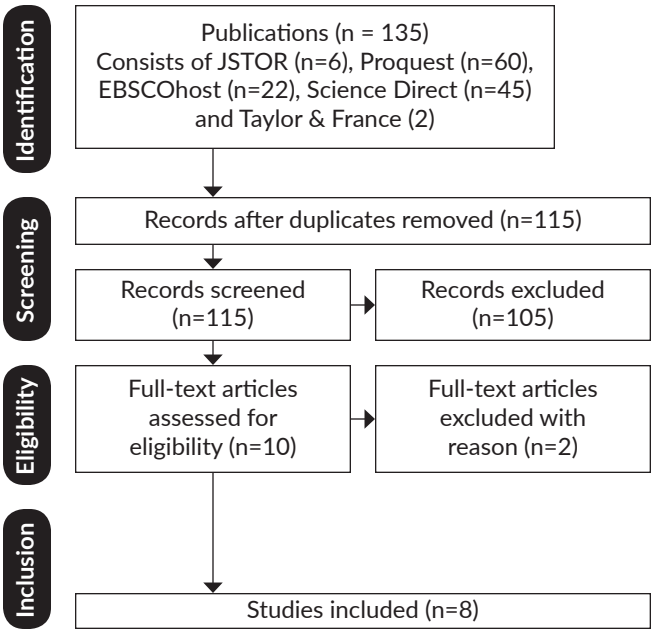

Figure 1. PRISMA flowchart.

Description of studies

Included Studies

All articles included in the study identified interventions carried out to address the psychological well-being of nurses during the COVID-19 pandemic. All articles obtained were published from 2020 to 2022. They were designed with RCT (n=4), Cohort (n=2) and Cross-sectional (n=2). Two studies that are excluded are studies that provide interventions to non-medical personnel, interventions carried out outside the COVID-19 pandemic and pre-experimental study.

Risk of bias in individual studies results

The results of critical appraisal of eight articles showed that seven articles were in good category and one article was in moderate category. It can be concluded that eight articles met the criteria for inclusion in a systematic review. The results of the risk of bias assessment for RCT, cohort, and cross-sectional studies can be seen in Appendix Tables 1A, 1B, and 1C. The risk of bias assessment for RCT, cohort, and cross-sectional studies were done using the Joanna Bright Institute checklist form.[17] Articles with RCT designs have good criteria since they had good research methods from the beginning until the end of study. The study used randomization for assignment of participants to groups. Respondents and data collectors were blinded to intervention that were carried out; there were no deviations in the intervention (it was carried out completely), there was no missing outcome and the outcome data was measured for all respondents. The research sample sorting, randomization and implementation of intervention is one of the assessments in identifying the existence of bias in research.[17,19,20] Hypothesis is an important component in research criticism, but there are several articles that do not use research hypotheses.[21]

Two articles have good quality cohort design since Domain exposures were well-recorded and study outcomes were not explained at the start of study; so there was no bias. The assesment outcome was well measured and has time for follow-up. The unexposed group came from the same community as the exposed group.[22] The article with a cross-sectional design was of moderate quality since it does not explain in detail about the measurement of validity and reliability exposure, the measuring tools used, co-founding factors, strategies to overcome co-founding factors, and the measured outcomes that were valid and reliable.[17]

Results

Articles were conducted in Europe (n=4) and Asia (n=4). Four articles with an RCT design tested the intervention mobile wellness programs, intervention FOREST, emotional freedom techniques and tele-counselling.[22-25] Two articles with Cohort design identified strategies for mental health promotion and simulation-based teamwork training.[26,27] Another two cross-sectional studies were related to the intervention pre-examination, triage, prevention, and disease control training of COVID-19 and mental health interventions for health workers.[12,28] The summary results of each study can be seen in Table 1.

The results of the study showed that the interventions carried out to deal with the psychosocial problems of COVID-19 nurses obtained two major themes; namely interventions to prevent psychosocial problems: mental health promotion strategies, simulation-based teamwork training and pre-examination, triage, prevention, and control of Coronavirus disease 2019 (COVID-19) evaluation training.[12,22,26,27] Interventions in overcoming psychosocial problems were mobile wellness programs, intervention FOREST, emotional freedom techniques, tele-counseling, and mental health interventions.[22-24,28]

Table 1. Summary of Research Articles

Author	Country	Aim	Design, method, instrument	Sample	Results
Beneria A, Arnedo M, Contreras S, Pérez-Carrasco M, Garcia-Ruiz I, Rodríguez-Carballeira M, Raduà J, & Rius JB (2020).	Spain	• Knowing the effect of Simulation-base teamwork training on stress, anxiety and depression of health workers.	• Cohort • Instruments: PSS-14 (Perceived Stress Scale), HADS (Hospital Anxiety and Depression Scale). • Data analysis using Chi square and logistic regression.	141	• There were differences in symptoms of anxiety or depression between the control and intervention groups (p = 0.346). Having contact with a COVID-19 client [OR 2.17(1.05–4.48)] and having minor changes [OR 2.14(1.06–4.32)] associated with symptoms of anxiety and depression. Health professionals who were in contact with COVID-19 patients showed higher symptoms of anxiety and depression [OR 2.56(1.03–6.36) (p = 0.043)]. Health workers are trained in non-skill through simulation. Lower levels of anxiety, depression, and stress during the COVID-19 pandemic.
Ha Y, Lee SH, Lee DH, Kang YH, Choi W, & An J. (2022).	Korea	• Tested the effectiveness of the Mobile Wellness Program in increasing the physical activity and sleep quality of nurses with rotational shifts during the COVID-19 pandemic.	• Randomized controlled trial • Instruments: Pittsburgh Sleep Quality Index (PSQI-K), Self-efficacy for Exercise Scale (SEE-K), The Behavioral Regulation in Exercise Questionnaire-2 (BREQ-2), The Multidimensional Fatigue Scale and The wellness index for Korean workers. • Data analysis using SAS 9.4	60	• There were significant differences between the two groups in their daily behavior, namely sleep quality, sleep disturbances, daily disturbances, self-efficacy exercise, intrinsic motivation, and well-being (p = 0.000)
Jovarauskaite L, Dumarkaite A, Truskauskaite-kuneviciene I, Jovaisienel, Andersson G, & Kazlauskas E. (2021).	Lithuania	• The efficacy of internet-based stress recovery intervention FOREST for nurses amid COVID-19 pandemic.	• Randomized controlled trial • Instruments: The recovery Experience Questioner, The moral injury outcome scale, PSS4, PHQ 4, WHO wellbeing Index (WHO-5). • Data analysis using t-test	600	• Intervention FOREST improved stress recovery, including psychological detachment (d=0.83 [0.52; 1.15]), relaxation (d=0.93 [0.61; 1.25]), mastery (d=0.64 [0.33; 0.95]), and control (d=0.46 [0.15; 0.76]). The effects on psychological detachment, relaxation, and mastery remained stable at three months follow-up. The intervention was also effective in reducing its users' stress (d=-0.49 [-0.80; -0.18]), anxiety symptoms (d=-0.31 [-0.62; -0.01]), depression symptoms (d=-0.49 [-0.80; -0.18]) and increasing psychological well-being (d=0.53 [0.23; 0.84]) with the effects on perceived stress, depression symptoms, and well-being remaining stable at three-month follow-up.

Table 1. Summary of Research Articles *(continued)*

Author	Country	Aim	Design, method, instrument	Sample	Results
Ghazanfarpour M, Ashrafinia F, Zolala S, Ahmadi A, Jahani Y, & Hosseininasab A. (2021).	Iran	• Identifying the effectiveness of tele-counseling on mental health of hospital staff during the COVID-19 pandemic.	• Randomized controlled trial. • Instruments: Hospital Anxiety and Depression Scale and the Short Health Anxiety Inventory online. The instrument was tested for reliability and validity of 0.75. • Data analysis using t-test and homogeneity test using Chi Square.	95	• The percentage of anxiety and depression was 79.2% and 82.1%, respectively. Mean score of anxiety was 17.42. After the intervention, there was a difference in anxiety scores between the intervention and control groups (p = 0.001)
Dincer B, & Inangil D. (2021).	Turkey	• Investigating the effectiveness of the Emotional Freedom Techniques (EFT) online brief in preventing stress, anxiety, and burnout in nurses caring for COVID-19 patients.	• Randomized controlled trial • Instruments: The subjective units of distress scale (SUD), The State-Trait Anxiety Inventory, namely the State Anxiety Scale and the Trait Anxiety Scale. • Analysis using Shapiro Wilks test. Pearson Chi-Square, Mann Whitney U, Kruskal Wallis H, and Wilcoxon Signed Rank tests were used.	72	• The results showed that EFT could reduce stress (p < .001), reduce anxiety (p < 0.001), and reduce burnout (p < 0.001) in the intervention group. Meanwhile, the control group showed no change (p > 0.05).
Li D, Shi C, Shi F, Zhao L, Zhao R, & Kang W. (2020).	China	• Identify the effects of pre-examination, triage, prevention, and control of COVID-19 evaluation training, explain the psychological status of pre-examination and triage staff in hospitals during COVID-19 and analyze the influencing factors.	• Cross-sectional • Instruments: Self-rating Anxiety Scale (SAS): Manual of Mental Health Rating Scale, Self-rating Depression Scale (SDS): Manual of Mental Health Rating Scale. • Data analysis using SPSS 20.0 (IBM, Armonk, NY, USA). Using t-test for parametric and non-parametric tests.	60	• There was an increase from 65% before training to 98.33% after training (p<0.05). Nurses' anxiety and depression decreased significantly after training compared to before training (p < 0.005)
Pinho L, Correia T, Sampaio F, Sequeira C, Teixeira L, Lopes M, & Fonseca C. (2021).	Portugal	• Promotional Strategy to reduce anxiety, stress, and depression in nurses during the COVID-19 period.	• Cohort • Instruments: The Depression Anxiety Stress Scale and Mental health promotion strategy recommended by WHO (2020). • Analysis using the Chi-square test.	199	• Mental health nurses used the following strategies more frequently: healthy eating (p < 0.01), adequate water intake (p < 0.05), relaxing activities (p < 0.001), recreational activities (p < 0.001), maintenance of social contacts (at a distance; p < 0.001), and verbalization of feelings/emotions (p < 0.01).
Priede A, López-Álvarez I, Carracedo-Sanchidrián D, & González-Blanch C. (2021).	Spain	• Knowing the intervention program carried out for health workers who handle COVID-19 clients.	• Cross sectional • The survey assessed the most relevant variables in mental health interventions for healthcare workers. • Non-parametric tests (phi and Kruskal-Wallis H test).	50	• The most common objectives of the programmes were as follows: to improve emotion regulation (n = 35; 97.2%), to reduce physiological arousal (n = 31; 86.1%), to improve the professionals' communication skills with their patients (n = 19; 52.8%) and to improve communication among the members of medical teams (n = 16; 44.4%). Most intervention programmes (n = 21; 58.3%) included • in-person interventions (n = 15; 41.7%) were performed exclusively online or by telephone. Only 11 programmes (30.6%) were manualized. Nineteen programmes (52.8%) included group interventions.

DISCUSSION

Interventions to prevent psychosocial problems of COVID-19 nurses

Interventions carried out in improving mental health and preventing psychosocial problems in COVID-19 nurses include mental health promotion strategies, simulation-based teamwork training, pre-examination, triage, prevention, and control of Coronavirus disease 2019 (COVID-19) evaluation training. The interventions are carried out to improve health as well as development of personal skills, creating a supportive environment.[29] Mental health promotion strategies are used to reduce stress, anxiety, and depression symptoms in nurses.[27]

Promotional strategies were carried out to improve the health of nurses and prevent psychosocial problems due to the COVID-19 pandemic which can be implemented and taught to nurses.[30] These include rest between work shifts, consuming a healthy diet, adequate fluid intake, physical activity, relaxation activities, recreational activities (reading, listening to music, watching movies), maintaining social contact, expressing feelings and emotions, and refusing information about COVID-19 from improper sources.[29] Promotional strategies provide guidance to workers on healthy and safe working practices, mental health protection, and psychological well-being.[29]

Intervention in promotional strategies include nurses must arrange their work shifts by stipulating off days between work shifts that aim to provide opportunities for them to recover. Off days are very important for nurses since they have an increased workload and a lack of time for recovery.[10] They need adequate sleep for at least 7 hours a day.[31] In addition, risk factors for exposure to infection must be minimized through the arrangement of shift work for COVID-19 nurses.[32]

Nurses practice healthy living behaviors by consuming healthy and adequate diet and fluids, doing physical activity or exercise to improve mental health. Consuming a healthy and adequate diet and fluids can increase the body's immunity. They must eat nutritious food and drink 2 liters a day[31] since one of the protective factors to increase body immunity is to consume a healthy diet[33]. Prevention of psychosocial problems and improving the health of COVID-19 nurses is to exercise at least 30 minutes a day, sunbathing in the morning before 9 a.m or after 3 p.m in the afternoon.[20] Physical activity is one of the protective factors in improving individual mental health.[34]

Physical relaxation and recreational activities should also be done by doing deep breaths and Progressive Muscle Relaxation (PMR). Relaxation exercise is a protective factor to improve the physical and psychological health of nurses.[35] Relaxation can help reduce emotional stress and effective in reducing tension and anxiety. If tense muscles can be relaxed, the anxiety will decrease. Relaxation can be done in various ways, namely deep breathing exercises, progressive muscle relaxation, meditation, guided imagery, and others. Relaxation can be done by tensing and relaxing muscles sequentially until the whole body relaxed. Recreational activities such as reading, listening to music, watching movies and others are distraction activities to reduce anxiety. This form of physical exercise can helps reduce anxiety since it provides emotional release and directs attention.[36] The relaxation and recreational activities can distract from the problems experienced and provide an opportunity to release the nurse's feelings of worry and fear.

Maintaining social contact with family and other people also needs to be done since social competence is a protective factor in preventing anxiety.[34] They must stay connected with family or closest people, be involved in support groups between health workers so they can provide social support.[32] Family and close friends are a source of support for them to get through the stressors they experienced. Social contact is one of the supports that can be a protective factor for them and can be done by conducting peer groups.[36]

The nurses must be able to express feelings and emotions well that can be a protective factor for nurses to prevent mental health problems.[34] They are expected to behave assertively in expressing their feelings; they must also reject information about COVID-19 from untrue sources, must be able to select true and false information related to COVID-19 pandemic.[29,32] The wrong information will make them be worried and afraid of something that is not necessarily true. The use of internet to access information is actually a protective factor, but if it is used to access news or information, the source of the news must be reliable.[34]

Simulation-based teamwork training and pre-examination, triage, prevention, and control of Coronavirus disease 2019 (COVID-19) evaluation training include the use of PPE and the safety of nurses. PPE training simulations can improve the ability of pediatric emergency nurses in preventing and controlling COVID-19 infections and reducing nurse anxiety. Providing sufficient PPEs to HCWs reduced the levels of anxiety and depression, improved sleep quality, and decreased the worry about their own health and families. Promotion efforts in the workplace are carried out in the form of communication, information, and education regarding mental health, as well as creating a good workplace for the development of mental health in order to achieve optimal performance.[37]

Psychosocial interventions targeted directly specific mental symptoms such as stress, depression, PTSD, anxiety, behavioral changes or psychotic symptoms reported in the other three categories which consist of informational, instrumental, and organizational.[37] Communication, education and information are very important since the nurses' lack of skills and knowledge can be a stressor for them.[9,10] The training needed is related to nurse safety, PPE, and teamwork. Knowledge of infection and its prevention can reduce worries. The training provides a basic knowledge about how to protect yourself, procedures for using personal protective equipment, safety instructions for health workers, patient admission procedures, promotional measures, how to do self-

protection, isolation and how to control infection, diagnosis and treatment guidelines, as well as infection guidelines in hospitals; knowing that it is important in assisting the mental health of health workers during the COVID-19 pandemic.[38-42]

Training on the use of Personal Protective Equipment (PPE) during the SARS pandemic had an impact on anxiety and depression levels.[41,42] During COVID-19, hospitals in China had paid special attention to protect their staffs by providing some training on PPE to nurses prior to rotation reducing nurses' concerns.[35,39,42] It can be concluded that the training related to the use of PPE can reduce nurses' psychosocial problems.

Training related to the information of solid teamwork is also an important thing to do since peer-group psychological support is needed to allow health workers to share their emotions and experiences.[43] The results showed that the provision of training related to the information of solid teamwork can provide team-based proactive support increasing team cohesion and social support, facilitating emotional validation, normalizing traumatic reactions, problem solving, effective coping and minimize additional time or initiation from health workers. Increased teamwork or team building provides mental health support for all staff.[44] Colleagues and teamworks have been reported to create personal wellbeing and mutual learning, through sharing with others, that helps them become aware of their emotions and problems.[37]

Interventions dealing with the psychosocial problems of COVID-19 nurses

FOREST was effective in reducing stress, depression, and anxiety symptoms as well as increasing psychological well-being with stable decreased stress and depression symptoms as well as improved psychological well-being three months after the intervention.[22] FOREST interventions consist of psychoeducation about stress and burnout, stress recovery, and relaxation exercise. The content of the FOREST intervention is based on cognitive behavior therapy (CBT) principles and mindfulness. Cognitive Behavior Therapy (CBT) is effective in improving mental health conditions and has been shown to be effective in reducing mild to severe anxiety.[45] CBT increases individual self-awareness and changes thoughts, feelings and behavior, and aims to build individual resilience.[46] CBT can also be used to prevent anxiety and can help increase nurse resilience.[47] Regulate nurses' feelings of sadness, anger, and worry in the face of the COVID-19 pandemic.[30] Mindfulness is also an intervention or support that can be provided for COVID-19 nurses.[1]

Mental health interventions were carried out as individual programs and online therapy. The interventions for emotional regulation are psych-educational and cognitive behavioral techniques. Mental health interventions increased emotion regulation skills and prevent mental health problem in nurses.[28]

The Mobile Wellness Program can address the psychosocial problems of COVID-19 nurses. The Mobile Wellness Program intervention can improve wellness and overcome nurses' psychosocial problems.[23] A mobile wellness program for nurses with rotating shifts to promote physical activity and sleep quality was designed for 12 weeks, where Fitbit, online exercise using Zoom, online health coaching through Kakao Talk as a Korean mobile platform, and motivational text messages to set up the long-term goal and short-term goals were provided to the intervention group. Physical activity training is a protective factor for nurses' physical and psychological health.[33] Exercise or physical activity reduces anxiety that is done by exercising nurses.[32]

Emotional Freedom Techniques (EFT) effectively reduce stress, anxiety, and burn out in COVID-19 nurses.[24] *Emotional Freedom Techniques* (EFT) significantly reduce psychological distress.[48] *Emotional Freedom Techniques* (EFT) can also reduce anxiety, depression, burnout, stress, and fear. The principle of EFT is to send activating and deactivating signals to the brain by stimulating points on the skin. Acupressure points are stimulated through tapping or other types of touch. Balancing and harmonizing energies is believed to relax and optimize body, mind, and emotions. The EFT session begins by giving acupressure pictures and showing how to gently press the thumb and middle finger. After being demonstrated, the sample follows the EFT steps.[24]

Tele-counseling interventions can reduce psychosocial problems such as anxiety and depression in COVID-19 nurses.[25] In line with the study above, the results showed that psychological counseling can be provided through WeChat groups, regularly and openly. The officers who experienced mild anxiety and moderate depression receive psychological intervention in groups to increase knowledge about prevention and how to control COVID-19 by paying attention to humanistic principles including psychological support, cognitive therapy, behavioral therapy, and music. Those who experience severe anxiety and depression are counseled with experts in the provision of psychological interventions and drugs to improve their mental health.[49] Tele-counseling aims to provide information regarding safety; to be supportive and mindfulness- based; clarify cognitive errors; facilitate behavioral modification; and improve mental health level. Cognitive-behavioral therapy is the best treatment for reducing anxiety. Cognitive-behavioral and mindfulness-based techniques as well as emotional support aimed to produce better mental states and coping styles.[25]

The majority of the interventions carried out in dealing with the psychosocial problems of COVID-19 nurses were done online. These are especially useful during the COVID-19 pandemic since they can reduce the risk of spreading the disease. Online interventions are beneficial in reducing stigma and improving patient safety and confidentiality. It can be carried out whenever and wherever the nurse or patient is.[50] Several studies mentioned the effectiveness of online therapy, such as the provision of CBT interventions via internet

(iCBT) that showed effectiveness, minimal costs, easy access, and reduces nurse stress due to work. Similar studies also stated that in the new normal, during and after the pandemic, interventions are recommended to switch from face-to-face direct interventions to online programs.[51] It shows that both online and offline interventions are effective in reducing nurses' psychosocial problems during the pandemic.

This study was limited in using only eight articles that matched with the criteria. The search included only published articles with available full text. This study did not use meta-analysis to pool the outcomes of interest. However, even if there are limitations to this review, the assessment of the risk of bias in included studies can help guide the readers in determining which studies have reliable information.

CONCLUSION

The results showed that the interventions that can be done to deal with psychosocial problems of COVID-19 nurses consist of two categories; (1) interventions to improve and prevent psychosocial problems in COVID-19 nurses, and (2) interventions to overcome psychosocial problems in COVID-19 nurses. Interventions to improve and prevent psychosocial problems consist of: mental health promotion strategies, simulation-based teamwork training, pre-examination training, triage, prevention, and control of COVID-19. The interventions in overcoming psychosocial problems consist of mobile wellness programs, intervention FOREST, emotional freedom techniques, tele-counseling, and mental health interventions. These can be done online.

Recommendations

The results of this study may become the basis for further studies and interventions that can be used as a reference for stakeholders and policy makers to develop policies and guidelines on interventions that deal with nurses' psychosocial problems during the pandemic. Future studies may be conducted abroad with complete facilities and infrastructure including faster internet network speed and better technology so it can be applied in health care settings in Indonesia. It is necessary to modify the implementation method, namely by direct / face to face or hybrid so the therapy can be properly monitored and evaluated.

Statement of Authorship

Both authors certified fulfillment of ICMJE authorship criteria.

Author Disclosure

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APPENDIX

Appendix Table 1A. Risk of Bias Assessment for RCT Studies

	Item	Ha Y, Lee SH, Lee DH, Kang Y H, Choi W, & An J. (2022)	Jovarauskaite L, Dumarkaite A, Truskauskaite-kuneviciene I, Jovaisiene I, Andersson G, & Kazlauskas E. (2021)	Dincer B, & Inangil D. (2021)	Ghazanfarpour M, Ashrafinia F, Zolala S, Ahmadi A, Jahani Y, & Hosseininasab A. (2021)
1	Was true randomization used for assignment of participants to treatment groups?	Y	Y	Y	Y
2	Was allocation to treatment groups concealed?	Y	Y	Y	Y
3	Were treatment groups similar at the baseline?	Y	Y	Y	Y
4	Were participants blind to treatment assignment?	Y	Y	Y	Y
5	Were those delivering treatment blind to treatment assignment?	Y	Y	Y	Y
6	Were outcomes assessors blind to treatment assignment?	Y	Y	Y	Y
7	Were treatment groups treated identically other than the intervention of interest?	Y	Y	Y	Y
8	Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed?	Y	Y	Y	Y
9	Were participants analyzed in the groups to which they were randomized?	Y	Y	Y	Y
10	Were outcomes measured in the same way for treatment groups?	Y	Y	Y	Y
11	Were outcomes measured in a reliable way?	Y	Y	Y	Y
12	Was appropriate statistical analysis used?	Y	Y	Y	Y
13	Was the trial design appropriate, and any deviations from the standard RCT design (individual randomization, parallel groups) accounted for in the conduct and analysis of the trial?	Y	Y	Y	Y

Appendix Table 1B. Risk of Bias Assessment for Cohort Studies

	Item	Beneria A, Arnedo M, Contreras S, Pérez-Carrasco M, Garcia-Ruiz I, Rodríguez-Carballeira M, Raduà J, & Rius JB. (2020)	Pinho L, Correia T, Sampaio F, Sequeira C, Teixeira L, Lopes M, & Fonseca C. (2021)
1	Were the two groups similar and recruited from the same population?	Y	Y
2	Were the exposures measured similarly to assign people to both exposed and unexposed groups?	Y	Y
3	Was the exposure measured in a valid and reliable way?	Y	Y
4	Were confounding factors identified?	Y	NA
5	Were strategies to deal with confounding factors stated?	Y	NA
6	Were the groups/participants free of the outcome at the start of the study (or at the moment of exposure)?	Y	Y
7	Were the outcomes measured in a valid and reliable way?	Y	Y
8	Was the follow up time reported and sufficient to be long enough for outcomes to occur?	Y	Y
9	Was follow up complete, and if not, were the reasons to loss to follow up described and explored?	Y	Y
10	Were strategies to address incomplete follow up utilized?	Y	Y
11	Was appropriate statistical analysis used?	Y	Y

Appendix Table 1C. Risk of Bias Assessment for Cross-sectional Studies

	Item	Li D, Shi C, Shi F, Zhao L, Zhao R, & Kang W. (2020)	Priede A, López-Álvarez I, Carracedo-Sanchidrián D, & González-Blanch C. (2021)
1	Were the criteria for inclusion in the sample clearly defined?	Y	Y
2	Were the study subjects and the setting described in detail?	Y	Y
3	Was the exposure measured in a valid and reliable way?	Y	NA
4	Were objective, standard criteria used for measurement of the condition?	Y	NA
5	Were confounding factors identified?	NA	NA
6	Were strategies to deal with confounding factors stated?	NA	NA
7	Were the outcomes measured in a valid and reliable way?	Y	NA
8	Was appropriate statistical analysis used?	Y	Y