

Literature Review

Literature Review Of Burnout Syndrome in Intensive Care Unit (ICU) Staffs During The COVID-19 Pandemic

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Abstracts

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Introductions: Burnout syndrome becomes a special concern for health workers during COVID-19 pandemic that has been exposed to increased workload and intense working hours with COVID-19 patients, stating having a high risk of getting infected with COVID-19 as well. **Methods:** This literature review paper reviewed scientific journals with prevalence and burnout syndrome profile data. The journals were obtained through the search engines GoogleScholar, the MEDLINE (PubMed) database and PsychINFO. From the search, there are 13 articles in total that meet the required data criteria. **Results:** Prevalence of burnout syndrome were found severely high in ICU settings, it reached more than 50% from most of the survey. Burnout syndrome rate can be influenced by working conditions, age and gender, time of work and working experience. Burnout syndrome can manifest as higher fatigue level and decrease of cognitive function that can increase the risk of medical mistake. **Conclusions:** High prevalence and severity of burnout syndrome oblige us to pay attention to symptoms that can affect professional intensive care unit staff and its service to patients. Further research should review prevention therapy and how to apply to health workers and also the prevalence of prevention that has been done in other studies.

Keywords: Intensive Care Unit (ICU), COVID-19 Pandemic, Burnout Syndrome, Good Health, Well Being

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Introductions

Psychological burnout syndrome appears as a chronic interpersonal response to stress on workers. There are 3 keys to this response such as fatigue, cynism, and ineffectiveness and less of achievement [1]. Burnout syndrome is physical exhaustion, emotional and mental resulting from long-term involvement in emotionally demanding work situations. Burnout is getting worse because of chronic stress, interpersonal, job related, especially like health care workers [2]. On December 31, 2019, the WHO Country Office for China reported a case of pneumonia of unknown etiology in Wuhan Hubei province, China. On January 7, 2020, the causative agent was identified as a novel coronavirus (2019-nCoV) which had not previously been detected in humans. Later, the name of the disease 2019-nCoV was accepted as COVID-19. After the first cases of COVID-19 were seen in China, the disease spread rapidly in other countries, and the WHO declared the COVID-19 outbreak on March 11, 2020 a pandemic [3]. Workload on the health workers increase during pandemic. They take more responsibility and live away from their family. Besides that, they are classified into risk groups in public. Therefore, burnout syndrome on health workers is something that must be emphasized firmly. Burnout conditions on health care workers must be understood as a risk to patients, people, and the health care system beside their health⁴. During the COVID-19 pandemic, burnout syndrome is a concern, especially for health care workers.

The COVID-19 pandemic placed an unprecedented burden on healthcare providers around the world, causing overload and eventually burnout syndrome. Frontline professionals such as the staff of Intensive Care Units (ICU) experienced tireless work hours, lack of resources, and constant exposure to the virus, resulting in physical and emotional exhaustion [4,5]. Managing this overload became increasingly important to improve staff well being and maintain quality patient care

in crucial times, as cynicism and less attention towards patients' condition may occur [6,7]. Worldwide used strategies included implementing flexible schedules, providing psychological support, and encouraging relaxation time. But despite their efforts, burnout syndrome surged as staff struggled with the shock of seeing so much grief and loss. Recognizing the importance of health care worker well-being, organizations sought to address the long-term consequences of burnout syndrome by emphasizing the need for sustainable post-pandemic support [8].

ICU staff is the last line in COVID-19 patient treatment. COVID-19 pandemic gives more impact to ICU staff. A half ICU staff got fatigue and anxiety in addition to 30% of depression signs. We regard COVID-19 brings us to a mental emergency state [9]. With the COVID-19 pandemic, the mortality rate in the ICU has increased so that anxiety and depression sign on health care workers in the ICU are a concern and need to be minimized. On March 11, 2020, the World Health Organization declared COVID-19 is a global pandemic. During the pandemic, the incidence of anxiety disorders, depression, and post-traumatic stress disorder increased rapidly among ICU staff. Contributing factors include: (1) lack of material resources (personal protective equipment—PPE, hospital beds, and ventilators), (2) absence of nurses, (3) deteriorating working conditions for health care workers involving long working hours, intense and extreme workloads, and (4) clinical/health consequences of environmental changes, increased side effects, and clinical complications [10].

Methods

The literature review was created by collecting data from studies on the prevalence and cases of burnout syndrome that occurred in staff and intensive care unit workers during the COVID-19 pandemic. The keywords that we used are “Intensive Care Unit”, “COVID-19 Pandemic”, and “Burnout Syndrome”. Journal search-

es use keywords (AND, OR NOT or AND NOT). From the search, there are 13 total articles that meet the required data criteria. Extract the data is done on GoogleSheet and the results and discussion of the data are spelled out in this literature review.

Results and Discussion

This web-based literature search received a total of 67 research and journals published. From the PECO and inclusion exclusion criteria that has been made for this literature review paper, scientific researches reviewed in this paper are 13. The articles included in this literature review some have a cross sectional study design [9–15] and some have mixed method study design [16]. The total individual participating in this literature review is 6270 healthcare staff that’s working on the ICU when the research attempted (including EICU and SICU for COVID-19 patients) in COVID-19 pandemic. The studies listed were a study that assessed the score of burnout syndrome in ICU staff in the years 2019, 2020, and 20201, where most of it was held in 2020 with length of study ranging from five days to six months. The participant in this study were reviewed their personal burnout syndrome condition using many different assessment criterias, which are Maslach Burnout Inventory-Medical Personnel (MBI-MP) [1], Maslach Burnout Inventory-General Survey (MBI-GS) [3],

Utrecht Burnout Scale (UBOS) [9], Maslach Burnout Inventory–Human Services Survey (MBI-HSS) [10,12], Stamm’s ProQOL scale [16], and Copenhagen Burnout Inventory (CBI) [12] that is validated and adapted from Maslach Burnout Inventory (MBI) [2,11,13,15,17,18].

This study not only assesses the doctors in ICU but also the other ICU staff. 8 of this study included nurses in the survey and questionnaire of prevalence of burnout syndrome [11–18]. Some of it even included a nursing assistant. [8,10,12,13]. In some healthcare centres, the intensive care unit is merged with the emergency unit and also the radiology department that has a sinergic work in doing the critical care to patients [1,10]. In Dimitriu et al. study, the prevalence and assessment of burnout syndrome are not distinguished between intensive care unit, emergency unit, and radiology department so that the total sample and the results are the overall 3 departments results [1]. Prevalence of burnout syndrome is stated in total number and percentage and can also be presented in mean score of the assessment criteria that is used from the studies. Most of the study defined burnout syndrome with three subscales: emotional exhaustion, depersonalization, and personal accomplishment.

Summary of the data extract done is reviewed on **Table 1**.

First Author (Year) / Country	Response (%)	Settings	Length of Study	Age Mean ± SD	Gender (Male%)	Population n (%)	Burnout Assessment	Burnout Criteria	Burnout Prevalence n (%)	Burnout Score (Mean ± SD)
Dimitriu MCT et al. (2020) / Romania	50 (100)	First line medical resident (30 emergency unit, 10 ICU, and 10 radiology department)	27/04/2020-08/05/2020	All Participants: 27,92± 2,663	All participants: 60%	Residents: emergency unit: 30 (60), ICU 10 (20), and radiology department 10 (20)	Maslach Burnout Inventory-Medical Personnel (MBI-MP)	Elevated EE score (≥27), elevated DP score (≥10), or decreased PA score (≤33)	Total participant: Burnout: 33(66) High EE: 18 (36) High DP: 4 (8) Low PA: 11 (22)	
Azoulay E et al. (2020) / Europe, Britannia, and 85 other countries	846 (84.5)	ICU	30/04/2020-25/05/2020	45,7 ± 10.39	65,80%	ICU Specialist: 846 (100)	Maslach Burnout Inventory (MBI)	Considered having a high burnout level when related subscales scored >-9	Overall: Low: 214 (25.3) Intermedic: 195 (23) Weight: 439 (51.8) High EE: 194 (23) High DP: 194 (23) Low PA: 265 (31,4)	

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Lasalvia A et al. (2021) / East Coast Italy	182 (9.4)	Several wards including ICU and SICU for COVID-19 patients	21/04/2020-06/05/2020	<36 years: 633 (32.4%) 36-55 years: 980 (50.1%) >55 years: 343 (17.5%)	All participant: 25,2%	ICU staffs: 192 (9.4) SICU for COVID-19 patients staffs: 164 (8.5)	Maslach Burnout Inventory-General Survey (MBI-GS)	Scored >2.20 for EE, >2.00 for CY and <3.66 for PE	ICU EE >2.20: 104 (57.1) PE <3.66: 87 (47.8) CY >2.00: 73 (40.1) SICU for COVID-19 patients EE >2.20: 87 (53.0) PE <3.66: 78 (47.6) CY >2.00: 37 (22.6)	-
Cross sectional study										
Hu Z et al. (2021) / China	3411 (31.3)	General ICU General ICU Emergency Internal ICU Surgery ICU Others	25/07/2019-30/07/2019	- ≤30: 957 (39.7%) 31-40: 1213 (50.3%) 41-50: 205 (8.5%) >50: 36 (1.5%)	All: 31.3% Doctor: 56.9% Nurse: 9.1%	ICU Doctor: 1122 (46.5) ICU Nurse: 1289 (53.5)	Maslach Burnout Inventory (MBI)	High burnout levels if EE score ≥27, PA score ≤31, or DP score ≥13. Moderate burnout levels if EE score 17-26, PA score 32-39, or DP score 7-12. Low burnout score if EE score ≤16, PA score ≥39, DP score ≤6	Overall burnout: All: 1681 (69.7) Doctor: 800 (71.3) Nurse: 881 (68.3) High EE: 1417 (58.8) Low PA: 1565 (64.9) High Dp: 807 (33.5)	-
Cross sectional study										
From subscale scored high										
Acar servinc S et al. (2021) / Turkey	-	ICU	15/05/2020-25/05/2020	30.75±6.76	29.8%	Attending doctor: 26 (25) Resident doctor: 35 (33.7) Nurse: 43 (41.3)	Maslach Burnout Inventory (MBI) validated Turkish version	High score on EE and DP and low score on PA indicate higher level of burnout	-	EE: 21.89 ± 10.29 PA: 21.94 ± 6.76 DP: 6 ± 4.5
Cross sectional survey										
Meyenaar IA et al. (2021) / Netherlands	177 (27.2)	ICU	24/05/2020-20/07/2020	-(57.4% above 46 years)	60.5%	ICU Staff: 177 (100)	I am running a few minutes late; my previous meeting is running over. Utrecht Burnout Scale (UBOS)	Burnout can be diagnosed with high EE score (>2.38) along with high DP score (>1.80 for men or >1.60 for woman) or low PA score (3.70) or both	High EE: 1 (13.0) High DP: 20 (12.3) Low PA: 16 (9.9) Total burnout: 13 (8.0) with 4 (2.5) having high EE, high DP and low PA, 8 (4.9) having high EE and high DP and 1 (0.62) having high EE and low PA	Overall burnout score: 5.63 ± 10.9
Nation-wide survey										
Nishimura Y et al. (2021) / Japan	33 (25.4)	EICU General medicine Radiology	13/11/2020-30/11/2020	-	27.3%	EICU staff: 8(24.2) General surgery staff: 24 (72.7) Radiology staff: 1 (0.3)	Maslach Burnout Inventory-Human Services Survey	EE score ≥ 27 and DP score ≥ 10	-	-
Cross sectional survey										
Moreno-Mulet C et al. (2021) / Spain	122 (15)	ICU	June to November 2020	39 ± 9	18.9%	ICU doctor: 12 (10) ICU nurse: 80 (65) Nursing assistant: 30 (25)	Stamm's ProQOL scale	-	-	ICU doctor: 28.83 ± 4.98 ICU nurse: 27.12 ± 4.74 Nursing assistant: 27.61 ± 5.47
Mixed methods study										
Stocchetti n et al. (2021) / Italy	150 (55)	ICU	11/01/2021-28/01/2021	NA (60.3% for ≥ 35 years)	41%	ICU doctor: 52 (38.2) ICU nurse: 84 (61.8)	Maslach Burnout Inventory (MBI)	High burnout level when EE score ≥ 24, PA score ≤ 29, and DP score ≥ 9; moderate if EE score 15-23, PA score 30-26, and DP score 4-8; and low if EE score ≤ 14, PA score ≥ 37, and DP score ≤ 3	Total burnout: 82 (60.3) High EE: 56 (41.2) High DP: 65 (47.8) Low PA: 72 (52.9)	-
Cross sectional study										
Bisesti A et al. (2021) / Italy	105 (84)	SICU	June 2020	39 ± 9.8	38.1%	Nurse: 87 (82.8) Healthcare assistant: 18 (17.2)	Maslach Burnout Inventory-Human service survey	High levels of burnout when EE ≥ 24, DP ≥ 9, and ≥ 37	High EE: 65(61.9) High DP: 50 (47.6) Low PA: 36 (34.3)	-
Prevalence study										
Bruyneel A et al. (2021) / Belgium	1135 (27)	ICU	21/04/2020-04/05/2020	36.9 ± 10.3	22%	Nurse: 1135 (100)	Maslach Burnout Inventory (MBI) France version was validated	Scores for low, moderate and high risk are 0-18, 19-26, and > 26 for EE, 0-5, 6-9, >9 for DP, and > 39, 34-39, 0-33 for PA for overall burnout prevalence, at least one high risk in one of the subscale	Total burnout: 772 (68) EE risk: 431 (38) DP risk: 329 (29) PA risk: 352 (31)	-
Cross sectional study										

Enea V et al. (2021) / Romania	110 (-80)	ICU	19/10/2020-28/10/2020	43.64 ± 12.09	20%	Doctor: 76 (69.1) Nurse: 39 (29.1) Orderly: 2 (1.8)	Copenhagen Burnout Inventory (CBI)	-	Total burnout: 38.39 ± 14.09 Personal burnout: 14.79 ± 4.71 Work related burnout: 15.87 ± 5.81 Patient related burnout: 7.73 ± 5.40
Cross sectional survey									
Azoulay E et al. (2021) / France	845 (70)	ICU	30/10/2020-01/12/2020	34.05 ± 9.65	32.5%	Attending doctor: 175 (20.7) Resident doctor: 97 (11.5) Nurse: 412 (48.7) Nursing assistant: 143 (16.9) Allied professional: 18 (2.2)	Maslach Burnout Inventory (MBI)	Serve burnout defined with MBI score >9	Serve burnout: 381 (45.1%) EE: 16.75 ± 14.10 DP: 7.05 ± 6.68 PA: 32.94 ± 9.65
Cross sectional study									

ICU: *Intensive Care Unit*; SICU: *Subintensive Care Unit*; EICU: *Electronic Intensive Care Unit*; EE: *Emotional Exhaustion*; DP: *Depersonalization*; PA: *Personal Accomplishment*; CY: *Cynicism*; PE: *Professional Efficacy*.

Prevalence of burnout syndrome in staff and ICU workers is so high, some even reach beyond 50% from the sample that underwent that survey [1–3,11–13,17]. Study from Hu et al. emphasized that burnout levels in ICU doctors are significantly higher than ICU nurses with comparison in the Percentages: 71.3% vs 68.3%. EE and DP scores differences were also seen significantly with p: 0.08 and p: 0.003. From multivariate analysis of this study, the work hours and higher experience increase the risk of severe burnout [17] But in Meynaar et al. study, it was seen the burnout syndrome rate was as high as the other study. EE, DP, and PA subscale only have the prevalence of 13%, 12.3%, and 9.9%. This significant difference can be caused by different methodology for diagnosis and definition of burnout syndrome that is different in each study, and organizational reason [9]. Netherland has more supporting working condition in addition to France that has more nurse, residents, attendings per patient [19] This may take effect on the low burnout syndrome prevalence on this study. The risk factor of burnout syndrome can be mentioned as many things. Azoulay et

al. mentioned that age and gender (woman) has a higher prevalence in having burnout syndrome [2]. However, the number of COVID-19 patient handled seems to not have an influence with burnout syndrome rate [2], [9]. Burnout syndrome can manifests as higher fatigue level and decrease of cognitive function [20], [21] This can influence the work of ICU staffs where ICU staffs are so crucial in health care system in providing critical care. Burnout syndrome is associated with worse patient safety and decrease of quality of care [22]. Burnout syndrome also increases the risk of medical mistakes in health workers and that is really a menace in a pandemic situation that needs more strength and concentration from medical staff.

Conclusions

Burnout syndrome can be defined with 3 subscales: emotional exhaustion, depersonalization, and personal accomplishment. Maslach and Jackson emphasized that burnout syndrome is more likely to occur to individuals who work with other people, stating the healthcare system and medicine as job

with the highest risk of burnout syndrome.18 From this literature review paper, the prevalence of burnout syndrome is high, especially in intensive unit staffs that includes the general doctors, residents, attendings, nurses, orderlies, and other health workers. Risk factors that can be associated with burnout syndrome are numerous; age, gender, occupational condition factors and personal factors can influence the prevalence rate and severity rate of burnout syndrome in specific settings. Burnout syndrome shows symptoms that can affect professional intensive care unit staff and its service to patients. In order of that, burnout syndrome must be prevented. Further research should review prevention therapy and how to apply to health workers and also the prevalence of prevention that has been done in other studies.

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