

STRESS AND BURNOUT SYNDROME AND THEIR ASSOCIATIONS WITH COPING AND JOB SATISFACTION IN CRITICAL CARE NURSES: A LITERATURE REVIEW

Adriano Friganović^{1,2,3}, Polona Selič³, Boris Ilić² & Biserka Sedić²

¹Department of Anaesthesiology and Intensive Care, University Hospital Centre Zagreb, Zagreb, Croatia

²Department of Nursing, University of Applied Health Sciences, Zagreb, Croatia

³Department of Family Medicine, Faculty of Medicine, University of Ljubljana, Ljubljana, Slovenia

received: 29.10.2018;

revised: 20.11.2018;

accepted: 11.12.2018

SUMMARY

Background: Burnout is usually defined as a prolonged response to chronic emotional and interpersonal stressors, characterized by emotional exhaustion, depersonalization and lack of social accomplishment. Coping mechanisms and job satisfaction are associated with the incidence of burnout symptoms in a work context.

Subjects and methods: The aim of this paper was to make a systematic analysis of the literature related to nurses' stress and the incidence of burnout syndrome in intensive care nurses, and also to determine the research into associations between coping mechanisms and job satisfaction on one side, and burnout on the other side. Appropriate databases (Scopus, PubMed) were searched with the aim of finding relevant studies and articles published in the last 15 years. The keywords were burnout, coping mechanisms, job satisfaction, nurses, and intensive care. Two independent reviewers carried out a selection of the studies.

Results: The literature review found 786 studies about burnout and its association with different variables. Twenty-nine original research papers were discovered in this review process. Open questions still remain concerning burnout and the associations between the considered variables. We also found that studies using a qualitative approach, which could provide better insight into the investigation of burnout, was insufficient in this area.

Conclusion: Burnout syndrome is serious problem for healthcare systems and affects almost all profiles of healthcare workers. Although burnout is an evidence-based public health problem, there is still no systematic approach to prevention. Prevention activities to reduce stress and the incidence of burnout should be provided for nurses, especially those in very demanding posts.

Key words: burnout syndrome - coping mechanisms - job satisfaction - nurses - intensive care

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INTRODUCTION

Issues of mental health in healthcare workers have become a great threat to healthcare systems. The most prevalent mental health problem is burnout syndrome, affecting both nurses and physicians. For the purpose of this study, burnout was defined as a prolonged response to chronic emotional and interpersonal stressors, characterized by emotional exhaustion, depersonalization and lack of social accomplishment (Maslach et al. 2011). Burnout syndrome occurs in people who work in posts which imply frequent and intense contact with people (Marian et al. 2011). Contributors to the occurrence of this syndrome may include moral distress, emotional and spiritual demands creating the perception of excessive workload, and stressors associated with the physical and psychological environment (Florin & Basham 2000). The increase in the number of chronic patients requiring constant support, together with hospital staff's constant exposure to physical and emotional pressure, has redirected the activities in the way of systemic approach for prevention programmes (Florin & Basham 2000). Burnout can affect any worker, but compassion fatigue is specific to professionals in a caring context (Duarte & Pinto-Gouveia 2017). Healthcare institutions represent a very challenging and high-risk work environment (Henderson 2015).

Symptoms start to appear when a nurse does not know how to adapt to or deal with high stress levels (Stordeur et al. 2001). Coping mechanisms and job satisfaction have been shown to be associated with the incidence of burnout symptoms in a work context, according to the available literature (Myhren et al. 2013). There are many differences in job satisfaction between different kind of intensive care units which correlate with patient diagnosis and nursing management (Myhren et al. 2013). Very often healthcare workers' tasks and responsibilities are not harmonized with the possibilities of the workplace, and training for new tasks is often insufficient (Selmanovic et al. 2012). Personality has an impact on the development of burnout; it must be borne in mind that the high prevalence of burnout in some professions can also reflect the pre-morbid personality of the people choosing these professions (Čebašek-Travnik 2002). Nurses represent a group with an increased risk of burnout (Myhren et al. 2013 and Selmanovic et al. 2012); however, there is still no systematic approach to prevention programmes, collecting data, or training on either the incidence of burnout or coping strategies (Myhren et al. 2013, Selmanovic et al. 2012, Franczak 2012, Baker et al. 2004, Schaufeli et al. 2003).

The aim of this study was to make a systematic analysis of the literature related to stress and the incidence of burnout syndrome in intensive care nurses, and also to

determine the associations between coping mechanisms and job satisfaction on one side and incidence of burnout on the other side. It was relevant to establish the association between all these factors to determine potential future investigations in this area of public health. The incidence of burnout has a strong influence on the quality of the healthcare provided and should be better treated in healthcare institutions. An additional specific aim was to determine the combination of instruments used in the research studies.

SUBJECTS AND METHODS

Appropriate databases (Scopus, Pub Med) were searched with the aim of finding relevant studies and articles published in the last 15 years. Only original research papers were included in this literature review. The inclusion criteria were cross-sectional and longitudinal studies and studies with qualitative methods; only articles in English or Croatian were included. The keywords used were stress, burnout, coping mechanisms, job satisfaction, nurses, and intensive care.

The process of selection had several stages: in the first stage, the results were screened for eligibility according

Table 1. Inclusion and exclusion criteria

	Inclusion criteria	Exclusion criteria
Article category	Original research	Systematic review Review article Letters Editorials
Keywords	Burnout syndrome Coping mechanisms Job satisfaction Nurses Intensive care	
Date of publishing	2003-2018	Before 2003
Language	English, Croatian	All others

to the inclusion and exclusion criteria (Table 1). In the second stage, related to inclusion criteria we selected peer-reviewed journal original research article published between 2003 and 2018, written in English and Croatian language. Literature review articles were excluded.

The process of selection and refining the studies is shown using PRISMA 2009 Flow diagram (Moher et al. 2009) in Figure 1. Excluded records were either considering methodologically of a less quality according to the subjective opinions of the reviewers.

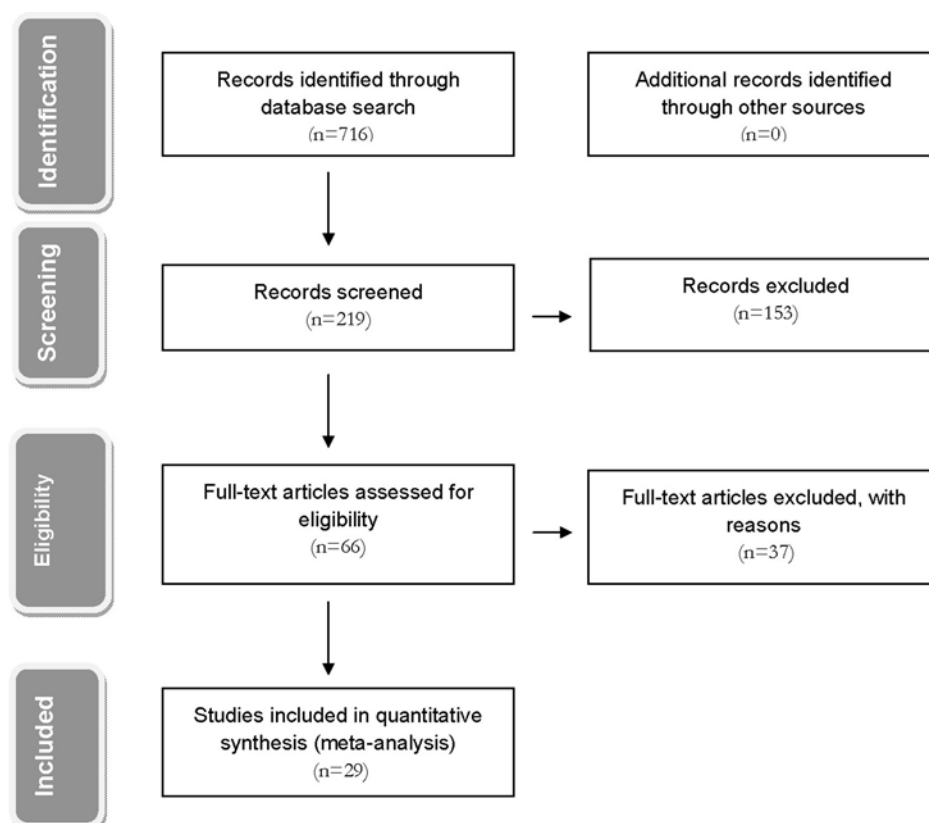


Figure 1. Search, refining and selections process (Prisma flow chart 2009)

Table 2. Methodology used in studies

Type of study	Cross-sectional	Longitudinal	Focus group	Semi-structured interview
Quantitative	75.86%	6.89%		
Qualitative			3.44%	13.79%

Table 3. Quantitative methodology used in literature review

Authors, year	Aim	Type of study	Population	Country	Results
Hamid AARM, Musa SA, 2016	To examine the relationship between secondary traumatic stress, burnout and coping strategies in professional caregivers who work in schools, hospitals, charity institutes and welfare centres in the UAE.	Cross-sectional N=502 study	UAE	Task-focused coping, personal accomplishment and compassion satisfaction were negatively associated with secondary traumatic stress. Burnout, emotion-focused and distraction coping were positively related to secondary traumatic stress. Coping partially mediated the relationship between burnout and secondary traumatic stress. There were also significant gender differences in depersonalization and distraction coping.	
Alharbi J, Wilson R, Woods C, Usher K, 2016	To explore the prevalence of burnout and job satisfaction in Saudi national critical care nurses.	Cross-sectional N=150	Saudi Arabia	Saudi national critical care registered nurses reported moderate to high levels of burnout and low level of job satisfaction. Burnout is a predictor of job satisfaction for Saudi national critical care nurses.	
Dos Santos Alves DF, Da Silva D, Guirar dello EB, 2017	To assess correlations between the characteristics of nursing practice, job outcomes and safety climate.	Cross-sectional N=267	Brazil	Autonomy, control over their work environment and the relationship between nursing and medical staff are factors associated with job outcomes and safety climate and can be considered their predictors.	
Panunto MR, Guiradello EB, 2013	To evaluate the characteristics of the professional nursing practice environment and its relationship with burnout, perception of quality of care, job satisfaction and the intention to leave the job in the next 12 months.	Cross-sectional N=129	Brazil	Results showed that nurses with greater autonomy experienced lower levels of emotional exhaustion, which was reflected in fewer nurses having the intention to leave their job, greater job satisfaction, and the perception of improved quality of care.	
Nantsupawat A, Nantsupawat R, Kunaviktikul W, Turale S, Poghosyan L, 2015	To investigate the effects of nurse burnout on nurse-reported quality of care and patient adverse events and outcomes.	Cross-sectional N=2084	Thailand	All three subscales of the MBI were associated with increased reporting of fair or poor quality of care, patient falls, medication errors, and infections. Each unit of the increasing emotional exhaustion score was associated with a 2.63 times rise in reporting fair or poor quality of care, a 30% increase in patient falls, a 47% increase in medication errors, and 32% increase in infections.	
Vahedian-Azimi A, Hajiesmareili M, Kangasniemi M, Fomes-Vives J, Hunsucker RL, Rahimi-bashar F, Pourhoseingholi MA, Farokhvar L, Miller AC, 2016	To determine which personal, professional, and organizational variables are associated with greater perceived stress in critical care nurses for the purposes of developing integrative solutions to decrease stress in the future.	Cross-sectional N=21767	Iran	Male gender, lower levels of peer collaboration, working with a supervisor in the unit, nurse-patient ratios, and working in surgical ICU were positively associated with a greater level of stress. Increasing age and married status were negatively associated with stress. Intensive unit type (semi-closed vs open), ICU number of beds, shift time, working on public hospitals, educational level, and demographic factors including body mass index and number of children were not significantly associated with stress levels.	
Denat Y, Gocke S, Gunor H, Zencir C, Akgullu C, 2016	To determine the relationship between levels of anxiety and burnout prevalence and atrial extrasystoles (AES) and ventricular extrasystoles (VES) in critical care nurses.	Cross-sectional N=51	Turkey	No relationship was found between levels of anxiety and burnout and the prevalence of AESs and VESs in critical care nurses. A positive correlation was found between personal accomplishment scores and the number of VESs and AESs.	
Li L, Ai H, Gao L, Zhou H, Liu X, Zhang Z, Sun T, Fan L, 2017	To explore the moderating effects of coping strategies on the relationship between work stress and job performance for nurses.	Cross-sectional N=852	China	Three subscales of work stress were negatively related to job performance. Positive coping strategies moderated patient care and job performance, while negative coping strategies moderated workload and time performance, and between working environment and recourses and performance.	

Table 3. Continued

Authors, year	Aim	Type of study	Population	Country	Results
Nantsupawat A, Kuna- viktikul W, Nantsupa- wat R, Thienthong H, Poghosyan L, 2016	To investigate how the work environ- ment affects job dissatisfaction, burn- out, and intention to leave in nurses.	Cross-sectional	N=1351	Thailand	Nurses working in university hospitals with better work environments had significantly less job dissatisfaction, burnout, and intention to leave.
Zhang XC, Huang DS, Guan P, 2014	To provide better understanding of local status and reference data for coping strategies for critical care nurses' burnout.	Cross-sectional	N=431	China	16% of nurses were found to have a high degree of burnout, earning high emotional exhaustion and depersonalization scores together with low personal accomplishment scores.
Rushton CH, Batcheller J, Sroeder K, Donohue P, 2015	To support the creation of a healthy work environment and to design a 2- phase project to enhance nurses' resilience while improving retention and reducing turnover.	Cross-sectional	N=116	USA	Moral distress was a significant predictor of all three aspects of burnout, and association between burnout and resilience was strong. Greater resilience pro- tected nurses from emotional exhaustion and contributed to personal accom- plishment. Spiritual well-being reduced emotional exhaustion and depersona- lization; physical well-being was associated with personal accomplishment.
Ahmadi O, Azizkhani R, Basravi M, 2010	To determine the effect of nurses' workplace on burnout syndrome in nurses.	Cross-sectional	N=100	Iran	Occupational burnout meant the values of nurses working in orthopaedic and dialysis wards were significantly less than those of nurses working in emergency wards and intensive care.
Mijakoski D, Kara- dzinska-Bisljmovska J, Milosevic M, Mustaj- begovic J, Stoleski S, Minov J, 2011	To investigate the concepts of burnout, work demands, and teamwork, taking in the national context in each of the analyzed countries.	Cross-sectional	N=325	FYR Macedonia Croatia	Croatian nurses reported higher levels of depersonalization, and organizational and emotional work demands, while Macedonian nurses reported higher levels of physical work demands and teamwork. Emotional work demands predicted increased emotional exhaustion and depersonalization, while teamwork nega- tively predicted emotional exhaustion and depersonalization in both groups.
Pejušković B, Lečić- Točevski D, Priebe S, Tošković O, 2011	To assess the intensity of burnout syndrome in three groups of physicians.	Cross-sectional	N=160	Serbia	The dimension of emotional exhaustion was the most prominent in general practitioners, while the dimension of depersonalization was highest in surgeons, as well as a lack of personal accomplishment.
Quenot JP, Rigaud JP, Prin S, Barbar S, Pavon A, Hamet M et al., 2011	To investigate whether an intensive communication strategy concerning end-of-life practices would have an influence on the incidence of burnout syndrome in healthcare workers in critical care.	Longitudinal, interventional	N=102	France	The implementation of an active, intensive communication strategy regarding end-of-life care in ICU was associated with a significant reduction in the rate of burnout syndrome and depression in a stable population of care-giving staff.
Kravits K, McAlli- ster-Black R, Grant M, Kirk C, 2010	To develop and evaluate a psycho-edu- cational program to assist nurses to develop stress management plans.	Interven- tional	N=248	USA	Psycho-educational interventions, including discussion of nursing specific risk factors, practise with relaxation techniques, and exploration of coping patterns via art showed promise as methods to promote positive self-care strategies.
Serec M, Bajec B, Petek D, Svab I, Selič P, 2012	To explore how adequately addi- tive and mediational models could explain the relationships between personality traits and coping beha- vior in predicting burnout syn- drome in professional soldiers.	Cross- sectional	N=448	Slovenia	The structural equation modelling confirmed an adequate fit only for the additive model.

Table 3. Continued

Authors, year	Aim	Type of study	Population	Country	Results
Montgomery A, Spanu F, Baban A, Panagopoulou, 2015	To investigate the relationships between organizational factors, burnout, health professionals quality of life, and quality of care.	Cross-sectional	N=1418	Bulgaria Croatia Greece Romania Portugal Turkey FYR Macedonia	Workload and emotional and organizational demands were positively associated with emotional exhaustion, depersonalization, and negatively with vigour. Emotional and organizational demands were negatively associated with dedication. Teamwork effectiveness was positively associated with engagement. No evidence for the moderating effect of teamwork effectiveness in reducing perceptions of demands was found.
Tay WY, Earnest A, Tan SY, Ming Ng MJ, 2012	To determine prevalence of burnout in nurses and explore factors associated with burnout.	Cross-sectional	N=146	Singapore	The prevalence of burnout was found to be comparable to that of a tertiary hospital and this deserves further attention. In conclusion, this research revealed the extent of nursing burnout in the intermediate and long-term care sector, as well as identifying factors associated with burnout.
Welbourne JL, Eggerth D, Hartley TA, Andrew ME, Sanchez F, 2006	To examine relationships between workplace coping strategies, occupational attributional style, and job satisfaction.	Cross-sectional	N=190	USA	The results indicated that a positive occupational attributional style was associated with greater use of problem-solving/cognitive restructuring coping styles and less use of avoidance coping styles to deal with workplace stress.
Pisanti R, van der Doef M, Meier LL, Lazzari D, Violandi C, 2016	To test the Job Demand-Control-Support model and to analyze whether changes in psychosocial job characteristics are related to burnout.	Longitudinal	N=217	Italy	The Time 1 job characteristics explained 2-8% of the variance in the Time 2 burnout dimensions, but no support for the additive, of the buffer hypothesis of the JD-CS model was found.
Sanchez-Moreno E, La Fuente Roldan IN, Gallardo-Peralta LP, Lopez de Roda AB, 2014	To examine relationships between informal social support, burnout and psychological distress in social workers.	Cross-sectional	N=189	Spain	The results showed a high incidence of psychological distress and burnout, especially in terms of Emotional Exhaustion. The results of the hierarchical regression analysis confirm the importance of informal social support as a variable negatively related to distress, even in the presence of burnout.
Timbo Barbosa F, Jar-delino Eloi R, Mendez dos Santos L, Acioly Leao B, Camelo de Lima JC, de Sousa-Rodrigues CF, 2015	To evaluate the correlation between weekly workload and burnout syndrome.	Cross-sectional	N=150	Brazil	The results indicated a high level of frequency in at least one of three dimensions in 67.44% of physicians, with this percentage being considered diagnostic for burnout syndrome in this population.
Gracia-Gracia P, Olivares-Blaquez B, 2017	To analyze the ability of self-compassion mindfulness related to burnout in nurses working in intensive care units.	Cross-sectional	N=68	Spain	The study results showed a correlation between burnout and the ability of mindfulness self-compassion in nursing staff in ICU-s. The compassion variables also demonstrated a predictive role in the outcome of the burnout.

Table 4. Qualitative methodology used in literature review

Authors, year	Aim	Type of study	Population	Country	Results
Berg GM, Harsbarger JL, Ahlers-Schmidt CR, Lippold D, 2016	To measure compassion fatigue (CF) and burnout syndrome (BOS) in a trauma team and allow them to share perceptions of related stress triggers and coping strategies.	Focus group	N=12	USA	The results of this study indicated that both CF and BOS are not just complex concepts described in the literature but can also be identified as real and present in the midst of an unsuspecting trauma team.
Steege LM, Pinekenstein BJ, Knudsen EA, Rainbow JG, 2017	To describe hospital nurse leaders' experiences of fatigue.	Semi-structured interview	N=21	USA	Most nurse leaders experienced fatigue; nurse managers reported higher levels of chronic fatigue. Participants identified multiple sources of fatigue including 24h accountability and intensity of role expectations, and used a combination of wellness, restorative and social support and boundary setting strategies to cope with fatigue.
Taylor B, Barling J, 2004	To identify work-related problems to assist mental health nurses to locate the sources and effects of carer fatigue and burnout.	Semi-structured interview	N=20	Australia	The research offered a description of stressors and the effects of stress that were not new, in that while they were generated from 20 mental health nurses in a local area, they reflected national and international research findings.
Manomenidis G, Panagopolou E, Montgomery A, 2016	To explore the strategies nurses employ to mentally prepare for their shift, and mentally disengage at the end of it.	Semi-structured interview	N=11	Greece	Five themes were identified as strategies nurses use to mentally prepare and disengage from their shift: (i) personal care/grooming; (ii) religious rituals; (iii) nicotine/caffeine; (iv) social interaction; (v) listening to music.
Iverson E, Celious A, Kennedy CR, Shehane E, Eastman A, Warren V, Freeman BD, 2014	To explore surrogate decision-makers challenges in making decisions related to the care of patients in critical care.	Semi-structured interview	N=34	USA	Decision-making anxiety was buffered by active engagement with social networks, faith, and access to clear communication from providers.

RESULTS

When the process of selection was complete, 24 quantitative design studies, 22 cross-sectional studies, two longitudinal studies, and five qualitative design studies were included in the review.

Table 2 shows the methodology design used in the studies included in the review.

Table 3 and 4 show research articles by author, year of publishing, type of study and sample size, country and results. Generally, most of the research articles were of cross-sectional design, but the instruments used in the research varied considerably.

DISCUSSION

During the process of literature analysis, we found a large number of studies had been carried out, with nurses in critical care units and healthcare workers among the most affected groups. The instruments used in these studies varied from study to study but the Maslach Burnout Inventory in combination with other instruments was used in 16 studies included in the review (Abdalla et al. 2017, Alharbi et al. 2016, dos Santos et al. 2017, Panunto et al. 2013, Nantuspawat et al. 2016, Denat et al. 2016, Nantuspawat et al. 2016, Rushton et al. 2015, Mijakovski et al. 2015, Pejuskovic et al. 2011, Quenot et al. 2012, Montgomery et al. 2015, Pisanti et al. 2016, Sanchez-Moreno et al. 2015, Gracia – Gracia and Oliván-Blázquez 2017, Serec et al. 2012). However, only four of the studies used the Maslach Burnout Inventory as only the instrument (Zhang et al. 2014, Ahmadi et al. 2014, Barbosa et al. 2017, Selić et al. 2012) and the others used different scales showing the associations between burnout and other variables (Li Li et al. 2017, Vahedian-Azimi et al. 2017, Tay et al. 2014, Welbourne et al. 2007).

Burnout syndrome

The results of a burnout study in Chinese critical care nurses, conducted by Zhang et al., showed 16% of nurses had high levels of burnout in all three dimensions. The highest proportion of high degree burnout was emotional exhaustion (Zhang et al. 2014). The workplace is usually a significant factor for the development of burnout, and nurses who work in highly demanding wards are more exposed to burnout. This study included nurses from different clinical settings and compared the results of burnout; nurses who worked in emergency wards and critical care units had significantly more occupational burnout results than nurses who worked in orthopedic and dialysis wards (Ahmadi et al. 2014).

A longitudinal mono-centric study was conducted by Quenot et al. in France; the authors evaluated caregivers in two phases, with a two-year break, and with the implementation of an intensive communication strategy.

The instrument they used was the Maslach Burnout Inventory. The results showed that a communication strategy implemented in hospitals could reduce the risk of severe burnout syndrome by 50% (Quenot et al. 2012). A study carried out in Singapore found the prevalence of burnout to be 33.3% (Tay et al. 2014). In another study by Slovenian researchers, Selić et al. explored burnout in Slovenian family medicine trainees. The findings in this study showed a high prevalence of burnout in Slovenian family medicine trainees and consistency with data from another studies (Selić et al. 2012). Denat et al. (2016) tried to find a relationship between burnout and anxiety and prevalence of extrasystoles in critical care nurses but were not able to do so. However, they found a positive correlation between personal accomplishment and the number of extrasystoles. These results should encourage authors to continue this research on larger sample than 51 nurses in critical care.

The results of this studies (Zhang et al, Ahmadi et al. 2014, Quenot et al. 2012, Tay et al. 2014, Selić et al. 2012, Denat et al. 2016) the prevalence of burnout in different countries. These results may be used in comparisons with other national surveys on burnout prevalence in critical care nurses and other professions.

Burnout and job satisfaction

A study conducted by Alhabri et al. aimed to explore the relationship between job satisfaction and burnout. This study showed moderate to high levels of burnout; its most important finding was the participants' ambivalence towards and dissatisfaction with their job, with the sources of dissatisfaction being payment and work conditions (Alhabri et al. 2016). The impact of the workplace on the incidence of burnout in nurses and caregivers was investigated in two pediatric hospitals in Brazil (Dos Santos Alves et al. 2017). In this study, only the subscale for emotional exhaustion was used, and participants with higher job satisfaction showed moderate levels of emotional exhaustion and no intentions to leave their workplace. The results showed the necessity for changes in nurses' practice environments and their professional relationship with physicians, and for increasing autonomy.

Many authors investigated the environment and its association with burnout in critical care nurses. The influence of the environment on nurses' intention to leave the workplace was also the subject of many studies. Panunto and Guirardello tried to investigate the relationship between the environment and burnout, the perception of quality of care, job satisfaction and the intention to leave the job. The authors found a moderate level of burnout on all three subscales (Panunto and Guirardello 2013). Limited nurse autonomy, poor physician-nurse relationships, and poor control over nurses practice increases the level of emotional exhaustion and has a negative influence on perception of quality of care, job satisfaction and intention to leave the job.

Many factors influence the incidence of burnout, and one of these is patient outcome. A group of researchers in Thailand made a survey of a representative sample of 2084 nurses in 94 hospitals, investigating associations between burnout and reported quality of care. The authors revealed a high association with increased likelihood of reporting negative patient outcomes (Nantsupawat et al. 2016). Vahedian-Azimi et al. (2017) also confirmed that medical errors and patient safety incidents have been associated with burnout. These authors also confirmed the idea that a lack of nurse autonomy increases patient safety incidents and is positively associated with burnout.

Nantsupawat et al. (2016) in Thailand found a very high incidence of burnout in critical care nurses. Their results showed that poor nurse environment is the most important factor for dissatisfaction and intention to leave. The authors suggested that further investigations should be concerned with preparing tools and guidelines on how to create a healthy environment.

Hylton Ruston et al. (2015) showed that moral distress is a significant predictor of all dimensions of burnout. Their results showed that spiritual well-being reduced emotional exhaustion and physical well-being was associated with personal accomplishment. According to these authors it is very important to develop strategies to reduce nurses' vulnerability to emotional exhaustion.

Mijakoski et al. (2015) wanted to explore the differences between hospital nurses in Macedonia and Croatia. The authors confirmed differences in burnout, work demands and teamwork in the two different countries. However, they found that work demands were related to increased emotional exhaustion and depersonalization, and teamwork was related to lower emotional exhaustion and depersonalization in both groups. The influence of team work has been a subject of several investigations, including Montgomery et al. (2015), who wanted to explore the moderating role of teamwork in burnout. However, these authors found that teamwork is not effective within medical departments to job demands and the incidence of burnout, although this is not in accordance with the results of Mijakoski et al. (2015).

A longitudinal study was conducted to analyze whether changes in psychosocial job characteristics were associated with burnout (Pisanti et al. 2016). They used the Leiden Quality of Life Questionnaire for Nurses and the Maslach Burnout Inventory with two groups of nurses over a period of 14 months. This study clarified the very important relationship between changes in psychosocial job variables and burnout dimensions over time. Another study, conducted by Sanchez-Moreno et al. (2015), suggested that workplace environment has a similar impact on social workers, and this profession is also associated with a high risk of burnout. This study had a cross-sectional design, but the authors felt that a longitudinal design would give more

insight into the area. As in other studies, this one also showed that emotional exhaustion is the burnout dimension with the highest results, and a strategy to reduce emotional exhaustion is required. Nurses are the largest group of health care workers, but physicians are also affected. Barbosa et al. wanted to evaluate the correlation between weekly workload and burnout in anesthesiologists; however, their findings did not show any correlation (Barbosa et al. 2017).

These results show that job satisfaction is a very important variable and associated with burnout. It would be interesting to investigate the association between job satisfaction and other variables in the incidence of burnout in hospital staff.

Burnout and coping strategies

Hamid et al. (2017) found a significant association between burnout and other variables such as task-focused coping and job satisfaction. In this study age was positively associated with task-focused coping, job satisfaction, and personal accomplishment, and negatively related to secondary traumatic stress, emotional exhaustion and depersonalization.

A very interesting study was conducted with 1027 participants in China, exploring the relationship between coping strategies and work stress (Li et al. 2017). The authors used the Job Performance Scale, the Work Stress Scale and the Coping Strategies Scale. They determined that nurses used positive coping strategies more often than negative ones, and that positive coping strategies moderated the relationship between patient care and job satisfaction, while negative strategies moderated the relationship between workload and job performance. Pejuskovic et al. (2011) used the Maslach Burnout Inventory and the Ways of Coping scale to assess physicians in Serbia; the physicians were also shown to be exposed to burnout. These results also confirmed that coping strategies are very important in the development of burnout, e.g. escape avoidance was related to depersonalization and lack of personal accomplishment and self control and led to higher personal accomplishment and low depersonalization. Welbourne et al. (2007) examined the contribution of occupational attributional style to the use of various coping strategies. Results indicated that relationship between occupational attributional style and job satisfaction was mediated by the use of problem solving/cognitive restructuring, and avoidance coping strategies to deal with work-place stress.

Gracia-Gracia et al. (2017) presented the results of a correlation between burnout and the ability of mindfulness self-compassion in nursing in intensive care units. The results of this study shown that the level of burnout is inversely related to their level of self-compassion Gracia-Gracia et al (2017). A group of Slovenian researchers, Serec et al. (2012), carried out a study of professional soldiers

with the aim of exploring how adequately the additive and mediational models could explain the relationships between personality traits and coping behavior in predicting burnout syndrome. The results showed a positive association between emotional exhaustion and neuroticism and emotion-oriented coping, and also a positive association between depersonalization and psychoticism.

Considering the findings in all these studies, coping mechanisms have a great influence on the occurrence of burnout, and it is highly associated with burnout as a significant problem in healthcare institutions. However, we did not find many studies with a systematic approach to this issue. This literature review showed the need for further investigation in this area.

Research of Burnout using qualitative methodology

Not many authors in burnout research used qualitative methodology. In this review we included five articles with qualitative methodology; most used semi-structured interviews. Steege et al. (2017) used a mixed method approach with a semi-structured interview and the Occupational Fatigue Exhaustion Recovery Scale to explore nurse leader fatigue. The results of this study confirmed the thesis that nurse leaders experience fatigue, and nurse managers in particular experience relatively high levels of chronic fatigue compared to other nurse roles. Berg et al. (2016) used a focus group methodology with the aim of measuring compassion fatigue and burnout in a trauma team. The findings of this qualitative approach study indicate that compassion fatigue and burnout syndrome were real and present in the minds of the trauma team. The research findings of Taylor et al. (2004) reflected the severe degree of career fatigue and burnout in mental health nurses. Many participants in this qualitative study expressed fear and concern about participating in an interview because it could complicate their situation at work.

The stress experienced by surrogate decision-makers was explored by Iverson et al. (2014) in their qualitative research conducted by semi-structured interview. Their finding indicated that stress was a very real factor influencing surrogate decision-makers for critically ill patients. Manomedis et al. (2016) explored strategies used by nurses to mentally prepare and disengage from work. They concluded that the theoretical model proposed in the study could be used as a conceptual framework to further explore the process of preparation and disengagement from work.

The lack of available studies using qualitative methodology with a sample of nurses suggests the need for further research. Along with the usual methodological limitations of qualitative research methods, the major obstacles to carrying out such research involve the unwillingness of participants (medical staff), lack of a

conceptual framework to start from, inconsistency in the terminology used in interviews/focus groups, and subjective interpretation of the results.

CONCLUSION

Burnout syndrome is extremely common in healthcare settings and all the relevant literature confirms this thesis. Nurses are the largest group of healthcare workers and so it is reasonable to expect a high incidence of burnout. High dependency departments are very stressful environments and can lead to a greater incidence of burnout, especially by way of emotional exhaustion and poor personal accomplishment. Nurse education has been increasing in the past decade, but it has not been followed by more competencies and greater autonomy. The issues around nurse autonomy represent a very important stressor and should be investigated in more detailed research. Problems at the physician-nurse level may complicate relationships inside the healthcare team and result in lower quality of provided healthcare.

Across the literature there are sufficient findings of the great impact job satisfaction and coping strategies have on the incidence of burnout, but there are not enough studies which explore the association between these two variables. Further investigation of burnout and its association with coping strategies and job satisfaction would give better information about the problems and enable the preparation of appropriate prevention programmes.

Nursing education curricula should provide sufficient information about stress in the workplace and the incidence of burnout syndrome. Nurses' awareness of the potential threats should induce individuals to commence activities to reduce stress and try to find help before the first symptoms. Hospitals should have prevention programmes for their employees and through these activities reduce sick leave and the intention to leave the post.

Acknowledgements:

The authors acknowledge partial financial support from the Slovenian Research Agency, research core funding Research in the Field of Public Health No. P3-0339, for the participation of PS.

Conflict of interest : None to declare.

Contribution of individual authors:

Study conception and design: Adriano Friganović & Polona Selič.

Data acquisition and selection: Adriano Friganović, Polona Selič & Boris Ilić.

Manuscript writing and revision: Adriano Friganović, Polona Selič, Boris Ilić & Biserka Sedić.

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Correspondence:

Adriano Friganović, RN, BsN, MsN
Department of Anaesthesiology and Intensive Care,
University Hospital Centre Zagreb
Kišpatićeva 12, 10 000 Zagreb, Croatia
E-mail: adriano@hdmsarist.hr