

Mapping potential risk factors in developing burnout syndrome between physicians and registered nurses suffering from an aggression in Italian Emergency departments

Elsa Vitale¹, Roberto Lupo², Antonino Calabrò³, Michele Cornacchia⁴, Luana Conte⁵, Daniele Marchisio⁶, Cosimo Caldararo⁷, Maicol Carvello⁸, Maria Chiara Carriero⁹

¹ Mental Health Center, Local Health Authority Bari, Italy; ² San Giuseppe da Copertino Hospital, Copertino, Lecce, Italy; ³ Nuovo Ospedale degli Infermi Hospital, Biella, Italy; ⁴ Social welfare residence San Raffale, Campi Salentina, Lecce, Italy; ⁵ Laboratory of Interdisciplinary Research Applied to Medicine (DReAM), University of Salento and ASL (Local Health Authority) Lecce (Le), Italy; ⁶ Laboratory of Biomedical Physics and Environment, Department of Mathematics and Physics "E. De Giorgi", University of Salento, Lecce, Italy; ⁷ Presidente nazionale "Gruppo Formazione Triage (G.F.T)"; ⁸ University of Bari, Italy; ⁹ Brisighella Community Hospital, Local Health Authority Romagna, Italy; ⁹ Santa Chiara Institute, Rome, Italy

SUMMARY

Background

Violence in the workplace is a problem that affects countries around the world. The present study aimed to evaluate potential risk factors in the development of burnout syndrome in physicians and registered nurses belonging to the Italian Emergency Medicine Departments.

Methods

An online survey was conducted from August to February 2021, that explored: workplace safety job satisfaction and burnout levels in: emotional exhaustion (E.E.), depersonalization (D.) and personal accomplishment (P.A.) sub dimensions, in nurses and physicians belonging to Italian Emergency Departments.

Findings

222 healthcare workers were recruited among physicians and registered nurses. Of these, 191(86%) suffered from an aggression and 83(37.4%) perceived their own work environments as unsafe. Burnout levels indicated that: more healthcare workers were in E.E. (36.9%), in severe D. (52.3%) and P.A. (40.5%) conditions. Sex for E.E. ($p = .034$), shift work for P.A. ($p = .012$), suffered aggression for both D. ($p = .029$) and P.A. ($p = .043$) and job satisfaction both for D. ($p = .004$) and P.A. ($p = .002$) might be considered as potential risk factors in developing burnout syndrome.

Key words: aggression, burnout, emergency department, physician, registered nurse, risk factor

Background

Violence in the workplace is a problem that affects countries around the world. The true extent of the problem is not known, but the data collected is believed to be only the tip of the iceberg. The National Institute for Occupational Safety and Health (NIOSH) defined violence as: "any physical assault, threatening behavior or verbal abuse suffered while in the workplace" ¹. Episodes of violence against healthcare workers were considered adverse events of particular gravity, as they were potentially avoidable events, capable of causing serious harm or even death of the patient and/or operator. Although the phenomenon of violence in the workplace was substantially distributed across all work contexts and the health

Received: May 24, 2021
Accepted: June 21, 2021

Correspondence

Elsa Vitale
Department of Mental Health, Local
Healthcare Company Bari, via X marzo 43,
70026 Modugno, Bari, Italy
E-mail: vitaleelsa@libero.it

How to cite this article: Vitale E, Lupo R, Calabrò A, et al. Mapping potential risk factors in developing burnout syndrome between physicians and registered nurses suffering from an aggression in Italian Emergency departments. Journal of Psychopathology 2021;27:148-155. <https://doi.org/10.36148/2284-0249-425>

© Copyright by Pacini Editore Srl



OPEN ACCESS

This is an open access article distributed in accordance with the CC-BY-NC-ND (Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International) license. The article can be used by giving appropriate credit and mentioning the license, but only for non-commercial purposes and only in the original version. For further information: <https://creativecommons.org/licenses/by-nc-nd/4.0/deed.en>

sector remained the most involved, especially the emergency and urgent departments. First aid, characterized by a large number of daily accesses and by situations in which operators might move while maintaining the difficult balance between the need to assign priority to their interventions, to act quickly under the diagnostic-therapeutic-assistance profile and to guarantee in any case a quality healthcare response, always keeping the humanization profile of care high, represented the care settings most at risk of violence². Several studies highlighted the worrying dimensions of this phenomenon. For example, a recent study by Sharma et al. (2019), documented that about 54% of investigated healthcare workers suffered from violence in the emergency department exposing them to physical, verbal and psychological violence³. However, violence at workplace still remained underestimated due to the low propensity to report, or shame^{4,5}, or because the aggressions were experienced as an integral part of the work⁶, or even due to a lack of satisfaction in the answers provided by the administration⁷. In addition, several studies investigated the psychophysical consequences to violence, showing how fear, anguish, low mood, decrease in the quality of one's work, were among physicians and nurses belonged to the Emergency Departments (ED) often leading to removal from their workplaces^{8,9}. The Ministry of Health defined acted of violence to healthcare workers as "sentinel events" and adopted recommendations on this matter¹⁰ aiming to prevent and adopt initiatives to protect healthcare workers and victims of violence. In this direction, healthcare workers might be involved in a virtuous process, purposed at recognizing not only the empowerment of healthcare personnel, but also a more transparent and healthier work environment, both for the staff themselves and patients, in order to fully support efforts to improve the health and safety of health personnel^{11,12}. Nurses who were victims of violence could develop psycho-somatic disorders related to the adverse event, as burnout syndrome, as shown by another study carried out in Italy¹³ on a sample of 630 workers, specifically 522 nurses and 108 healthcare support workers, from which a directly correlation was evidenced between professional exhaustion and, in particular, verbal violence suffered in the workplace. In Slovenia, 3756 nurses were interviewed and of these, 61.6% suffered from verbal violence and 10.9% from physical one in the last year and only 6.5% reported the incident in writing form¹⁴. The main reason for the overwhelming majority of healthcare workers who did not report violence was the belief that the report might not change anything, followed by fear of losing their jobs. Although this phenomenon was substantially distributed over all healthcare work environments, so episodes of violence against healthcare workers under-

went a worrying growth. To date, data available in this regard were lacking, even less a precise evaluation of it, also due to the lack of systematically research activities and homogeneous procedures carried out¹⁵.

Aim

The present study aimed to evaluate potential risk factors in the development of burnout syndrome associated to socio-demographic variables collected, general assessment in safety perception level of one's work environment and job satisfaction levels in physicians and registered nurses belonged to the Italian Emergency Medicine Departments.

Materials and methods

Data collection

The questionnaire was presented to the "Italian Triage Training group" which accepted it, as well as authorized and subsequently widespread it through online distribution channels.

The questionnaire

The questionnaire contained a first part of socio-demographic data:

- sex, as female and male;
- healthcare role, as physician or registered nurse;
- years of work experience in Emergency Department (ED), divided into four subgroups, as: from 1 to 10 years, from 11 to 20 year, from 21 to 30 years and over 31 years;
- intensity area of the ED, as: < 25.000 inhabitants assigned, between 25.000 and 50.000 inhabitants, between 50.000-75.000 inhabitants, between 75.000-100.000 inhabitants and over 100.000 inhabitants;
- shift work, as interviewees worked only during the morning hours (h12), or both the morning and the night hours (h24);
- if the interviewer suffered from violence;
- for who suffered from violence, if it was verbal or physical;
- when violence occurred, as: during the morning and the afternoon or the night;
- if the victim of violence reported the event;
- worker safety perception, by indicating own perception among three levels, as: weak, moderate or strong;
- job satisfaction levels, by indicating own satisfaction among three levels, as: weak, moderate or strong;
- burnout levels, by answering to the Maslach Burnout Inventory (MBI) questionnaire, describing it as a three-dimensional aspects as Emotional Exhaustion (E.E.), as a result of continuous interactions required between the worker and the users of the service; Depersonalization (D) or the presence of cynical attitudes

and responses to clients; and a the sensation of poor Personal Achievement (P.A.) or the lack of confidence and negative self-esteem resulting from meetings with unrewarding situations. The MBI scale contained 22 items, specifically items no. 1,2,3,6,8,13,14,16,20 explored for the E.E. sub dimension, items no. 5,10,11,15,22 for D. and items no. 4,7,9,12,17,18,19,21 for P.A. Each question was associated to a 6-point Linkert-scale varying from 0(never) to 6 (always). By summing answer values for each sub dimension it obtained, for the E.E. dimension all values lower than 14 identified a weak level, for values ranged from 15 to 23 a moderate level and for values over 24 a strong level. By considering the D. sub dimension, values less than 3 indicated a weak level, values between 4 and 8 indicated a moderate level, values more than 9 indicated a strong level. Finally, as regards the P.A. sub dimension, values more than 37 identified a weak level, values included from 30 to 36 indicated a moderate level and values less than 29 indicated a strong level.

Data analysis

All data were collected in an Excel data sheet and subsequently processed thanks to the Statistical Package for the Social Sciences (SPSS) version 20. All data were grouped according to socio-demographic variables in frequencies and percentages. Subsequently, data were further analyzed for the risks in burnout syndrome by performing multivariate logistic regression analyses. All p values < .05 were considered as statistically significant and potential risk factors in developing burnout syndrome. So, for all the potential factor identified we analyzed data in order to better underline which characteristics were more at risk in developing burnout syndrome in each sub dimensions.

Validity and reliability

In this study it was adopted a homogenous instrument to assess burnout levels among Italian nurses as the MBI, which contained 22 items that well measured burnout level and its consistency among responses of multiple users was validated from other previous studies ¹⁶.

Results

As shown in the Table I, 222 healthcare workers were recruited among physicians and registered nurses, who worked in the Italian Emergency Departments (EDs). Of these, 191(86%) suffered from an aggression, and 83(37.4%) perceived their own work environments as unsafe, 101(45.5%) as moderately safe and only 38(17.1%) among them as safe. Moreover, burnout levels underlined more healthcare workers both in severe E.E. (36.9%), D. (52.3%) and P.A. (40.5%) conditions. Analyzing the sampling characteristics as a function of

TABLE I. Sampling characteristics (n = 222).

Socio-demographic characteristics	n;%
Gender	
Female	127(57.2%)
Male	95(42.8%)
Healthcare role:	
Physician	47(21.2%)
Nurse	175(78.8%)
Years of work experience in ED:	
1-10 years	154(69.4%)
11-20 years	47(21.2%)
21-30 years	12(5.4%)
> 31 years	9(4.1%)
Emergency department:	
< 25.000 patients	42(18.9%)
25.000-50.000 patients	98(44.1%)
50.000-75.000 patients	41(18.5%)
75.000-100.000 patients	25(11.3%)
> 100.000 patients	16(7.2%)
Shift work:	
H12	37(16.7%)
H24	185(83.3%)
Suffered aggression:	
No	31(14%)
Yes	191(86%)
Typology of aggression:	
Physical	66(29.73%)
Verbal	125(56.31%)
When aggression occurred:	
Morning/afternoon	146(65.76%)
Night	45(20.27%)
Report of the aggression:	
No	64(28.83%)
Yes	127(57.2%)
Safety perception:	
Weak	83(37.4%)
Moderate	101(45.5%)
Strong	38(17.1%)
Job satisfaction:	
Weak	45(20.3%)
Moderate	58(26.1%)
Strong	119(53.6%)
Burnout levels	
E.E.:	
Weak	75(33.8%)
Moderate	65(29.3%)
Strong	82(36.9%)
D.:	
Weak	62(27.9%)
Moderate	44(19.8%)
Strong	116(52.3%)
P.A.:	
Weak	69(31.1%)
Moderate	63(28.4%)
Strong	90(40.5%)

TABLE II. *Multivariate analysis of the potential risks according to socio-demographic characteristics.*

Socio-demographic characteristics	Burnout sub-dimensions	F	P-value
Sex	E.E.	4.582	.034*
	D.	1.778	.184
	P.A.	.426	.515
Healthcare role	E.E.	.178	.674
	D.	.025	.874
	P.A.	.313	.577
Years of work experience in ED	E.E.	.929	.428
	D.	1.139	.335
	P.A.	.972	.407
Emergency department	E.E.	1.699	.153
	D.	1.504	.203
	P.A.	.442	.778
Shift Work	E.E.	3.441	.065
	D.	1.445	.231
	P.A.	6.392	.012*
Suffered aggression	E.E.	1.175	.280
	D.	4.875	.029*
	P.A.	4.150	.043*
Typology of aggression	E.E.	.244	.622
	D.	.115	.734
	P.A.	.000	.999
When aggression occurred	E.E.	.410	.746
	D.	.181	.909
	P.A.	1.731	.163
Report of the aggression	E.E.	.246	.620
	D.	3.194	.076
	P.A.	.023	.880
Safety perception	E.E.	.806	.449
	D.	.127	.881
	P.A.	1.439	.240
Job satisfaction	E.E.	2.807	.063
	D.	5.743	.004*
	P.A.	6.781	.002*

* $p < .05$ is statistically significant.

the variables identified as potential risk factors in the development of Burnout syndrome, it could be noted that for the sub-dimension of E.E. females were more at risk than males. As regards the sub dimension of the D., suffering from an aggression and job satisfaction played an important role, as healthcare workers who suffered from an aggression and registered higher job satisfaction levels reported severe D. levels, too. Finally, as regards the P.A. sub-dimension, those who also worked during the night shift and already suffered from an aggression in their work environments, and also reported high levels of job satisfaction were most at risk (Tab. III).

Discussion

The present study aimed to evaluate potential risk factors in the development of Burnout syndrome in relation to socio-demographic variables collected, in addition to the general assessment of both the perception of the safety level of one's work environment and the level of job satisfaction, among physicians and registered nurses belonging to the Italian Departments of Emergency. The sample included 222 participants between nurses and physicians. Of these, 127(57.2%) suffered from an aggression during their work activities. Also literature recorded higher frequencies in healthcare workers who suffered from aggressions. For example, Cannavò et al. study¹⁷ reported that 69.4% (n = 154) of interview-

TABLE III. Sampling characteristics of the potential risk factors associated.

Sampling characteristics	Burnout sub dimensions	Burnout level		
		Weak	Moderate	Strong
Sex	E.E.			
Female		45(20.27%)	31(13.96%)	51(22.97%)
Male		30(13.51%)	34(15.31%)	31(13.96%)
Shift work	P.A.			
H12		7(3.15%)	8(3.60%)	22(9.91%)
H24		62(27.93%)	55(24.77%)	68(30.63%)
Suffered aggression	P.A.			
No		14(6.31%)	7(3.15%)	10(4.50%)
Yes		55(24.77%)	56(25.22%)	80(36.04%)
Job satisfaction	D.			
Weak		6(2.70%)	7(3.15%)	32(14.41%)
Moderate		13(5.85%)	9(4.09%)	36(16.22%)
Strong		43(19.37%)	28(12.61%)	48(21.62%)
	P.A.			
Weak		8(3.60%)	6(2.70%)	31(13.96%)
Moderate		9(4.09%)	16(7.21%)	33(14.86%)
Strong		52(23.42%)	41(18.47%)	26(11.71%)

ers worked in the EDs for at least 10 years, mostly in a 24-hour shift and 44.1% (n = 98) indicated a number of annual accesses between 25.000 and 50.000 patients and violence in their work environments was considered as a widespread problem¹⁸ and also concomitant cause emerging from the literature¹⁹, as in the last 12 months, 29.73% (n = 66) suffered from physical aggressions and 56.31% (n = 125) to verbal ones. The prevalence of verbal violence could be found in numerous other studies²⁰⁻²⁷. In most cases (61.3%) the perpetrator was a patient, while family members or caregivers were responsible in 21.6% of cases. These episodes were more frequent during the morning and the afternoon shift (n = 146; 65.76%). Also in the Cannavò et al. study¹⁷ aggressions during the night shift (20.27%; n = 45) were less frequent than the morning and the afternoon shifts. On the other hand, Ferri et al.²⁸ recorded higher prevalence during the night shift, especially in the waiting room. In this regard our data showed that violent episodes were recorded more during the h24 shift (86%) than the 12h (14%). Moreover, our findings recorded that 28.83% (n = 64) of participants did not report the aggression as an adverse event. At this regard our data were in agreement to a study conducted in Slovenia²⁹, on a sample of 3756 nurses, in which only 5% (n = 6) reported the incident in writing, compared to 10.9% of nurses who suffered physical violence. The main reason for the overwhelming majority of workers not reporting violence was the belief that reporting could not change anything, followed by the fear of losing their jobs. All these aspects produced demotivation

and a consequently reduction in confidence in one's own skills. In line with these results of other studies^{30,31}, there was the reason to believe that the phenomenon of aggression suffered by healthcare workers in their workplace, although it emerged clearly, has been under-represented, also due to cultural reasons that hinder the recording of episodes. Literature recorded positive correlations between healthcare workers and burnout^{32,33}, also in the EDs³⁴⁻³⁶. Our data recorded that females were more exposed than males. Also, as regards the depersonalization sub dimension, healthcare workers who worked during the night shift and who had already suffered an aggression, recorded a strong level of depersonalization. This condition emerged also in the literature³⁴⁻³⁶, and yet being present in every clinical setting, as it was more widespread in services where patient care and critical issues were more intense and there was a high workload and a greater risk of death^{37,38}. The feeling of continuous fear was also reported in other studies in which most of nurses felt themselves in a continuous anguish of being victims of violence again³⁹⁻⁴¹ and clearly demonstrated how even simple training days' lead to a greater sense of security in dealing with situations of hostile behavior and also to an increase in confidence in the organizational structure and in the number of cases of aggression reported. In some studies^{42,43}, a change in the internal physical structures was proposed, such as the adoption of internal video cameras and the increase in the fixed presence of security agents. Work safety was related to the work environment⁴⁴, so the emergency room became

an environment in which those who work might manage relationships characterized by strong emotions and stress, both in patient and family. Which might explode in a violent reaction. Additionally, literature suggested as work-related stress unfavorably influenced on the adaptive ability of the person, as: failure in the adaptation process represented the basis for the development of the burnout syndrome, as shown in several studies⁴⁵⁻⁴⁷ basing on the MBI test, highlighting burnout levels in healthcare workers and a greater prevalence of violent episodes in EDs. Moreover, burnout might influence the entire well-being condition of the healthcare worker, who might develop musculoskeletal disorders, insomnia and depression disorders and a consequent reduction in the quality of care delivered^{11,33,48,49}. However, there are still few works that have explored the prevention of the psychological consequences of violence.

Study limitations

Data were collected throughout all the Italian Emergency Departments, however the sample collected comprised on smaller group than all nurses and physicians working in emergency medical departments throughout the Italian territory.

Furthermore, data were collected on-line and there was no form of iteration with the participants.

Conclusions

The present study explored areas and dynamics in violence occurred in the EDs and related psycho-physical consequences. Almost all of the healthcare workers studied came into contact at least once with any type of violence in their career, especially verbal. It will be important to stimulate the awareness since during the University training^{50,51} and then, in the company management that in order to prevent episodes of violence,

and above all to reduce the consequences and costs related thanks to concrete interventions in psychological support which will be prevent a chronic adaptation to traumatic conditions. It will be necessary to implement further studies, with a larger sample, considering the effects of the law of 14 August 2020, n.113 containing “Provisions on safety for health and social health professions exercising their functions” probably still today too early to be tangible⁵². In this period, more than ever, we could realize the importance of healthcare personnel within a society that will be oriented to function. Attacking a nurse or a physician might put the system in difficulty: not only the person is harmed but, indirectly, also the user, aggravating the problems that already existed.

Ethical consideration

The study was conducted according to the Declaration of Helsinki principles.

This study was approved from the ethic commission from the Italian “Triage Training Group” in the 20th August 2020.

Acknowledgement

All Authors thank the nurses who participated in this survey.

Funding

None.

Conflict of interest

The authors declare no conflict of interest, financial or otherwise.

Author contributions

All Authors equally contributed to the compilation of this research article.

References

- Centers for Disease Control and Prevention. National Institute for Occupational Safety and Health (NIOSH). Violence in the workplace. DHHS (NIOSH) Publication Number 96-100, Curr Intell Bull 1996;57. Atlanta, GA.
- Calabrò A, Bardone L, Ercolani M, et al. How nurses and other healthcare workers perceived aggressions in psychiatric units: an Italian observational study. *Minerva Psychiatry* 2021. [Epub Ahead of Print]
- Sharma S, Lal Gautam P, Sharma S, et al. Questionnaire-based evaluation of factors leading to patient – physician distrust and violence against healthcare workers. *J Crit Care Med* 2019;27:302-309.
- Dillon BL. Workplace violence: impact, causes, and prevention. *Work* 2012;42:15-20. <https://doi.org/10.3233/WOR-2012-1322>
- Giménez Lozano JM, Martínez Ramón JP, Morales Rodríguez FM. Doctors and nurses: a systematic review of the risk and protective factors in workplace violence and burnout. *Int J Environ Res Public Health* 2021;18:3280. <https://doi.org/10.3390/ijerph18063280>
- García-Iglesias JJ, Gómez-Salgado J, Fagundo-Rivera J, et al. Factores predictores de los niveles de burnout y work engagement en médicos y enfermeras: una revisión sistemática [Predictive factors for burnout and work engagement levels among doctors and nurses: a systematic review.]. *Rev Esp Salud Publica* 2021;95:e202104046.
- Moloney W, Boxall P, Parsons M, et al. Factors predicting registered nurses' intentions to leave their organization and profession: a job demands-resources framework. *J Adv Nurs* 2018;74:864-875. <https://doi.org/10.1111/jan.13497>
- Yu F, Raphael D, Mackay L, et al. Personal and work-related factors associated with nurse resilience: a systematic review. *Int J Nurs Stud* 2019;93:129-140. <https://doi.org/10.1016/j.ijnurstu.2019.02.014>
- Cheung T, Lee PH, Yip PSF. Workplace violence toward physicians and nurses: prevalence and correlates in Macau. *Int J Environ Res Public Health* 2017;14:879. <https://doi.org/10.3390/ijerph14080879>

- ¹⁰ Zaboli R, Malmoon Z, Soltani-Zarandi MR, et al. Factors affecting sentinel events in hospital emergency department: a qualitative study. *Int J Health Care Qual Assur* 2018;31:575-586. <https://doi.org/10.1108/IJHCQA-07-2017-0137>
- ¹¹ Vitale E, Caputo M, Canonico A. Development and validation of a brief form of the nursing questionnaire on organizational health. *Acta Biomed* 2021 [Epub Ahead of Print]
- ¹² van Diepen C, Fors A, Ekman I, et al. Association between person-centred care and healthcare providers' job satisfaction and work-related health: a scoping review. *BMJ Open* 2020;10:e042658. <https://doi.org/10.1136/bmjopen-2020-042658>
- ¹³ Viotti S, Gilardi S, Guglielmetti C, et al. Verbal aggression from care recipients as a risk factor among nursing staff: a study on burnout in the KD-R Model perspective. *BioMed Res Int* 2015;215267. <https://doi.org/10.1155/2015/215267>
- ¹⁴ Kvas A, Seljak J. Unreported workplace violence in nursing. *Int Nurs Rev* 2014;61:344-351. <https://doi.org/10.1111/inr.12106>
- ¹⁵ Farinaz H. Does the type of exposure to workplace violence matter to nurses' mental health? *Healthcare* 2021;9:1. <https://doi.org/10.3390/healthcare9010041>
- ¹⁶ Maslach C, Schaufeli WB, Leiter MP. Job burnout. *Annu Rev Psychol* 2001;52:397-422.
- ¹⁷ Cannavò M, Fusaro N, Colaiuda F, et al. Violence on health care workers. *Clin Ter* 2017;168:e99-e112. Italian. <https://doi.org/10.7417/CT.2017.1990>
- ¹⁸ Zeller A, Hahn S, Needham I, et al. Aggressive behavior of nursing home residents toward caregivers: a systematic literature review. *Geriatr Nurs* 2009;30:174-187. <https://doi.org/10.1016/j.gerinurse.2008.09.002>
- ¹⁹ Zeller A, Dassen T, Kok G, et al. Factors associated with resident aggression toward caregivers in nursing homes. *J Nurs Scholarsh* 2012;44:249-257. <https://doi.org/10.1111/j.1547-5069.2012.01459.x>
- ²⁰ Cahill D. The effect of ACT-SMART on nurses' perceived level of confidence toward managing the aggressive and violent patient. *Adv Emerg Nurs J* 2008;30:252-268.
- ²¹ Crilly J, Chaboyer W, Creedy D. Violence towards emergency department nurses by patients. *Accid Emerg Nurs* 2004;12:67-73.
- ²² Charrier P, Occelli P, Buchet-Poyau K, et al. Strategies used by emergency care professionals to handle interpersonal difficulties with patients: a qualitative study. *BMJ Open* 2021;11:e042362. <https://doi.org/10.1136/bmjopen-2020-042362>
- ²³ Deans C. The effectiveness of a training program for emergency department nurses in managing violent situations. *Austr J Adv Nurs* 2004;21:17-22.
- ²⁴ Johnsen GE, Morken T, Baste V, et al. Characteristics of aggressive incidents in emergency primary health care described by the Staff Observation Aggression Scale – Revised Emergency (SOAS-RE). *BMC Health Serv Res* 2020;20:33. <https://doi.org/10.1186/s12913-019-4856-9>
- ²⁵ Zampieron A, Galeazzo M, Turra S, et al. Perceived aggression towards nurses: study in two Italian health institutions. *J Clin Nurs* 2010;19:2329-2341.
- ²⁶ Civiloti C, Berlanda S, Iozzino L. Hospital-based healthcare workers victims of workplace violence in Italy: a scoping review. *Int J Environ Res Public Health* 2021;18:5860. <https://doi.org/10.3390/ijerph18115860>
- ²⁷ Sanza M, Ceccarelli P, Ballanti L, et al. Politiche sanitarie 2018;19:43-50. Italian. <https://doi.org/10.1706/2894.29184>
- ²⁸ Ferri P, Silvestri M, Artoni C, et al. Workplace violence in different settings and among various health professionals in an Italian general hospital: a cross-sectional study. *Psychol Res Behav Manag* 2016;9:263-275.
- ²⁹ Domanjko B, Pahor M. Mistrust of academic knowledge among nurses in Slovenia. *Int Nurs Rev* 2010;57:305-311.
- ³⁰ Hassankhani H, Parizad N, Gacki-Smith J, et al. The consequences of violence against nurses working in the emergency department: a qualitative study. *Int Emerg Nurs* 2018;39:20-25. <https://doi.org/10.1016/j.ienj.2017.07.007>
- ³¹ Hamdan M, Abu Hamra A. Workplace violence towards workers in the emergency departments of Palestinian hospitals: a cross-sectional study. *Hum Resour Health* 2015;13:28. <https://doi.org/10.1186/s12960-015-0018-2>
- ³² Vitale E, Cesano E, Germini F. Prevalence of burnout among Italian nurses: a descriptive study. *Italian nursing burnout. Acta Bio Med* 2020;91:e2020117.
- ³³ Vitale E, Casolaro S. Anxiety, burnout and depression levels according to sex and years of work experience in Italian nurses engaged in the care of COVID-19 patients. *J Evid-Based Psychother* 2021;21:83-96.
- ³⁴ Cañadas-de la Fuente GA, Albendín-García LR, Cañadas G, et al. Nurse burnout in critical care units and emergency departments: intensity and associated factors. *Emergencias* 2018;30:328-331. English, Spanish.
- ³⁵ Nobre DFR, Rabiais ICM, Ribeiro PCPSV, et al. Burnout assessment in nurses from a general emergency service. *Rev Bras Enferm* 2019;72:1457-1463. English, Portuguese. <https://doi.org/10.1590/0034-7167-2017-0870>
- ³⁶ Vitale E, Galatola V, Mea R. Exploring within and between gender differences in burnout levels in Italian nurses engaged in the COVID-19 health emergency: a cohort observational study. *Minerva Psichiatr* 2020;61:162-170. <https://doi.org/10.23736/S0391-1772.20.02090-7>
- ³⁷ Nurmeksela A, Mikkonen S, Kinnunen J, et al. Relationships between nurse managers' work activities, nurses' job satisfaction, patient satisfaction, and medication errors at the unit level: a correlational study. *BMC Health Serv Res* 2021;21:296. <https://doi.org/10.1186/s12913-021-06288-5>
- ³⁸ Atawneh FA, Zahid MA, Al-Sahlawi KS, et al. Violence against nurses in hospitals: prevalence and effects. *Br J Nurs* 2003;12:102-107. <https://doi.org/10.12968/bjon.2003.12.2.11049>
- ³⁹ Geoffrion S, Hills DJ, Ross HM, et al. Education and training for preventing and minimizing workplace aggression directed toward healthcare workers. *Cochrane Database Syst Rev* 2020;9:CD011860. <https://doi.org/10.1002/14651858.CD011860.pub2>
- ⁴⁰ Gacki-Smith J, Juarez AM, Boyett L, et al. Violence against nurses working in US emergency departments. *J Nurs Adm* 2009;39:340-349. <https://doi.org/10.1097/NNA.0b013e3181ae97db>
- ⁴¹ Lupo R, Lezzi A, Conte L, et al. Work environment and related burnout levels: survey among healthcare workers in two hospitals of Southern Italy. *Acta Biomed* 2021;92:e2021009. <https://doi.org/10.23750/abm.v92iS2.11307>
- ⁴² Sato K, Wakabayashi T, Kiyoshi-Teo H, et al. Factors associated with nurses' reporting of patients' aggressive behavior: a cross-sectional survey. *Int J Nurs Stud* 2013;50:1368-1376. <https://doi.org/10.1016/j.ijnurstu.2012.12.011>
- ⁴³ Gilchrist G, Dennis F, Radcliffe P, et al. The interplay between substance use and intimate partner violence perpetration: a meta-ethnography. *Int J Drug Pol* 2019;65:8-23.
- ⁴⁴ Rasmussen K, Pedersen AHM, Pape L, et al. Work environment influences adverse events in an emergency department. *Safety* 2014;7:8.
- ⁴⁵ Roldán G, Salazar I, Garrido L, et al. Violence at work and its relationship with burnout, depression and anxiety in healthcare professionals of the emergency services. *Health* 2013;5:193-199. <https://doi.org/10.4236/health.2013.52027>

- ⁴⁶ Delgadillo J, Saxon D, Barkham M. Associations between therapists' occupational burnout and their patients' depression and anxiety treatment outcomes. *Depress Anxiety* 2018;35:844-850. <https://doi.org/10.1002/da.22766>
- ⁴⁷ Gascon S, Leiter MP, Andrés E, et al. The role of aggressions suffered by health-care workers as predictors of burnout. *J Clin Nurs* 2013;22:3120-3129.
- ⁴⁸ Vitale E, Galatola V, Mea R. Observational study on the potential psychological factors that affected Italian nurses involved in the COVID-19 health emergency. *Acta Biomed* 2021;92:e2021007. <https://doi.org/10.23750/abm.v92iS2.11305>
- ⁴⁹ Vitale E. Anxiety, depression and insomnia conditions in Italian nurses during the first and the second waves of the COVID-19 pandemic. *J Evid-Based Psychother* 2021;21:69-82.
- ⁵⁰ Vitale E, Moretti B, Noternicola A, et al. How the Italian nursing students deal the pandemic COVID-19 condition. *Acta Biomed* 2020;91:e2020007. <https://doi.org/10.23750/abm.v91i12-S.9860>
- ⁵¹ Vitale E. Clinical teaching models for nursing practice: a review of literature. *Prof Inferm* 2014;67:117-125. <https://doi.org/10.7429/pi.2014.672117>
- ⁵² Disposizioni in materia di sicurezza per gli esercenti le professioni sanitarie e socio-sanitarie nell'esercizio delle loro funzioni. (20G00131) (GU Serie Generale n.224 del 09-09-2020). Legge 14 agosto 2020, no. 113.