International Emergency Nursing 47 (2019) 100792

Contents lists available at ScienceDirect

International Emergency Nursing

journal homepage: www.elsevier.com/locate/aaen

Violence and burnout in health care emergency workers in Santiago, Chile: A survey-based cross-sectional study

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ARTICLE INFO

Keywords:
Emergency medical services
Workplace violence
Occupational stress
Professional burnout
Occupational health

ABSTRACT

Shortage of quantitative studies regarding health risks for emergency services workers is a concern for Chilean's occupational health organizations.

Objective: To explore the incidence of violence and burnout in emergency services of the Metropolitan Region of Chile, and associations with workers' characteristics and workplace conditions.

Methods: A cross-sectional study was carried out from January to August 2016. A self-reported questionnaire explored about frequency and seriousness of violence episodes and about symptoms of burnout with the Maslach Burnout Inventory.

Results: Of the 565 workers participating, 71% (95% CI 66.7–74.5) said violence episodes occurred at least once a week; 71.3% (95% CI 67.3–75.0) were victims of some aggression in the previous 12 months. Patients companions, relatives or friends arose as the main aggressors and the severity of the episodes was considered slight or moderate by more than 50% of participants. Fifty-seven respondents (10.5%, CI 95% 8.1–13.5) classified as having a burnout syndrome. Having been a victim of violence was associated to high emotional exhaustion (OR_{adj} = 1.7, 95% CI: 1.1–2.8) and depersonalization (OR_{adj} = 2.0, 95% CI 1.3–3.3).

Conclusions: Violence is a problem in the emergency departments of Chile's Metropolitan Region. Burnout is also present and independently associated to violence.

1. Introduction

Health care workers face a variety of work-related health risks. The World Health Organization (WHO) reports seven types of risk for these workers (biological, chemical, physical ergonomic, psychosocial, fire and explosion and electrical) [1]. Dorevitch and Forst [2] mention ten hazards to which emergency physicians are exposed. Both sources mention stress and violence.

Stress tends to peak in workplaces where peoples' lives are at stake and the health care provider must act quickly and skillfully. A stressed-out worker will lose motivation, become less productive and less healthy, all of which leads to a loss of safety and has a negative impact on the worker's organization [3,4]. The psychosocial environment at work includes stress and has been extensively dealt with by international organizations [5,6]. Stress frequently leads to burnout, a condition that has been frequently described in emergency health care workers [7–13].

Violence has also been reported worldwide in these workers [14–21]; a recent narrative review suggests that universal measures should be adopted to prevent it [22]. Two recent systematic reviews report on workplace violence involving emergency health care workers [23,24]; both conclude violence in emergency services is regular and extended around the world. There is no doubt about the emergency department to be one of the most affected by violence episodes, entailing some kind of aggression to its personnel [25–27].

There is a strong connection between violence and stress, but there is no consensus about their possible cause-effect relation [13,28–30].

Regarding occupational health and safety, Chile's formal workforce

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https://doi.org/10.1016/j.ienj.2019.100792
Received 19 September 2018; Received in revised form 16 August 2019; Accepted 27 August 2019

is covered by the worker's compensation organizations that are law-mandated not-for-profit health care providers. This study project followed one of the strategic research guidelines set by the Chilean Superintendence of Social Security with the purpose of gaining a more in-depth knowledge of the overall health problems and professional diseases that affect workers of emergency health services in the country. The aim of the study was to determine the overall health and occupational health status of emergency health care workers in the Metropolitan Region of Santiago, Chile.

While there are some published studies on stress and/or violence in the workplace for emergency and other health care workers in Chile, most of these studies are small or local [31–35]. In this article, we report these workers' perception on incidence and impact of violence in their workplaces and the association of these perceptions with age, sex, educational level and other characteristics. We also report results about their status regarding symptoms of burnout and its relation to some relevant sociodemographic variables. Finally, we explore the potential association between violence and burnout in these health workers after adjusting for possible confounders.

2. Material and methods

2.1. Study design and setting

We designed a cross-sectional survey in the Metropolitan Region of Santiago, which includes the country's capital city and rural surroundings, striving to cover as many health emergency services as possible. Public hospitals are administratively classified into six "Metropolitan Health Services" (East, South-East, Central, North, West, and South), while primary care centers generally depend on local municipalities and respond to public health guidelines instructed by the Metropolitan health authorities.

2.2. Population and sample

The study population covers all workers of the emergency departments of the Metropolitan Region of Chile (physicians, nurses, paramedical, auxiliary and administrative personnel), provided they were directly involved with emergency services.

A probability sample was planned in a single-stage cluster design stratified by type of center according to complexity. Center type complexity was classified as high, middle and low according to Chilean's Health Ministry classification which considers four hospital features: number of beds, medical residencies, medical specialties, physiatry department, diagnostic laboratories and surgical rooms. High complexity hospitals have more than 301 beds and all features, middle complexity hospitals have 31–300 beds and lack of some features and low complexity centers have 8–30 beds, no major surgical rooms and only a few of the mentioned features [36].

As the study progressed, many hospital administrators, especially from private clinics, declined to participate. Consequently, we invited all the emergency centers of the Metropolitan Region.

2.3. Data collection

Data were collected via a structured self-administered questionnaire. The questionnaire was generated by a nominal group technique after an extensive literature review. We retrieved information on the presence of psychosocial risk factors, diseases of occupational origin, work-related accidents in the prior year, and socio-demographic data. Field work started in January 2016 and concluded in early August 2016.

Other than violence and stress, variables relevant for this report were: center type according to complexity, health service, age, sex, last educational level reached, function in the service, satisfaction with work, and time working in the emergency department.

With respect to violence, the following topics were covered:

- Frequency of violence episodes in the emergency facility (at least once a week, two or three times a month, once a month, less than once a month, never).
- Whether he or she had been victims or witnesses of physical or verbal aggression in his or her workplace in the previous 12 months, and how many times, including data on the aggressor and the consequences of up to five of the violent episodes of which they had been victims or witnesses.

Symptoms of burnout were explored with the Maslach Burnout Inventory (MBI) [37]. The version containing 22 items and five answer options for each (1–5 points, Likert scale) [38] was applied. This inventory comprises three subscales: emotional exhaustion, depersonalization and reduced personal accomplishment. Due to different ways of assigning points in the Likert scale and no clear consensus about the cutoff points [39], the main analysis was directly carried out with the quantitative scores. For the associations with other variables, a subject was declared as having burnout if he or she had a high level (over the 60th percentile) of both emotional exhaustion and depersonalization, and a low level (under the 30th percentile) of personal accomplishment.

The questionnaire was anonymous, and it could be answered in digital format through a web site created *ad hoc*, or on a printed form if so requested by the center.

2.4. Information processing and analysis

Questionnaires answered electronically went to an Excel database for processing. Questionnaires on paper were collected from the centers and afterwards entered to the Excel database.

The database underwent a manual validation process looking for missing data and incongruent answers. The original questionnaires were reviewed for clerical errors that were rectified when possible. The responses were coded, and a supplementary database was constructed for SPSS statistics data processing (IBM) V20.0 system.

The summary description of each variable according to its type (qualitative or quantitative) was obtained with 95% confidence intervals when relevant.

The independent association between sociodemographic and working variables with the perception of violence was evaluated through multiple logistic regression. Having been a victim of violence in the previous 12 months (yes/no) was the dependent variable; independent variables were: age, gender, educational level, function in the emergency service, health service (Central, North, South, Southeast, West, and private clinic), center complexity type, and number of years working in emergencies.

The analysis of the Maslach Burnout Inventory results needed a multiple imputation method due to a high percentage of non-responses (e.g. 24% for item 12). Multiple imputation was carried out with the SPSS algorithm. This algorithm is known as *fully conditional specification* and it uses multiple linear regression for quantitative variables; only the MBI items were implied in the imputation process. The association between burnout and violence was evaluated comparing the means of the three MBI domains between those who had and had not been victims of violence over the previous 12 months through crude and adjusted comparisons. Adjustment was made for time worked in the emergency department, sex, age and overall satisfaction with work. Additionally, we used each of the MBI subscales in two categories (high or not for emotional exhaustion and depersonalization, and low or not for personal accomplishment), for exploring their association with violence in the previous 12 months, adjusting for work satisfaction, time worked in the emergency department, age, and gender.

Table 1
Distribution of centers according to complexity, health service and number of workers participating in each category.

Center type	Number of centers	Number of workers	Estimated percentage of total workers*
High complexity hospitals (301–650 beds serving the whole population of the health service for high complexity attention).	8	333	32
Private hospital with 100–199 beds	1	32	32
Primary care emergency services or family health centers with emergency unit.	19	200	35
Health Service			
Central	2	150	–
North	5	143	–
West	3	7	–
East	1	2	–
South	2	43	–
South-East	14	188	–
Private clinic	1	32	–
Overall total	*28*	*565*	*33*

* Based on estimations obtained orally from center directors, since there are no registries on emergency worker personnel. It is estimated that there are 130 in high complexity hospitals, 100 in private clinics with between 100 and 200 beds; 30 in the primary care emergency services or family health centers with emergency unit.

2.5. Ethical considerations

After signing the informed consent, participants had access to the questionnaire. The anonymity of each questionnaire was guaranteed. The project was approved by the Scientific Ethics Committee of the *Mutual de Seguridad* accredited in Chile, on February 2, 2016.

3. Results

Table 1 shows the distribution of the included centers according to complexity and health service affiliation together with the number of workers in each category. The response rate was around 30% of the estimated total workers of the included centers according to rough estimations of the total number of workers in each type of center. We estimate that the study includes 4% of all the emergency health workers in the Metropolitan Region. The precise number of emergency workers in each center was not available.

Table 2 shows the main demographic and occupational characteristics of the included workers.

3.1. Violence

A high number of participants reported that violence occurred in their departments at least once a week (Table 3).

Three hundred eighty-seven participants, 71.3% (95% CI: 67.3 to 75.0), stated they had been victims of physical or verbal aggression in their workplace during the previous 12 months. Moreover, 355 (72%, 95% CI 67.8–75.9) reported they had witnessed some episode of violence at work during this period. Both victims and witnesses were also asked about the frequency of episodes of violence in their departments, 17.5% of victims and 13.7% of witnesses considered violent episodes were extremely or very frequent (Table 4). Three hundred seventy-seven respondents described at least one episode regarding the aggressor's function and their opinion about the seriousness of the episode consequences. Table 5 depicts their responses for the first episode.

There were 1,349 episodes in which respondents mentioned having been the victims and 1,155 episodes that they had witnessed. In 58.5% of all described episodes, the patient was reported as the aggressor, and in 31.5% the patients' relatives or friends were reported as such.

With respect to the seriousness of the consequences, in all the reported episodes, either as victims or as witnesses, 11.8% were considered serious, 36.5% moderate; and 41.9% slight or very slight.

Only the health service was independent and significantly associated with having been a victim of violence in the previous 12 months. The North and South or South-East health services showed a significant and over 1 adjusted OR when compared to the central-east-west services. The private hospital showed significant adjusted odds ratio when compared to North (OR = 7.2, 95% CI 2.6–19.7) and South-Southeast (OR = 6.2, 95% CI 1.9–20.2) (Table 6). Of note is the

Table 2
Demographic and labor characteristics of the included workers.

Variable	Categories	n*	%
Age (years)	< 30	172	33.9
	30–39	188	37.1
	40–49	82	16.2
	50 or more	65	12.8
	Total	*507*	*100*
Sex	Male	328	62.6
	Female	196	37.4
	Total	*524*	*100*
Last educational level reached	High school or less	61	11.1
	Technical education	247	45.1
	College or graduate	240	43.8
	Total	*548*	*100*
Function in the emergency service	Assistant or technician or paramedic	346	63.8
	Nurse, midwife or kinesiology	121	22.3
	Physician	75	13.8
	Total	*542*	*100*
Satisfaction with work	Little or not satisfied	61	11.4
	Quite or very satisfied	474	88.6
	Total	*535*	*100*
Time worked in the emergency service	Mean: 5.75 years (SD: 6.03), median: 4, interquartile range: 6. Minimum: 2 weeks; maximum: 46 years. 15% more than 10 years Responded by 487 workers.		

* Rates of missing values for these variables were between 3 and 10%, except for the question "time worked in emergency services," which was not answered by 78 (13%) of those surveyed.

Table 3
Perception of the workers about the frequency with which violence episodes occur in their emergency department.

Perceived frequency of violence episodes	n	%	95% CI
At least once a week	382	70.8	66.7–74.5
Two or three times a month	65	12	9.4–15.1
Once a month	36	6.7	4.7–9.1
Less than once a month	42	7.8	5.7–10.4
Never	15	2.8	1.6–4.5
Total	540	100	–

Table 4
Frequency of violence episodes in the previous 12 months in which the respondents were victims and in which they were witnesses.

Role of the respondent	Frequency of physical or verbal violence episodes	n	%	95% confidence interval
Victim	Extremely or very frequent	62	17.5	11.8–20.8
	Frequent	53	15	9.8–18.4
	Not frequent	239	67.5	63.9–75.3
	Total	354	100	–
	Not answering	211	–	–
	Total	*565*	–	–
Witness	Extremely or very frequent	43	13.7	9.0–17.3
	Frequent	33	10.5	7.9–15.3
	Not frequent	238	75.8	69.8–80.4
	Total	314	100	–
	Not answering	251	–	–
	Total	*565*	–	–

Table 5
Aggressor and severity of consequences of the first episode described by the respondents.

Aggressor	n	%	95% Confidence interval
Fellow workmen	11	2.9	1.3–4.8
Superiors or heads	11	2.9	1.3–4.8
Subordinates	4	1.1	0–2.4
Patients or companion	266	70.6	65.6–75.2
Patients' relatives/friends	82	21.8	17.6–26.1
Third party unrelated to the center	3	0.8	0–1.9
Valid Total	377	100.0	–
Not answering	188		
Severity of the consequences			
Serious	34	9.0	6.1–11.9
Moderate	139	36.8	31.7–41.8
Slight	95	25.1	20.9–29.1
Very slight	69	18.3	14.0–22.2
None	41	10.8	7.9–14.0
Valid Total	378	100.0	–
Not answering	187		
Total	*565*		

difference between health services in their workers' perception of being a violence victim.

3.2. Burnout

A description of each MBI component before and after the imputation process is shown in Table 7.

Assessment of internal consistency with Cronbach's alpha resulted as follows. Total scale, alpha = 0.711 (0.698 for the standardized items); emotional exhaustion subscale, alpha = 0.835 (0.837 for the standardized items); depersonalization subscale, alpha = 0.713 (0.714 for the standardized items); and personal accomplishment subscale, alpha = 0.710 (0.718 for the standardized items). These results support the internal consistency and thus the reliability of the instrument for our sample.

Burnout syndrome is diagnosed when emotional exhaustion and depersonalization are high, together with a low level of personal accomplishment. With the 60th percentile and the 30th percentile as cutoffs for high and low levels, respectively, we had 57 respondents with burnout syndrome, or 10.5% of the sample (CI 95% 8.1–13.5).

3.3. Burnout and violence

Emotional exhaustion and depersonalization are significantly higher in those who report having been victims of violence in the previous 12 months, even after adjusting for age, sex, time worked in an emergency service, and overall satisfaction with their work. Personal accomplishment did not show a significant difference (Table 8).

Satisfaction at work is strongly associated with the three components of burnout with adjusted ORs over 3. Having been victims of violence in the previous 12 months was associated to high emotional exhaustion and depersonalization, but not with low personal accomplishment (see Table 9).

4. Discussion

Results depict the incidence and impact of violence episodes in our Metropolitan Region emergency services according to worker's perception also revealing an association of violence with the emergency service geographic location. They also tell us about symptoms of burnout and their possible association with violence and other characteristics.

Stress and violence seem to be the most frequent occupational risks

Table 6
Results of logistic regression to explore independent association of sociodemographic variables with having been a victim of violence in the previous 12 months.

	B coefficient	Significance	Odds Ratio	95% Confidence Interval for Odds Ratio
Age (years)	0.018	0.278	1.018	0.986–1.052
Sex (Male = 1, Female = 0)	−0.193	0.434	0.824	0.509–1.337
Educational level		0.379		
Secondary school or less			1	
Technical education	0.469	0.329	1.598	0.624–4.093
College or graduate	0.711	0.171	2.036	0.735–5.639
Function in the service		0.080		
Assistant, technician, or paramedic			1	
Nurse, midwife or kinesiology	−0.642	0.081	0.526	0.256–1.082
Physician	0.467	0.280	1.596	0.683–3.726
Health service		< 0.0005		
Central, East, West*			1	
North	1.133	0.001	3.105	1.572–6.132
South, South-East*	0.987	0.017	2.683	1.191–6.042
Private hospital	−0.842	0.100	0.431	0.158–1.173
Center complexity (high complexity = 1, low complexity = 0)	0.481	0.223	1.617	0.747–3.503
Time worked in emergency in years	0.036	0.221	1.037	0.979–1.098
Constant	−1.090	0.211	0.336	

* Combinations of health services located nearby due to poor number of participants in some of them.

Table 7
Description of the MBI subscales for the respondent workers before and after the multiple imputation process.

	Sub-scale	N	Minimum	Maximum	Mean	Confidence interval for mean
With original values	Emotional exhaustion	465	9	44	24.6	23.9–25.2
	Depersonalization	472	5	25	11.5	11.1–11.9
	Personal accomplishment	389	8	40	31.5	31.0–32.0
With imputed values*	Emotional exhaustion	539	9	44	24.7	24.1–25.4
	Depersonalization	539	5	25	11.6	11.2–11.9
	Personal accomplishment	539	8	40	31.1	30.7–31.6

* Results of "combined" in the imputation results.

in emergency departments. This is confirmed by studies published in the last ten years from Egypt [11], Lebanon [20], Palestine [40], Pakistan [41], Canada [42], Brazil [18], Australia [43], Nigeria [44], China [26,45], Italy [46], Israel [47], Cyprus [48], Belgium [49], and the United States [16,50].

We could not obtain the originally designed sample of the Metropolitan Region, but we had the answers of 565 workers after inviting all centers with emergency services, private and public. Our sample is nevertheless comparable to that of other studies with similar objectives in other countries with respect to age, gender and function distributions. Age distribution of participants in our study is like that found in Colorado (United States) [19], Lebanon [20], Vancouver (Canada) [14], Iran [10], Murcia (Spain) [51], Cyprus [48], Tunisia [52], Beijing (China) [53], Nigeria [44], Ireland [12][54], and Israel [47]. A comparable sex distribution, showing a predominance of men, was also found in Lebanon [20], Pakistan [21], and Palestine [13]. The distribution of workers according to their function in the department, was like ours in Colorado (United States) [19], Tunisia [52], and Michigan/Cincinnati (United States) [55]. Similarities between our sample ant those of studies in different countries support the external validity of our investigation despite the confronted organizational difficulties.

4.1. Violence

Over 70% of the surveyed emergency workers reported having been victims of violence in the previous twelve months. Similar figures report other studies in emergency departments around the world [19,21,40,42,48]. Violence directed at health workers, seems to have increased in the last two decades, and emergency services are among those mostly affected [56,57]. In 2007, Ray [58], showed a worrisome landscape concerning violence in emergency departments in the United States; she focuses on nurses, but she recognizes other emergency workers are at risk as well. More recent studies find high incidence of violent episodes in emergency wards all over the world [19,29,40,48,56,59].

Only 12% of our respondents considered the consequences of the violent episodes as serious. The frequency of severe violent incidents does not exceed 20% in many studies, [16,18,21,47,48,60]. A review of the literature in this respect, published in 2014, concludes that verbal attacks are the most common type of violence [22]. A study carried out in 65 emergency departments across the United States found that 73% of the surveyed workers felt safe always or most of the time [50].

More than 90% of our respondents found that the aggressor or perpetrator of the violent episode, was the patient or some of his or her relatives or friends. This result coincides with many other studies [16,18,19,21,40,42,44,47,48,60,61].

Regarding variables related to violence, only the health service, probably due to its geographic location, was significantly and independently associated with having been victims of violence in the previous year. It is worth to say that geographic location accounts for socioeconomic differences in Chile that could help to understand this finding; north and south locations are in a lower socioeconomic position. Some studies report an association between violence and occupation or function [19–21,40,47], a fact not found in our study after adjustment for other factors.

4.2. Burnout

Emergency services are among the most affected by stress of occupational origin in health systems [25,54,62]. Many stressors have been reported for emergency departments, where care is given to persons needing urgent attention and where violent circumstances easily arise [4,63].

Occupational stress generates psychological reactions in workers, that may lead to the burnout syndrome [37]; we found 10.5% emergency workers that could be classified as presenting burnout. The prevalence of burnout has been studied in workers of emergency departments in several countries [9–13,35,45,51,64]. However, comparisons between studies are challenging because of differences in the questionnaire's items, cutoff points and definition. This could be a reason for large variations in burnout prevalence rates, that go from under 5% reported in Germany [65] and Spain [51] to over 20% reported in Egypt [11] or China [45].

Several studies consider the causes of burnout syndrome in emergency services [4,10,66]. Our study was not designed to examine the causes of burnout; nevertheless, after adjustment for other potential confounders, results show a positive and significant association between satisfaction with work and all three components of burnout, in agreement with other authors [29,45].

The relation between burnout or its components and violence in emergency services has also been explored [13,20,29,30,41]. Violence episodes could cause stress, but it is also possible that reactions emerging from stress may trigger violence. This is what Magnavita calls a

Table 8
Means of MBI subscales and mean differences between those who were and were not victims of violence in the previous 12 months.

Burnout components	Victims of violence in the previous 12 months		Difference of means	Adjusted difference of means	95% confidence interval for mean differences	Adjusted 95% confidence interval for mean differences*
	Yes	No				
Emotional exhaustion	25.8	22.0	3.7	3.2	2.4–5.0	1.9–4.6
Depersonalization	12.2	9.9	2.3	2.1	1.5–3.2	1.2–3.0
Personal accomplishment	30.9	31.6	−0.7	−0.8	−1.7 to 0.3	−1.9 to 0.2

* Adjusted for age, sex, time worked in an emergency service, and overall satisfaction with their work.

Table 9
Results of the logistic regression to explore the independent association of sociodemographic variables and dimensions of the burnout.

	B	P value	Odds ratio	95% Confidence interval for Odds ratio.	
*Emotional exhaustion (high = 1)**					
Satisfaction with work (1 = little or not satisfied, 0 = quite or very satisfied)	1.896	< 0.0005	6.662	3.248	13.668
Victim of violence in the previous 12 months (1 = yes, 0 = no)	0.546	0.023	1.726	1.077	2.766
Time worked in emergency services (1 = < 5 years, 2 = 5 or more years)	−0.018	0.942	0.982	0.599	1.61
Sex (1 Male, 0 Female)	0.122	0.569	1.13	0.743	1.718
Age in years	−0.01	0.441	0.99	0.965	1.016
Constant	−0.79	0.083	0.454	0.186	1.108
*Depersonalization (high = 1)**					
Satisfaction with work (1 = little or not satisfied, 0 = quite or very satisfied)	1.272	< 0.0005	3.568	1.832	6.95
Victim of violence in the previous 12 months (1 = yes)	0.712	0.003	2.037	1.272	3.264
Time worked in emergency services (1 = < 5 years, 2 = 5 or more years)	0.327	0.197	1.387	0.844	2.278
Sex (1 Male, 0 Female)	−0.056	0.786	0.945	0.629	1.42
Age in years	−0.026	0.047	0.974	0.949	1.00
Constant	−0.625	0.158	0.535	0.225	1.274
*Personal accomplishment (low = 1)**					
Satisfaction with work (1 = little or not satisfied, 0 = quite or very satisfied)	1.381	< 0.0005	3.978	2.049	7.726
Victim of violence in the previous 12 months (1 = yes, 0 = no)	0.337	0.195	1.401	0.841	2.334
Time worked in emergency services (1 = < 5 years, 2 = 5 or more years)	0.189	0.528	1.208	0.667	2.186
Sex (1 Male, 0 Female)	−0.011	0.96	0.989	0.63	1.551
Age in years	0.005	0.716	1.005	0.977	1.034
Constant	−1.739	< 0.0005	0.176	0.068	0.457

Note: No multicollinearity problems found after exploration.
* Values above the 60th percentile were considered *high* for emotional exhaustion and depersonalization; values below the 30th percentile were considered *low* for personal accomplishment.

chicken-egg situation [28]. Miret and Martínez-Larrea maintain that a worker with high levels of stress constitutes a good substrate for the development of violence episodes, pointing out that "the consequences of professional wear and of violence towards professionals overlap and enhance each other…"[67]. We found an unequivocal relation between having been a victim of violence and the presence of high levels of two of the components of burnout, but the cross-sectional nature of our study (meaning we do not have any baseline information about burnout in these workers) precludes any causal pronouncement.

5. Future implications

In presence of scarce quantitative information about violence and stress in Chilean public emergency services, our results should be of great utility for health authorities. The burnout/violence independent association and the association of work satisfaction with all three burnout components should support the hypothesis that improving work satisfaction could also favor a decrease in violence in the long run. Multivariate studies should be carried out to disentangle relations of violence, burnout, work satisfaction and other variables thus contributing to select the optimum control strategies.

Future studies in Chile will need higher commitment from the health authorities allowing for a probability sample of urgency services in any region, or the whole country. Otherwise, it is difficult to obtain a holistic panorama of the problem in Chile or its regions thus hindering the right path towards its partial or total solution.

5.1. Limitations

Our study evaluates violence through perceptions of the workers in a voluntary self-reported questionnaire. Those who accept might be related to violence and/or stress more than would be expected. Representativeness of all the emergency services workforce cannot be guaranteed, especially concerning the private health care clinics in Chile's Metropolitan Region. This circumstance clearly affects the aspiration of obtaining a sound representation of the situation in all our emergency facilities.

Another limitation arises from the self-administered questionnaire itself. Some questions, like the one asking for the severity of consequences of the violent episodes, are especially prone to subjectivity. We also did not pilot the survey for validity or reliability though the way it was generated could support content validity.

6. Conclusions

Violence episodes in Chile's public emergency services are as frequent and critical as in other parts of the world. There are differences in frequency according to neighborhood. Burnout is present at a medium level. All three components of burnout are related to work satisfaction; depersonalization and emotional exhaustion are related to violence as well. These latter appreciations could indicate that violence control cannot only rely in safety measures. More studies are needed on this issue.

Ethical statement

After signing the informed consent, participants had access to the questionnaire. The anonymity of each questionnaire was guaranteed. The project was approved by the Scientific Ethics Committee of the *Mutual de Seguridad* accredited in Chile, on February 1, 2016.

Funding source

This work was supported by the Asociación Chilena de Seguridad (ACHS-0184-2015) through its Scientific and Technological Foundation (FUCYT).

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

We thank the Asociación Chilena de Seguridad (ACHS-0184-2015) for financial support. We specially thank Ms. Sandra Herrera, from ACHS, for her help in gaining access to the Worker's Hospital. We thank

the unions that helped us by disseminating this study among their affiliates and encouraging participation.

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