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Research Article

Burnout Syndrome and Stress Coping in Healthcare Workers in COVID-19 Era

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Abstract

The COVID-19 pandemic has generated a high percentage of mental problems in health workers community. We describe the different strategies for stress coping and their relationship with the prevalence of burnout syndrome in healthcare workers. An electronic survey was done by using the brief COPE 28 and the Malasch Burnout Inventory (MBI) used by health workers. 197 workers were surveyed, the majority were women (80.6%) between 30 and 39 years old (27.2%), 88.6% had direct contact with COVID-19 patients. 39.1% had high emotional exhaustion, 23.4% high depersonalization and 34.0% low personal accomplishment; 9.6% had burnout syndrome. Workers older than 30, had lower prevalence of burnout than those between 20 and 29 years old. Workers with burnout presented less coping focused on problems (0.8 ± 0.4) and more focused on

emotion (1.2 ± 0.3). Active coping, positive reframing and acceptance, were associated with a lower prevalence of burnout.

Keywords: Burnout syndrome; Stress coping; COVID-19; Health workers

1. Introduction

In December 2019, the emergence of a novel coronavirus in Wuhan, China, has made a new disease nominated COVID-19, resulting in a pandemic affecting more than 200 countries in a short term [1]. This pandemic produced a critical situation to all health care systems and care professionals who had taken difficult decisions and worked under a high stress charge. This leaded to a high percentage of mental health disorders in healthcare workers [2]. It has been reported symptoms like depression, anxiety and insomnia in doctors and nurses of hospitals with COVID -19 patients [3]. In the same way, high levels of stress were described in 2.2 to 14.5 % of health [4].

The intensity of psychology symptoms is related with age, gender, profession, and medical specialty, type of activity and direct management of COVID -19 patients [4]. On the other hand, it has been documented some possible protective factors of mental health in health workers in context of another outbreak virus; among the most important were a sharing clear information by part of healthcare managers, access to an individual protection equipment, enough rest, partnership support and psychology professional support.

The Burnout syndrome is related to an emotional, physical and mental exhaustion of a health worker because of stress that arises from social interaction and work routine. This is a risk factor that could affect quality of life, mental health and even it could be a vital risk [5]. Stress is reflected when a subject environment perception is perceived like exhausting or exceeds own resources. Strategies for adjusting to unusual demands, or stressors (coping) are related to internal and external effort to front facing environment inputs with the focus on the evaluation of the own resources and its interaction with the environment resulting in interpersonal differences [6, 7].

It is known that stress and its effects over time are important for the health and well-being of health workers, directly impacting the efficiency of the health system [5], therefore, we consider important to study its elements and the mechanisms of its coping during a health crisis. This study aims to describe the differences of coping strategies and their relation with the prevalence of Burnout syndrome in health workers during COVID-19 pandemic.

2. Materials and Methods

2.1 Study design

We performed a descriptive, prospective and transversal study to describe the strategies of stress coping and their association with labor emotional impairment in health workers of a hospital of Catalunya, Spain from April to July 2020.

2.2 Variables

The main variables of interest were the stress coping strategies, which were identified through the COPE 28 scale (Spanish version of Carver's Brief COPE, 1997), which is a brief version of the COPE inventory

developed by [8], a multidimensional survey developed to evaluate the different ways of coping with stress. The survey consists of 28 items corresponding to 14 dimensions, 12 of them grouped into 3 factors [9]: problem- focused coping (in our study it included 2 active coping items, 2 planning items, 2 use items instrumental support and 2 emotional support items, 2 positive reframing items, 2 acceptance items), emotion-focused coping (2 self-distraction items, 2 venting items, 2 Behavioral disengagement items, 2 denial items, 2 self- blaming items), search for transcendence (2 religion items and 1 humor item), leaving 2 substance use items and 1 humor item ungrouped. The items use an ordinal scale of 4 alternatives (0 to 3) from “I never do this” to “I always do this”. The virtue of the survey lies in being short and easy to apply with high consistency; the Spanish version was adapted by Morán et al. (2010) [10].

On the other hand, the Maslach Burnout Inventory (MBI) survey was used, which assesses the degree of burnout of the workforce and measures 3 dimensions (emotional exhaustion, depersonalization and personal accomplishment through 22 items that use an ordinal scale (0 to 6) from "never" to "daily", and is adapted into Spanish by Gil-Monte (2005) [11].

2.3 Procedures

Data collection was carried out from April to July 2020 through an electronic survey. A virtual questionnaire was sent by email to the hospital health personnel using the LimeSurvey platform, a free software for conducting an online survey. The surveys were anonymous, separating the personal data and emails of the participants from the data they provided. The data of the health personnel were used only by the researchers to send the electronic link of the survey.

The survey consisted of 4 sections, the first one evaluated the selection criteria, informed consent, previous diagnosis of a mental illness and profession; the second section evaluated sociodemographic variables such as sex, marital status, coexistence, level of exposure to COVID-19 patients, number of working hours per week. The third section was the COPE 28 questionnaire to assess coping with stress, and the fourth section was the BMI to assess Burnout syndrome.

2.4 Statistic analysis

During this process, the database was used without identification of participants. The prevalence of the sociodemographic categorical variables and for each category of the Burnout syndrome dimensions was calculated. The standard deviation, median and interquartile range of the scores of each dimension of stress coping and the scores of problem-focused coping, emotion-focused coping and the search for transcendence were also reported.

For the bivariate analysis, the association between the sociodemographic variables sex, age, profession, work area, emotional exhaustion, depersonalization, personal accomplishment and Burnout syndrome was evaluated with each of the three scores of problem-focused coping, emotion-focused coping and search for transcendence. For this, Student's t tests were used for the association with gender and Burnout syndrome, and ANOVA or Kruskall Wallis tests for the rest of the covariates.

In addition, a bivariate analysis was performed to evaluate the association between the sociodemographic variables and each of the 14 dimensions of stress coping with the Burnout syndrome. Chi-square tests or Fisher's exact test were performed to evaluate the association with sociodemographic variables, and Student t test was used for the scores of the stress coping dimensions. Finally, prevalence ratios (PR) with their 95% confidence interval (95% CI) were calculated using Poisson regression with robust variances with Stata v16 statistical software (STATA Corporation, College Station, Texas, USA); *p* values less than 0.05 were considered significant.

3. Results

347 workers were surveyed, but 150 (43.2%) were excluded because they had not responded completely questions on Burnout syndrome or stress coping surveys.

Variables	***n (%)***
Female	158 (80.6)
Age	
20-29 años	35 (18.0)
30-39 años	53 (27.2)
40-49 años	49 (25.1)
50-59 años	43 (22.1)
60 a más años	15 (7.7)
Número of childrens*	2 (1-2)
Life alone	27 (14.2)
People with COVID-19 at home	18 (9.4)
Contact with people with COVID-19	171 (88.6)
Profession	
Doctor	79 (40.1)
Nursing	67 (34.0)
Nursing auxiliary	17 (8.6)
Administrative	5 (2.5)
Others	29 (14.7)
Resident doctors	16 (8.1)
Work área	
Emergency	29 (15.0)
Floor	52 (26.8)
Critical care	50 (25.8)
Others	63 (32.5)
Quarentine in COVID era	26 (13.3)
Telematic work	54 (27.6)
Previous health mental consult	23 (11.7)

Low work by health mental	3 (1.6)
Requested for mental health support	12 (6.3)
Participated in mental health grupal sessions	67 (34.2)
* Median and interquartile range	

Table 1: Sociodemographic variables of health workers (*n* = 197).

Most of workers were women (80.6%), from 30 to 39 years old (27.2%), who did not live alone (85.8%), and who had had contact with COVID-19 people (88.6%). Most were physicians (40.1%) or nurses (34.0%).

Regarding mental health, 34.2% participated in group sessions of emotional support at the hospital, 11.7% had had a prior consultation for mental health, 6.3% requested mental support during the pandemic, and 1.6% requested mental health leave (Table 1).

The mean and median of the scores of the 14 dimensions of stress coping are presented in table 2. On average, the average scores of problem-focused coping is 0.9 ± 0.4, that of emotion- focused coping is 1.0 ± 0.3 , and in the search for transcendence it is 0.8 ± 0.6. In the dimensions of Burnout syndrome, 39.1% had high emotional exhaustion, 23.4% had high depersonalization and 34.0% had low personal accomplishment. Finally, 9.6% of those surveyed met the diagnosis of Burnout syndrome.

Variable	**Media ± SD**	**Mediane (*IQR*)**
Stress coping dimensions		
Active coping	4.3 ± 1.1	4 (4-5)
Planning	4.0 ± 1.1	4 (3-5)
Emotional support	3.4 ± 1.4	3 (2-4)
Instrumental support	3.2 ± 1.3	3 (2-4)
Religion	1.0 ± 1.5	0 (0-2)
Positive reframing	3.4 ± 1.2	3 (3-4)
Acceptance	4.7 ± 1.0	5 (4-5)
Denial	0.9 ± 1.0	1 (0-2)
Humor	2.4 ± 1.7	2 (1-4)
Self-distraction	3.6 ± 1.2	4 (3-4)
Self-blaming	2.2 ± 1.2	2 (1-3)
Behavioral disengagement	1.0 ± 1.0	1 (0-2)
Venting	2.6 ± 1.2	3 (2-3)
Substance use	0.6 ± 1.1	0 (0-1)
Problem-focused coping	0.9 ± 0.4	0.7 (0.9-1.2)

Emotional-focused coping	1.0 ± 0.3	1.0 (0.8-1.2)
Search for transcendence	0.8 ± 0.6	0.7 (0.3-1.0)
Emotional exhaustion*		
Low	75	38.1
Moderate	45	22.8
High	77	39.1
Depersonalization*		
Low	119	60.4
Moderate	32	16.2
High	46	23.4
Personal accomplishment*		
Low	67	34.0
Moderate	72	36.6
High	58	29.4
Burnout syndrome*	19	9.6

SD: standard deviation; IQR: Interquartile range; *: Absolute and relative frequency

Table 2: Coping with stress and the dimensions of burnout syndrome in workers.

In the bivariate analysis, workers with low personal accomplishment have a lower mean score for problem-focused coping (0.8 ± 0.3) compared to those with medium (1.0 ± 0.3) and high (1.1 ± 0.4) personal accomplishment (p value <0.001). On the other hand, older workers (0.9 ± 0.3) and those with low emotional exhaustion (0.9 ± 0.3) have a lower score for emotion-focused coping, compared to those who are younger (1.2 ± 0.3; p value = 0.026) and with those with high emotional exhaustion (1.1 ± 0.3; p = 0.002), respectively. Whereas, those with high emotional exhaustion have a higher transcendence search score (2.3 ± 0.4) compared to those with low emotional exhaustion (2.1 ± 0.3; p = 0.036). In addition, workers who met criteria for Burnout syndrome had lower problem-focused coping scores (0.8 ± 0.4) and higher emotion-focused coping scores (1.2 ± 0.3) compared to those who did not meet criteria for Burnout syndrome. Burnout (p = 0.015 and p = 0.021, respectively). The significance search score was not associated with any evaluated variable.

Age range is the only sociodemographic variable associated with Burnout syndrome. Considering the age groups, workers who are between 50 to 59 years old, 40 to 49 years old, and 30 to 39 years old, have 92%, 79% and 67% lower prevalence of Burnout syndrome, respectively, compared to workers in 20 to 29 years (Table 3). Within the stress coping strategies, a higher score in active coping, in positive reframing and in acceptance, decreases the prevalence of Burnout syndrome, while a higher score in behavioral disengagement and substance use, the prevalence of burnout syndrome increases. The rest of the stress

coping dimensions were not associated with the outcome (Table 4).

Variable	**Burnout syndrome *n* (%)**		***P***	***PR***	***CI 95%***
	No	**Yes**			
Sex			0.676*		
Female	142 (89.9)	16 (10.1)		ref.	
Mascle	35 (92.1)	3 (7.9)		0.78	0.24-2.55
Age range			**0.002****		
20-29 years	25 (71.4)	10 (28.6)		ref.	
30-39 years	48 (90.6)	5 (9.4)		0.33	**0.12-0.89**
40-49 years	46 (93.9)	3 (6.1)		0.21	**0.06-0.72**
50-59 years	42 (97.7)	1 (2.3)		0.08	**0.01-0.61**
> 60 years	15 (100)	0 (0)		NA	NA
Live alone			0.368*		
No	148 (90.8)	15 (9.2)		ref.	
Yes	23 (85.2)	4 (14.8)		1.61	0.58-4.50
People with COVID-19 at home r			0.312*		
No	158 (90.8)	16 (9.2)		ref.	
Yes	15 (83.3)	3 (16.7)		1.81	0.58-5.65
Contact with people with COVID-19			0.375*		
No	21 (95.5)	1 (4.5)		ref.	
Yes	153 (89.5)	18 (10.5)		2.32	0.32-16.6
Profession			0.284**		
Doctor	69 (87.3)	10 (12.7)		ref.	
Nursing	60 (89.6)	7 (10.4)		0.83	0.33-2.05
Nursing auxiliary	15 (88.2)	2 (11.8)		0.92	0.22-3.88
Administrative	5 (100.0)	0 (0)		NA	NA
Others	29 (100.0)	0 (0)		NA	NA
Quarentine in COVID era			0.279*		
No	152 (89.4)	18 (10.6)		ref.	
Yes	25 (96.2)	1 (3.8)		0.36	0.50-2.62
Previous health mental consult			0.863*		
No	156 (90.2)	17 (9.8)		ref.	
Yes	21 (91.3)	2 (8.7)		0.88	0.22-3.60
Requested for mental health support			0.851*		

No	162 (90.0)	18 (10.0)		ref.	
Yes	11 (91.7)	1 (8.3)		0.83	0.12-5.75
Participated in mental health grupal sessions			0.797*		
No	117 (90.7)	12 (9.3)		ref.	
Yes	60 (89.6)	7 (10.4)		1.12	0.46-2.73

* Chi-square test; ** Fisher's exact test; NA: Not applicable due to null values; PR: Bivariate prevalence ratio

Table 3: Sociodemographic variables and Burnout syndrome.

Dimensions of stress coping	**Burnout syndrome; media ± *SD***		***p****	***RPc***	***CI* 95%**
	No	**Yes**			
Active coping	4.4± 1.0	3.5 ± 1.2	**0.001**	**0.55**	**0.39-0.77**
Planning	4.0 ± 1.0	3.4 ± 1.7	0.138	0.65	0.41-1.03
Emotional support	3.4 ± 1.4	3.4 ± 1.4	0.936	1.01	0.76-1.35
Instrumental support	3.1 ± 1.3	3.4 ± 1.3	0.466	1.13	0.81-1.57
Religion	1.0 ± 1.5	0.9 ± 1.9	0.827	0.97	0.67-1.39
Positive reframing	3.5 ± 1.2	2.6 ± 1.5	**0.003**	**0.59**	**0.39-0.89**
Acceptance	4.8 ± 1.0	4.2 ± 1.2	**0.014**	**0.61**	**0.41-0.91**
Denial	0.9 ± 1.1	0.8 ± 0.9	0.945	0.99	0.69-1.41
Humor	2.4 ± 1.7	2.5 ± 2.1	0.728	1.04	0.78-1.40
Self-distraction	3.6 ± 1.2	4.0 ± 1.3	0.196	1.25	0.88-1.78
Self-blaming	2.1 ± 1.1	2.6 ± 1.5	0.085	1.34	0.93-1.92
Behavioral disengagement	1.0 ± 1.0	1.6 ± 1.2	**0.012**	**1.64**	**1.09-1.48**
Venting	2.6 ± 1.2	2.8 ± 1.1	0.229	1.21	0.87-1.68
Substance use	0.5 ± 1.1	1.2 ± 1.5	0.082	**1.35**	**1.07-1.70**

*: P-value with Student's t test; SD: standard deviation; RPc: Crude prevalence ratio

Table 4: Association between dimensions of stress coping and burnout syndrome.

4. Discussion

During the pandemic, high rates of burnout have been found in healthcare workers [12-14], similar to our study (9.6%). Furthermore, we report a high prevalence of its components: emotional exhaustion (39.1%), low personal accomplishment (34%) and high depersonalization (23.4%); the first being the most important manifestation [15-17]) according to the MBI inventory [18]. This could be due to the sequential link of the emotional exhaustion subscale with depersonalization and the subsequent development of low personal [15]. Given that Burnout

syndrome is a response to prolonged stressors, these results could be due to the fact that, during the pandemic, at the beginning, health personnel experienced a sensation of overexertion and depletion of their own emotional resources; then, given the persistence of the stressor (care pressure, among others), in some of the cases, this could lead to distant cognitive affective attitudes (depersonalization), subsequently leading to feelings of ineffectiveness and loss of confidence in personal and work accomplishment, generating an unfavorable self-evaluation that would affect work ability (low personal accomplishment) [15, 19].

Analyzing the three components of Burnout syndrome and the three subgroups of stress coping strategies, we observed that workers with low personal accomplishment have used problem-focused coping less frequently. According to our results, we believe that the use of coping strategies directly focused on the problem would favor a more active and directed approach towards the stressor, favoring a greater sense of confidence and self-efficiency, promoting a more favorable self-evaluation of their achievements and, therefore, personal accomplishment [20].

Likewise, we observed that older people with low emotional exhaustion have used less coping focused on emotions, compared to younger people and those with greater emotional exhaustion. Emotional coping strategies would act as a protection mechanism to reduce or avoid emotional suffering [9]; However, some of these escapist-avoidance strategies (the "disengagement" from the stressor) without a problem-directed approach, would reduce the ability to cope with a situation through their own and / or external resources, generating emotional exhaustion [21, 22]. This could indicate that coping focused on emotion would reduce the perception of control of the stressor, an important factor since it helps to reduce the prevalence of Burnout syndrome [23].

The higher prevalence of Burnout syndrome in younger people was also found in other studies such as Maslach et al and Elbay et al, [24] and also it has been presented a higher risk of emotional exhaustion [25] in this group of age. Younger people are likely to use problem-focused coping less frequently, which can make them lose a sense of control, making it difficult to use adequate emotional and cognitive resources. The feeling of lack of control is a stressor especially for the student population or those who are in the process of training [26]. This fact may be related to the difficulty in discerning the most effective and appropriate coping according to the situational and personal context, and may be related to the accumulated experience [15]. On the other hand, it is also taken into account that the feeling of personal achievement is favored as one advances in the professional and / or work environment [25].

The results have also indicated that people with high emotional exhaustion use the search for transcendence more compared to those with low emotional exhaustion. The situation itself has been able to activate the search for a deep meaning that gives meaning to existence [27]. Although our study does not allow us to determine causality or directionality relationships, we consider that the use of religion and spirituality, if given from a compassionate approach, can contribute to the ability to cope with stressors, both personal and collective [28].

Regarding the personnel who met the criteria for Burnout syndrome, we found that they used emotion-focused coping more frequently and problem-focused coping less frequently. Our findings suggest a possible positive relationship between the use of emotion-focused strategies such as those aimed at escape-avoidance and the Burnout syndrome already described by other authors [22]. It has been described that strategies focused on emotion are not effective to avoid emotional exhaustion, under the implicit assumption that being avoidance strategies focused on emotion do not generate effective means for stress management [20]; leading to the depletion of one's own resources, resulting in the feeling of overexertion and greater emotional exhaustion [22]. On the other hand, the direct and active approach directed at the stressor would lead to a greater perception of control and decrease the risk of burnout [23].

In our study, we observed that certain emotional coping strategies, such as behavioral disengagement and substance use, increase the prevalence of Burnout syndrome. These results corroborate that the Burnout syndrome has an impact on the health of professionals associating greater substance use [13, 25].

In this work we were able to objectify that the use of some strategies aimed at managing the problem [9]: active coping, positive reframing and acceptance [29], is related to a lower prevalence of the syndrome of Burnout. We understand active coping as an active and direct strategy that encourages the search for a solution through one's own efforts and personal resources to eliminate or reduce the stressor. The positive reframing would suppose an active - cognitive strategy aimed at refocusing the problem, looking for the favorable part of the situation that helps in personal improvement or growth. Finally, acceptance would suppose a non-avoidant cognitive strategy of the situation that can favor facing reality itself.

Finally, we emphasize that psychological interventions should focus on the active and direct approach to the stressor [30], promoting optimal coping strategies that help promote a sense of control to deal with the situation in a preventive way when burnout of the healthcare professional [23, 31]. Within the limitations of our study, we cannot identify causal relationships or establish directionality of the observed associations and we cannot distinguish the pre-existing psychological condition of the personnel, so a longitudinal follow-up and the development of studies with other designs to contrast our studies would be justifiable. results.

5. Conclusion

- The group of health workers included in this study presented high levels of emotional exhaustion, low levels of personal accomplishment, conditioning in some of them the development of Burnout syndrome, which affects young people more frequently.
- Direct coping and proper orientation of emotional management should be promoted in younger staff. The older population is less likely to present greater emotional exhaustion.
- Active coping with the problem could contribute positively to the personal accomplishment of health personnel and less emotional exhaustion.

- We recommend promoting the acceptance of the critical circumstance, its positive reframing and an active role as the main strategies for coping with stress during the pandemic or another straining situation.

Authorship Contributions

All authors participated in the approach to the study topic. VAVM carried out the procedures to obtain the data. CAAR performed the statistical analysis. All authors participated in the writing of the manuscript and approved its final version.

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Conflicts of Interest

The authors declare that they have no conflicts of interest with respect to this study.

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