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Research Article

Factors Associated with Anxiety Disorders among Healthcare Workers (HCWS) Involved in the Health Crisis COVID 19

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Abstract

This study aims to assess the prevalence of anxiety disorders in healthcare workers (HCWs) by COVID-19 sectors and to investigate medical, personal, and occupational factors associated with anxiety disorder among.

In France, in May 2020, a monocentric observational cross-sectional study was proposed to 285 HCWs of the University Hospital of Saint-Etienne, working in 3 types of randomly selected care services. Information was collected using an anonymous self-questionnaire offered to eligible HCWs. Validated questionnaires were used to assess anxiety (Hospital anxiety and Depression Scale) and burnout (Maslach Burnout Inventory).

Of the 164 HCWs who participated in the study (57% participation rate), 69 (42%) caregivers had anxious symptomatology. The prevalence of anxiety disorders did not differ significantly by type of service. Anxiety disorders are significantly associated with occupational factors (increased COVID-19 stress level, increased emotional load, increased mental load, high work/life stress during confinement, emotional exhaustion and loss of empathy), with medical factors (medical history of anxiety disorders, psychotropic treatment and impaired sleep quality) and personal factors (concern about working conditions and/or media reports).

Preventive actions focusing on organizational factors could be carried out to reduce the emotional and mental load, the level of stress and the burnout of HCWs.

Keywords: *COVID 19 and Mental Health; Occupational Stress; Burnout; Employee Mental Health*

Introduction

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by the novel coronavirus (SARS-Cov2) for which the majority of the population is not immune [1]. The ongoing coronavirus threat that emerged in China has rapidly spread to other countries and has been declared as a global health emergency by the World Health Organization (WHO) and is responsible for a large number of deaths [2]. The WHO formally declared the novel coronavirus severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) out-break a pandemic on 11 March 2020 with the publication of public health guidelines to guide the pandemic response [3]. To reduce the risk of person-to-person viral transmission during the COVID-19 pandemic, the French government introduced various measures including 'lockdown' on

17 March 2020 to May 11, 2020 with 'social distancing' and 'self-isolation' strategies and has implemented numerous measures, including quarantines, reducing the use of public transportation and temporarily cancelling work and school, to control this disease. People were only allowed to leave their homes for proven necessities, such as health reasons and basic necessities and to work for those who could not work at home [4]. The scientific and medical community has been mobilized for several months to reduce the spread of this virus and prevention strategies have been implemented to reduce the prevalence of COVID-19 infection and its lethality: screening of COVID-19 suspects, search for vaccines, search for preventive drug treatment, curative drug treatment [1]. The COVID-19 pandemic is the source of potential exposure of caregivers to the COVID-19 infectious risk in the course of their professional activity [5]. Difficulty in applying preventive measures (wearing personal preventive equipment, barrier gestures, social distancing) in the workplace, the presence of personal or family medical factors of fragility with regard to the SARS-CoV-2 virus may increase the concern of caregivers about contracting this infection [6]. The need to reorganize care activities to support the optimal management of COVID-19 infected patients can lead to increased mental, physical and emotional demands on caregivers [7]. Previous studies showed that health professionals are particularly at high risk of developing mental health problems during health crisis COVID 19 [8].

In this context of reorganization of the activity, of increase of the psychological, emotional and physical constraints of the nursing staff, an increase of the anxiety disorders could occur.

Is the prevalence of anxiety disorders associated to the intensity of SARS-CoV-2 exposure in HCWs? Studies exploring the prevalence of anxiety among HCWs during the COVID-19 outbreak in France are limited [9,10].

Objective of the Study

The objectives of this study were to assess the prevalence of anxiety disorders in healthcare workers [HCWs] by sectors with and without patients infected with SARS-CoV-2 and to investigate medical, personal, and occupational factors associated with anxiety disorder among. We felt it important to explore the risk factors associated with anxiety disorders in HCWs by distinguishing sectors with and without patients infected with SARS-CoV-2 in order to provide evidence to support an appropriate intervention program.

Materials and Methods

The study design was a cross-sectional questionnaire survey.

Sample

To date (May 27th, 2020), there have been 5.701.337 confirmed cased of COVID-19 worldwide, from which 357.688 people have died [11]. In France between March 1st, 2020 and May 18th, there have been 98.853 confirmed cases of COVID-19, from which 98.853 inpatients and 27.834 people have died. The data have been collected from 6 May to 26 May 2020. During the study period, the healthcare institutions were actively involved in the care of COVID-19 patients; The target population was HCWs from University Hospital of Saint-Etienne working. HCWs, including physicians, surgeons, midwives, medical residents, nurses, auxiliary nurses, and pediatric auxiliary nurses, included in three types of wards by COVID-19 sectors were invited to voluntarily participate in the self-administered online survey. Eligible subjects received clear and comprehensible information on study objectives and procedure, and were free to decline participation. Approval by ethics committee was obtained before starting the study.

Study sample

Departments from University Hospital of Saint-Etienne were randomly sampled from each type of wards by COVID-19 sectors COVID-19 wards with dedicated HCWs (Type 1), mixed wards with COVID-19 sectors (Type 2) and COVID-19 free sectors (Type 3), and all HCWs in these departments were asked to participate in this study. The eligible HCW were contacted via their email address. Those who

are off work or on leave at the time of inclusion in the study were not involved in the survey. The participants answered an online questionnaire via the lime survey software.

Measurements

We developed a self-questionnaire to collect data on demographic, occupational and medical characteristics. The duration of the questionnaire was approximately 10 minutes.

The main endpoint (anxiety disorders) was assessed on the validated French version of the Hospital Anxiety and Depression Scale (HAD) [12]. The "Anxiety" dimensions are rated on 3 level: no symptoms (score ≤ 7), doubtful (8 - 10), and certain (≥ 11). Cut-off points to 8 were classified as clinical signs suggestive of anxiety disorders.

The self-administered questionnaire covered 3 areas.

Sociodemographic: Gender, age, number of children in the household.

Occupational: Occupational groups, work share, type of wards by COVID-19 sectors, self- estimated level exposure to COVID-19, increase of working load, of mental burden or of emotional burden were researched. Perceived stress related to personal life or to occupational life before and during the lockdown were assessed on a visual analogue scale (VAS) [13]. Cut-off points to 7 were classified as clinical signs suggestive of stress. Maslach and Jackson's Burnout Inventory is one of the descriptive models, assessing psychological impact at work in terms of the consequences of chronic stress [14]. The burnout was assessed on the French version of the Maslach Burnout Inventory (MBI) [14].

The 3 score dimensions are assessed independently.

Emotional exhaustion: questions 1, 2, 3, 6, 8, 13, 14, 16, 20.

Here, burnout is mild for total score ≤17, moderate for 18-29 and severe for ≥ 30.

Loss of empathy or depersonalization: questions 5, 10, 11, 15, 22.

Here, burnout is mild for total score ≤5, moderate for 6-11 and severe for ≥ 12.

Personal accomplishment: questions 4, 7, 9, 12, 17, 18, 19, 21.

Medical: Previous anxiety disorders, intake of psychotropic treatment, psychological follow-up, change in frequency of physical activity, change in alcohol consumption, change in smoking consumption, quality of sleep, infection by virus SARS-CoV-2, concerns related to the risk of infection, concerns about a personal health situation, concerns about a loved one's health situation, concerns about work conditions, concerns related to information transmitted by the media, concerns about the end of the lockdown.

Analysis

A descriptive analysis was made of the sample's sociodemographic, occupational and medical characteristics.

Then an univariate analysis assessed the association between anxiety disorders and sociodemographic, occupational and medical factors. Chi^2 and Fisher tests were applied as appropriate. The significance threshold was set at 5%. Variables significantly associated with anxiety disorders were introduced into a stepwise logistic regression model. Variables with p- value ≤ 0.1 were included in the multivariate model on a descending procedure, and variables with p-value < 0.05 were kept in the model. Analyses used SAS 9.4 software.

Results

Description of sociodemographic, occupational and medical characteristics (Table 1 and 2)

164 of the 285 eligible HCWs (130 female, 34 male) responded: response rate, 57%. The average age is 39 years (SD = 10.1). One quarter reported working more than 48 hours a week. More than three-quarters reported experience moderate to intense exposure to COVID infectious risk 19 and working in mixed wards with COVID-19 sectors. Almost two thirds reported an increase in stress levels and more than half reported an increase in mental workload. One third has high emotional exhaustion.

Prevalence of anxiety disorders (Table 1)

Sixty nine respondents (42%) presented anxiety disorders.

Relations between anxiety disorders and occupational factors, univariate analysis (Table 1)

Anxiety disorders were significantly associated with personal or occupational stress levels, with mental and emotional workload and with the loss of empathy and emotional exhaustion dimensions of burnout. But anxiety disorders were not significantly associated with the self-estimated occupational exposure to COVID-19 and with the type of wards by COVID 19 sectors.

Anxiety Disorders								
		No (N = 95)		Yes (N = 69)		Total (N = 164)		
		N	%	N	%	N	%	p-value
Gender	Female	72	55.4	58	44.6	130	79.3	0.19
	Male	23	67.6	11	32.4	34	20.7	
Family situation	In Couple	72	56.2	56	43.8	128	78.0	0.68
	Single	17	65.4	9	34.6	26	15.9	
	Separated divorced or Widowed	6	60.0	4	40.0	10	6.10	
Number of children in household	0	32	62.7	19	37.3	51	31.5	0.44
	1	15	50.0	15	50.0	30	18.5	
	2	38	61.3	24	38.7	62	38.3	
	3	5	38.5	8	61.5	13	08.0	
	4	4	66.7	2	33.3	6	3.70	
Occupational group	Auxiliary nurses	16	53.3	14	46.7	30	18.3	0.7
	Paediatric Auxiliary Nurses	4	40.0	6	60.0	10	6.1	
	Nurses	29	54.7	24	45.3	53	32.3	
	Physicians	26	60.0	14	40.0	40	24.4	
	Midwives	6	60.0	4	40.0	10	06.1	
	Surgeon	4	66.7	2	33.3	06	03.7	
	Medical residents	7	58.4	5	41.7	12	07.3	
	Other healthcare workers	3	100.0	0	0.0	03	1.8	
Work share (number hours per week)	< 25 h/w	4	66.7	2	33.3	6	3.7	0.87
	[26 h/w - 35 h/w]	33	54.1	28	45.9	61	37.2	
	Between 36 h/w and 48 h/w	34	60.7	22	39.3	56	34.1	
	> 48h/w	24	58.5	17	41.5	41	25.0	

Increase working time	No	68	58.6	48	41.4	116	71.6	0.81
	Yes	26	56.5	20	43.5	46	28.4	
Level of self-estimated occupational exposure to COVID-19	Light	27	67.5	13	32.5	40	32.3	0.16
	Moderate or high	68	54.8	56	45.2	124	67.7	
Types of wards by COVID-19 sectors	COVID-19 free sector (secteur1)	14	58.3	10	41.7	24	14.6	0.78
	COVID-19 mixed sector	68	56.7	52	43.3	120	73.2	
	COVID-19 full sector	13	65.0	7	35.0	20	12.2	
Increase stress related COVID-19	No	45	72.6	17	27.4	62	37.8	0.0030
	Yes	50	49.0	52	51.0	102	62.2	
Increase workload since the beginning of lockdown	No	65	52.4	59	47.6	124	75.6	0.00119
	Yes	30	75.0	10	25.0	40	24.4	
Increase emotional burden since the beginning of lockdown	No	77	67.5	37	32.5	114	69.5	0.0002
	Yes	18	36.0	32	64.0	50	30.5	
Increase mental burden since the beginning of lockdown	No	51	67.1	25	32.9	76	46.3	0.03
	Yes	44	50.0	44	50.0	88	53.7	
Increase physical burden since the beginning of lockdown	No	69	61.6	43	38.4	112	68.3	0.16
	Yes	26	50.0	26	50.0	52	31.7	
Level of stress related to personal life before the lockdown	Light	92	59.4	63	40.6	155	94.5	0.17
	High	3	33.3	6	66.7	9	05.5	
Level of stress related to personal life during the lockdown	Light	85	66.9	42	33.1	127	74.4	<0.0001
	High	10	27.0	27	73.0	37	22.6	
Level of stress related to occupational life before the lockdown	Light	88	62.0	54	38.0	142	86.6	0.008
	High	7	31.8	15	68.2	22	13.4	
Level of stress related to occupational life during the lockdown	Light	78	72.9	29	27.1	107	65.2	<0.0001
	High	17	29.8	40	70.2	57	34.8	
Emotional exhaustion	Light	76	66.6	36	33.3	114	72.6	<0.0001
	Moderate	13	40.6	19	59.4	32	20.4	
	High	0	0	11	100	11	07.0	

Loss of empathy	Light	24	88.9	3	11.1	27	17.1	0.0013
	Moderate	57	50.4	56	49.6	113	71.5	
	High	10	55.5	8	44.4	18	11.4	
Loss of personal accomplishment	Light	24	75.0	8	25.0	32	19.5	0.0848
	Moderate	41	55.4	33	44.6	74	45.1	
	High	30	51.7	28	48.3	58	35.4	

Table 1: *Relations between anxiety disorders and occupational factors.*

Relations between anxiety disorders and medical factors, univariate analysis (Table 2)

Anxiety disorders were significantly associated with medical history of anxiety disorders, with psychotropic treatment, with quality of sleep, with the COVID 19, with work-related anxiety, with concern related to working conditions or to media reports on COVID 19.

Anxiety disorders								
	No (N = 95)		**Yes (N = 69)**		**Total (N = 164)**			
Medical factors	**N**	**%**	**N**	**%**	**N**	**%**		**P-value**
Previous anxiety disorders	No	90	62.5	54	37.5	144	87.8	0.0015
	Yes	5	25.0	15	75.0	20	12.2	
Intake of psychotropic treatment	No	93	60.4	61	39.6	154	93.9	0.018
	Yes	2	20.0	8	80.0	10	06.1	
Psychological follow-up	No	93	59.2	64	40.8	157	95.7	0.13
	Yes	2	26.6	5	71.4	7	04.3	
Quality of sleep	Severely degraded or degraded	40	45.5	48	55.5	88	53.7	0.0009
	No change	52	73.2	19	26.8	71	43.3	
	Substantial improvement	3	60.0	2	40.0	05	03.0	
Change in alcohol consumption during the lockdown	None consumption	30	56.6	23	43.4	53	32.3	0.11
	No change	11	91.7	1	8.3	12	07.3	
	Decrease of consumption	33	55.0	27	45.0	60	36.60	
	Increase of consumption	21	53.8	18	46.2	39	23.80	
Change in smoking consumption	None consumption	72	57.6	53	42.4	125	76.2	0.96
	Decrease of consumption	3	75.0	1	25.0	04	02.4	
	No change	5	57.7	4	42.3	09	05.5	
	Increase of consumption	15	57.7	11	42.3	26	15.9	
Change in frequency of physical activity	None physical activity	18	60.0	12	40.0	30	18.3	0.17
	Decrease in physical activity	39	54.2	33	45.8	72	43.9	
	No change	16	80.0	4	20.0	20	12.2	
	Increase in physical activity	22	52.4	20	47.6	42	25.6	

Did you contract the COVID-19 infection?	No	94	59.5	64	40.5	158	96.3	0.037
	Yes	1	16.6	5	83.4	6	3.7	
Concerns related to the risk of infection	No	67	54.4	56	45.5	123	75.0	0.12
	Yes	28	68.3	13	31.7	41	25.0	
Concerns about a personal health situation	No	89	60.1	59	39.9	16	9.8	0.0815
	Yes	6	37.5	10	62.5	148	90.2	
Concerns about a loved one's health situation	No	58	57.4	43	42.6	63	38.4	1.0
	Yes	37	58.7	26	41.3	101	61.6	
Concerns about work conditions	No	76	63.3	44	36.7	44	26.8	0.0206
	Yes	19	43.2	25	56.8	120	73.2	
Concerns related to information transmitted by the media	No	78	62.4	47	37.6	125	76.2	0.0378
	Yes	17	43.6	22	56.4	39	23.8	
Concerns about the end of lockdown	No	58	59.2	40	40.8	66	40.2	0.69
	Yes	37	56.1	29	43.9	98	59.8	

Table 2: *Relations between anxiety disorders and medical factors.*

Relations between anxiety disorders and occupational and medical factors, multivariate analysis (Table 3)

Multivariable logistic regression analysis showed that, after controlling for confounders, anxiety disorders remained associated with quality of sleep, an increase of emotional workload and occupational stress levels during the lockdown.

Anxiety Disorders					
		OR	**IC**	**ORadj**	**CI**
Previous anxiety disorders	No	1.0			
	Yes	2.0	1.44-2.78		
Intake of psychotropic treatment	No	1.0			
	Yes	2.02	1.40-2.91		
Quality of sleep	Severely degraded or degraded	0.67	0.21-2.09	0.38	0.13-1.09
	No change	1.36	0.46-4.05	0.60	0.21-1.73
	Substantial improvement	1		1	
Did you contract the COVID-19 infection?	No	1			
	Yes	2.06	1.37-3.09		
Concerns about working conditions	No	1			
	Yes	1.55	1.09-2.19		
Concerns related to information transmitted by the media	No	1			
	Yes	1.50	1.05-2.14		
Increase stress related COVID-19	No	1			
	Yes	1.86	1.19-2.90		

Increase of work load	No	1			
	Yes	1.90	1.08-3.36		
Increase of emotional burden	No	1		1	
	Yes	1.97	1.41-2.76	1.42	1.06-1.92
Increase of mental burden	No	1			
	Yes	1.52	1.04-2.23		
Level of stress related to personal life during the lockdown	Light	1			
	High	2.21	1.61-3.02		
Level of stress related to occupational life before the lockdown	Light	1			
	High	1.79	1.26-2.56		
Level of stress related to occupational life during the lockdown	Light	1		1	
	High	2.59	1.82-3.69	2.21	1.46-3.37
Emotional exhaustion	Light				
	Moderate				
	High				
Loss of empathy	Light	1			
	Moderate	4.46	1.51-13.1		
	High	4.00	1.22-13.09		

Table 3: *Medical and occupational factors significantly related to anxiety disorders (Univariate and multivariate analysis).*
OR: Odds Ratio; ORadj: Odds Ratio adjusted (Variables with p-value ≤ 0.1 were included in the multivariate model on a descending procedure, and variables with p-value < 0.05 were kept in the model).
CI: Confidence Interval.

Discussion

Infectious disease outbreaks are known to have psychological impact on HCWs as well as the general population. HCWs are the main force for medical rescue, meaning an evaluation of their psychological status to improve interventions, prevent posttraumatic stress [PTS] and post-traumatic stress disorder [PTSD] and enhance their mental health is urgently needed. Thus, assessing mental health for HCW during the COVID-19 epidemic is an inevitable precondition for coping with stress and important measures for fighting disease [10].

Our results highlighted a significant association between anxiety disorders and personal factors such as previous anxiety disorders, sleep disorders and occupational factors such as an increase emotional workload and stress levels during the lockdown.

According to Muller., *et al*. who performed a systematic review, the percentage of HCWs with anxiety disorders ranged from 9% to 90% with a median of 24% [15]. In this study, 42% of all participants reported anxiety disorders. Our findings [42%] are consistent with those of Lai., *et al*. who showed that 560 out of 1257 HCWs have anxiety disorders [44.6%] [16]. Previous studies have reported that psychological symptoms, such as anxiety, depend on the epidemic phase [17]. One month after the start of COVID-19 epidemic, at the peak of the epidemic period, Xiao., *et al*. examined the prevalence anxiety among 958 HCW across 26 provinces in China. They showed that 54.1% of HCW had symptoms of anxiety [18].

We showed a significant association between anxiety disorders and medical factors such as previous anxiety disorders. People with a history of psychiatric illnesses are at risk of higher levels of stress and psychological distress [19].

Sleep deficiency during stress states increases exposure to anxiety [20]. A close relationship between the occurrence of sleep disorders and anxiety disorders in the general population has been demonstrated [21]. In our study, more than half of HCWs reported difficulties in sleeping during the pandemic. Previous pandemic experiences showed that these reactions reflect a sense of fearful waiting, or even terror, about what the future may hold for all humankind while an unfamiliar and uncomfortable quiet fills the halls [22].

We found that a significant association between anxiety disorders and concerns related to information transmitted by the media. Social media including both the printed and the digital media has a significant role in the spread of information in France. The wide-spread news coverage about COVID-19 may heighten anxiety and fear among HCWs. Arafa., *et al*. showed that watching/reading COVID-19 news ≥ 2 h/day was associated with depression, anxiety, stress, and inadequate sleeping [23].

Regarding related factors in anxiety and depression, Xiao., *et al*. found significant differences in anxiety and depression levels between males (45.5%) and females (58.2%) ($p < 0.01$) but our findings did not find any significant differences in anxiety between males and females [18]. The lack of evidence of significant gender difference may be related to the low proportion of men in our sample and to its size. However our results are consistent with those of previous studies who found that staff with suspect infection cases had higher anxiety scores than non-suspect cases [6]. Throughout this pandemic HCWs have had to self-isolate from their own families for fear of transmitting the virus to their loved ones [16].

COVID 19 epidemic has spread to the entire country, and the number of confirmed and suspected patients has increased rapidly in a short period of time. HCWs feel anxiety and helplessness due to so many patients. According to El Hage., *et al*. during COVID 19 crisis, stress may be caused by concerns about not being able to provide competent care, lack of access to up- to date information, lack of specific drugs, the shortage of ventilators and intensive care unit beds necessary to care and an overwhelming workload [24]. Many studies observed high rates of anxiety, stress symptoms, among the HCWs during the pandemic. We found that 62.2% of HCW had elevated stress levels during the COVID-19 epidemic which corroborates the findings of Xiao., *et al*. (55.1%) [18]. The long-term effects of stress can result in anxiety. Higher anxiety has been reported to correlate positively with stress among healthcare workers during the COVID-19 pandemic [25].

HCWs are involved with infected patients' care faced with an unknown threat to their own life. Excessive workload, fear of contagion, feeling of being under pressure, lack of specific drugs, and isolation of community were the major issues faced by healthcare workers during the time of the COVID-19 outbreak [26]. During this crisis, the intensive work drained HCWs physically and emotionally [6]. An increase in the workload of HCWs during the COVID-19 pandemic was reported in countries [6]. In our study, consistent with other studies long working time per week increased stress, which is correlated with anxiety disorders [27,28]. Despite, we underlined that an increase workload was associated with anxiety disorders among HCWs involved in health crisis Covid 19.

Our results highlighted a significant association between anxiety disorders and occupational factors such as an increase emotional workload and stress levels during the lockdown but didn't show that the prevalence of anxiety is higher in COVID-19 wards compared to other wards. But Xiao., *et al*. showed that different levels of anxiety were also found between sub-groups of protective measures [sufficient, general, deficient and no protected measures] [$p = 0.001$ for anxiety] as well as contact history (contact with diagnosed, contact with suspected, contact with specimen of patients and no contact) ($p < 0.01$) [18].

In According to Liu., *et al*. medical workers who provided direct treatment or care for infected patients suffered higher anxiety scores, compared to those who were not caring for COVID-19 patients [6]. However, we did not find significant differences in anxiety between

HCWs who provided direct care for COVID 19 infected patients and HCWs who did not provide direct care for COVID 19 infected patients. These findings could be explained by HCWs interviewed were be able to access to adequate personal protective equipment.

Our findings underlined the association between anxiety disorders and two dimensions of burnout: exhaustion and loss of empathy among HCWs during the health crisis COVID-19. These results corroborate those of previous studies who showed that anxiety and stress developed in the physicians during the outbreaks found to have a positive correlation with Maslach burnout inventory scores [29]. Shah., *et al*. identified excessive workload and work hours as contributing factors to burnout in coronavirus pandemic [30].

Study Limitations

First, the cross-sectional design restricted our ability to distinguish between preexisting and new symptoms and to study whether the psychological symptoms of HCWs have been worsening or not, therefore, a longitudinal study is warranted.

Second, because of the lockdown, we had to solely rely on the online survey to access HCWs. This method of data collection can be accompanied by non-response bias that could undermine the generalizability of the study because non-respondents might carry different characteristics compared with the respondents. To avoid this bias, we extended the survey collection period to10 days so that HCWs were able to choose when to respond according to their busy schedule, and reminders were sent after the first 5 days.

Conclusion

Healthcare staff are at increased risk of moral injury and mental health problems when dealing with challenges of the covid-19 pandemic. Healthcare managers need to proactively take steps to protect the mental wellbeing of staff. Based on our findings, we recommend a few points to safeguard the mental health of HCWs. Preventive actions focusing on organizational factors could be carried out: Restrict excessive workload by scheduling breaks, limit work hours, and provide regular psychosocial support, and training on how to relax should be properly arranged to help staff reduce stress in the context of a health crisis related to COVID-19.

The employers of the medical institutions should pay more attention to the mental health of the healthcare worker in their routine work, in general, and during the outbreak of an epidemic, such as COVID-19, in particular.

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Author Contributions

Conceptualization, C.P and L. F.; Data curation, C. P., M. V., M. M. and L. F.; Formal analysis, C. P.; Investigation, C. P. and M. V.; Methodology, C. P., M. V., M. M. and L. F.; Project administration, C. P., M. V., M. M., P. C. and L. F.; Resources, C. P.; Software, C. P.; Supervision, C. P. and L. F.; Validation, C. P., M. V., M. M., P. C. and L. F.; Visualization, C. P.; Writing - original draft, C. P.; Writing - review and editing, C. P., M. V., M.M., P.C. and L. F.

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Institutional Review Board Statement

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Ethics Committee of the University Hospital Center of Saint-Etienne (IRBN662020/CHUSTE).

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

The data presented in this study are available on request from the corresponding author. The data are not publicly available due to the confidentiality of participants.

Conflicts of Interest

The authors declare no conflict of interest.

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