Advances in Educational Technology and Psychology (2021) 5: 58-66
Clausius Scientific Press, Canada

DOI: 10.23977/aetp.2021.55010
ISSN 2371-9400

Emotional exhaustion and psychosomatic symptoms for doctors working in hospitals resulting Coronavirus pandemic outbreak

S.Keffane[1, *], S. Bouazza[2]

1. PhD in Psychology, Researcher, Department of Psychology, University Setif 2, Setif, Algeria.

2. PhD in Psychology, Researcher, Department of Psychology, University El oued, El oued, Algeria.

Corresponding author: S.kefane (E-mail: keffane1967@yahoo.fr)

Keywords: Emotional exhaustion, Doctors working in hospitals, Psychosomatic symptoms, Coronavirus pandemic outbreak

Abstract: Doctors working in hospitals have been under constant physical and psychological pressure resulting Coronavirus pandemic outbreak. Algeria was among the countries to face the health emergency in a period of great uncertainty about the virus and the ways to treat patients. The present study aims to analyse the levels of emotional exhaustion (EE) and psychosomatic symptoms (PS) of Algerian frontline doctors working in hospitals during the Covid-19 emergency, and their relationship with the evaluation of the institutional responses received. A survey was available online during the peak of health system overload. A total of 103 questionnaires were collected [mean age, 41.8 years; SD: +10,7; high-risk zone: 41.7%]. Correlation analyses were applied to investigate the relationship between the measures of emotional exhaustion and psychosomatic symptoms; ANOVA was applied to compare these measures among groups from different risk zones and with different perceived emotional and safety protection.
EE and PS were widely experienced by frontline Doctors working in hospitals. Physical and psychological symptoms were amplified by the perceived lack of institutional support. Ensuring PS and hygiene and safety measures is essential to prevent worsening of health and psychosomatic symptoms in frontline Doctors working in hospitals.

1. Introduction

The COVID-19 outbreak placed tremendous and unprecedented pressure on the health care system worldwide, stretching it beyond its capacities [1, 2]. Recent studies on health care workers report high levels of psychological stress and anxiety [3, 4] Emotional exhaustion, and higher risk of burnout [5] during the COVID-19 epidemic worldwide, although their extent differs the respondents. The study by [6] found that 12.7%, 20.1% and 59% of Chinese health workers in

Wuhan had, respectively, at least mild depressive and anxiety symptoms, and moderate to severe levels of perceived stress. Differences related to the different exposure to the health emergency (e.g. work load, overload of the intensive care units, physical and psychological support received) and to methodological differences (e.g. instruments, sample, modalities of recruitment) may explain the different extent of psychological distress reported by the studies. Similar psychosocial impacts were reported during highly contagious diseases such as the AIDS epidemic in the early 1980s, the Severe Acute Respiratory Syndrome (SARS) outbreak of 2003 [7, 8] and, most recently, the Ebola virus epidemic in West Africa in 2014 and 2015 [9]. Worries about becoming infected, fear of death, increase in hygienic and avoidance behaviors, limited resources, longer shifts, disruptions to sleep and to work-life balance, and occupational hazards associated with exposure to contagious are among the factors cited to explain physical and mental fatigue, stress and anxiety and burnout among health workers [10] .

The importance of supporting them through mental health interventions in times of widespread crisis was documented during the previous SARS pandemic [11, 12], and has also been documented during the current COVID-19 pandemic, among Wuhan medical and nursing staff [13]. Found that health workers express a greater need to obtain help from professionals than from close family and friends, either to alleviate acute mental health disturbances or to improve their physical health. Furthermore, the authors found that clinical personnel who had serious psychological problems, compared to less severely affected groups, had accessed fewer printed psychological advice materials (e.g. office brochures) and less psychological guidance publicised through digital media. Previous responses to Middle East Respiratory Syndrome (MERS) show that medical staff tends to believe that measures such as adopting strict infection control, providing PPE and offering practical guidance help protect their mental health [14].

Scholars argue that ensuring the safety and psychological support of frontline health workers during pandemics or emergencies could represent an essential component of disaster preparedness and of preventing mental health problems in frontline health workers [15, 16]. More widely, the institutional responses to a pandemic crisis could make a difference in the prevalence of psychological distress among health workers and the general population. Through this study, we would like to evaluate the immediate Emotional exhaustion and psychological impacts experienced by hospital doctors during the COVID-19 outbreak.

2. Emotional exhaustion

[17] Refers to the excessive energy, strength or resource requirements on individuals, which cause individuals to fail, wear out or become exhausted as burnout. [18] Observed that burnout is a state of physical and psychological exhaustion. Maslach's theory divides burnout into three dimensions. The first dimension is "emotional exhaustion", which refers to the organization's excessive emotional demands on the individual during interpersonal interaction, which the individual is unable to manage, leading to exhaustion of emotional resources. The second is "depersonalization" dimension, where individuals lose feelings toward customers. That is, the employees either pay no heed to the customers, or view them as objects, producing indifference or emotional distance. The final dimension is the "reduced personal accomplishment'' dimension, where individuals lose their motivation for their jobs, significantly reducing feelings of competence or a sense of professional accomplishment[18, 19, 20]. Scholars frequently discuss EE from a psychological point of view. When workers show signs of EE, their psychological resources have been exhausted, and they can no longer make their own contributions [21].

One specific area directly related to the emergency responder profession is the concept of burnout and, more specifically, one of its key levels, emotional exhaustion. Emotional exhaustion is an

extreme embodiment of work-related strains characterized by feelings of being emotionally drained [22, 23]. The emotional peril linked with emotional exhaustion encompassed in the profession may be more problematic than the dangers associated with the emergency response profession itself, whereas emotional exhaustion can be both pervasive and long-lasting [24]. In a study by [25], 92% of participating emergency responders who took a burnout inventory showed elevated emotional exhaustion scores. Despite the reported significant repercussions of increased levels of emotional exhaustion, few studies have investigated the possibility of suicide risk as a result of prolonged emotional exhaustion in emergency responders over the course of their careers. Finding effective intervention strategies to reduce the symptoms of emotional exhaustion when it begins may prevent numerous harmful outcomes in emergency responders, including risk of suicide [26].

3. The Present study

The present study aims to analyse the levels of emotional exhaustion for Algerian doctors working in hospitals during the COVID-19 emergency, and their relationship with the evaluation of the received institutional responses. Algerian doctors working in hospitals were among the first to face the health emergency in a period of great uncertainty about the virus and ways to treat patients and avoid infection. On February 2020, the first two confirmed cases of infection due to COVID-19 were reported. Algerian doctors working in hospitals have been exposed to a persistent source of distress related to a high workload, as well as inadequate devices and supplies to carry out their professional intervention, insufficient human resources, a chronic shortage of healthcare workers, overcrowding in intensive care units, with some patients dying at home while awaiting admission, a concrete risk of being forced to treat only those with a better prognosis, inadequate information on the contagion, insufficient personal protective equipment.

A first aim of the study was to document the frequency of symptoms of emotional exhaustion were experienced by frontline Algerian doctors working in hospitals, given the high workload, disruptions to work life balance and occupational hazards associated with exposure to COVID-19. Specifically, we examine the subjective feeling of having suffered a worsening of physical and psychological health, the levels of emotional exhaustion, frequency of negative affect and levels of somatic symptoms, included bruxism, also in recent studies during the COVID-19 pandemic [27].

Furthermore, the following hypotheses guide the study. First, we expect that significant relationships exist between emotional exhaustion by the respondents, based on previous literature which recognizes psychosomatic symptoms as a way of communicating emotions [28] and a reflection of underlying psychological distress [29, 30]. Second, we expect that emotional exhaustion is related to features of the perceived adequacy of the received institutional responses, in terms of psychological support and hygiene and safety measures. Specifically, we expect that the less the perceived support by the institution (at the level of government, regional administration and local health agency), the higher the probability of a perceived worsening of physical and psychological health among doctors working in hospitals.

4. Material and Methods

4.1 Participants

A total of 103 questionnaires were collected from frontline medical age range 20–55, age mean [41.8]. Since the questionnaire was proposed online and only the people willing to participate in the survey completed the form, the number of questionnaires collected coincides with the number of questionnaires analyzed in the current study. Furthermore, the online questionnaire was set up so

that sending it was possible only after having answered all the questions, so there were no missing values among the questionnaires collected.

4.2 Measures

The questionnaire for the first phase of the survey was divided into three sections:

4.2.1. First section: emotional exhaustion and psychosomatic symptoms

The following instruments were administrated in this section: Emotional exhaustion: emotional exhaustion (EE – the condition of being emotionally, physically and cognitively drained) is a core symptom of burnout [31]; it was assessed using the 9-item EE scale of the Maslach Burnout Inventory [MBI – 32, 33], which evaluates feelings of being overwhelmed and exhausted by work. Participants rated each item on a 7-point Likert scale ranging from 0–6. The MBI has shown acceptable levels of reliability and validity studies [34].The total score was categorized into three groups according to the distribution of normative data for health care providers: low score between 0–16, moderate between 17–26 and high greater than 26 [33, 34].
Negative Affect: negative affect (NA) was assessed using the 10-item NA subscale of Positive and Negative Affect Schedule (PANAS). The NA includes items such as afraid, distressed and nervous. Each item is answered using a 5-point scale, from 1 (very slightly or not at all) to 5 (extremely). Participants were asked to mention the extent to which they
had experienced a specific emotion over the previous two weeks. The scale presents good psychometric properties in different countries, In this study, the alpha value of the NA subscale is .839. Somatic Symptoms: somatic symptoms (SS) were assessed using the Somatic Symptom Scale-8 (SSS-8). The SSS-8 is an abbreviated version of the Patient Health Questionnaire-15 [35]. It consists of 8 items that assess the burden of common somatic symptoms (e.g. joint pain, headaches, stomach or bowel problems, difficulty falling asleep). Each symptom is scored with a 5-point response option that ranges from 0 (I have not been bothered at all) to 4 (I have been bothered very much). The time frame is the previous 7 days. Cut-off scores identify individuals with no to minimal (0–3), low (4–7), medium (8–11), high (12–15) and very high (16–32) somatic symptom burdens. As recommended by [35], we dichotomised the score using 12 as the cut-off value to indicate the presence of a high or very high somatic symptom burden. SSS-8 demonstrated good validity and reliability (α= 0.81).

4.2.2. Second section: perceived adequacy of the institution's responses to the COVID-19 epidemic

The following instruments were administrated in this section: Perceived emotional support: 2 items based on [36] Study were adopted to assess the perceived quality of emotional support from the social network: do you think the emotional support given to you is adequate? Do you think the emotional support given to you is helpful? As suggested by the authors, an average score (.82) was calculated to obtain a perceived support index. Perceived protection measures: an ad hoc 4-item questionnaire based on the items used in studies on SARS [37] and hypothetical influenza pandemics [38] was used. The respondents used a 4-point Likert scale to evaluate the feeling of being protected by national and local government and hospital agencies, and the adequacy of the hygiene safety measures applied in one's work context (1 = never; 4 = always).
Perceived protection needs: one open question was used to explore the need for perceived support (material or immaterial) to work during the pandemic: think about your current working conditions. In your opinion, is there anything you need (from a material or immaterial point of view) that was

not offered to you? Experience of COVID-19 contagion: respondents were asked to indicate whether they had had direct or indirect experience of contagion (themselves, a family member, a patient, a colleague, a friend, an acquaintance).

4.2.3. Third section: sociodemographic and job characteristics

Sex, age range, professional function, years of working experience, work sector (public or private), region and experience of mandatory quarantine were collected in this final section of the survey.

(1) Data analysis

Descriptive analyses were used to describe the general data associated with the measures of emotional exhaustion, psychosomatic symptoms and perceived adequacy of institutional responses. Correlational analyses were applied to investigate the relationship between the measures of emotional exhaustion and psychosomatic symptoms. ANOVA was applied to compare the levels of the measures of emotional exhaustion and psychosomatic symptoms among groups differently characterised in terms of perceived adequacy of institutional support received. ANOVA was applied to explore differences among groups of different risk zones (high risk/low risk) in terms of emotional exhaustion, psychosomatic symptoms and the perceived adequacy of institutional responses. The latter was analysed considering either the responses to the singular items on the perceived protection measures and a global index obtained by the sum of the responses to the same items.

(2) Results

Correlation analysis that EE is significantly and positively correlated with negative affect (r = .506; p = < .01), psychosomatic symptoms (r = .428; p = < .01) and bruxism (r ¼ .296; p = < .01, and negatively correlated with the perceived worsening on psychological health (r = -.337; p = .01) and physical health (r = -.318; p = < .01) in the previous three months. Significant percentages also emerged from the second area of investigation relating to the adequacy of the national, regional and local response to the COVID-19 epidemic 54.3%, 53,4% and 45,7% of respondents declared that they did feel never or rarely protected by the national government, the regional administration and the local health agency, respectively; 49,5% and 35,9% evaluated respectively no adequate and no helpful the emotional support received and 32% evaluated the safety and hygiene measures as insufficient.
The co-word analysis applied to the terms used by the respondents to describe their unsatisfied material or immaterial needs during the pandemic. The size of the bubbles, which represents the frequency of each keyword within the text, shows that "personal protective equipment" (PPE) had the highest frequency (f = 26), followed by "protection" (f = 18) and "support" (f = 16). The line width, which indicates the strength of the association between the different keywords (the thicker the line, the greater their association in the text segments), shows how these terms are associated with each other; finally, the distance between the bubbles, which indicates the level of association between keywords, shows that PPE tended to occur with terms such as “personal”, “suitable”, “psychological” and “need”, suggesting the psychological value of the safety devices; while “protection” and “support” tended to occur with the terms referring to the working environment (“company” and “job”). ANOVA showed that groups belonging to different risk zones vary significantly with respect to EE [F (1/103) ¼ 4.019; p ¼ < .05], with doctors working in hospitals in high risk zones scoring lower (Mean: 16.65; SD: 9.909) than those in to low risk zones (Mean: 21.30; SD: 13.001) (Table 5). Significant differences were found also with respect to the perceived

sense of institutional protection [F(2/103) = 6.300; p = < .05] and the perceived sense of regional administration protection [F(2/103) ¼ 9.549; p = < .01]: doctors working in hospitals in high risk zones perceived higher institutional protection (Mean: 7.79; SD: 2.144) than those working in low risk zones (Mean: 6.70; SD: 2.196) and higher protection from their regional administration (Mean: 2.53; SD: .8882 versus Mean: 2.22; SD: .825) .

5. Discussion

This study aimed to analyse the levels of emotional exhaustion of Algerian doctors working in hospitals frontline health workers during the COVID-19 emergency, and their relationship with the evaluation of the institutional responses received. The findings show that emotional exhaustion and psychosomatic symptoms were widely experienced by Algerian doctors working in hospitals frontline medical staff, along with the subjective feeling of having suffered a general worsening of physical and psychological health. Although the cross-sectional nature of the study does not allow us to state that the perceived symptoms and malaise were an effect of the COVID-19 emergency, the findings mirror those of recent studies on the psychological impact of the COVID-19 epidemic on frontline health workers from other countries (e.g. China: [39, 40,41] ; Spain: [42] ; Great Britain: [43] ; USA: [44], as well as previous studies on health workers treating patients with SARS [45, 46, 47]. High workload, disruptions to work-life balance, as well as occupational hazards associated with exposure to COVID-19 are commonly recognised factors which may play a principal role in the psychological distress among frontline medical and nursing staff. About one fifth of our sample had experienced contagion personally or through a family member whom they live with and had experienced mandatory quarantine; more than half had experienced the infection of a patient or a colleague. This comes in a period of very high uncertainty about the virus and ways to treat patients and avoid infection, and a lack of general guidelines.

The differences detected among doctors working in hospitals in high risk or low risk zones deserve comment. Emotional exhaustion was higher among doctors working in hospitals in low risk zones than those in high risk zones. A different result was found in the study of [48], showing a significant difference between the group from Hubei Province and the non-endemic provinces in China during the COVID-19 epidemic regarding the degree of anxiety around becoming infected. Our finding is not obvious, but it is understandable. Indeed, if on one hand doctors working in hospitals in a high risk zone were exposed to greater overwork due to the higher incidence of the coronavirus infection, on the other hand – based on our findings – they were also more satisfied with the protection measures received. It is not surprising, considering the historical differences of economic resources which characterize the high risk zones, and the low risk zone, which received also a limited supply of equipment, masks and protective suits for hospitals in the first months of the health emergency.

From this perspective, the result is consistent with the idea that the psychological impact of the COVID-19 emergency can be strongly influenced by contextual aspects such as institutional outbreak responses [49], calling for a critical reflection on the common representation of a pandemic as a disruptive event that can only produce a disruptive health impact. People's vulnerability is not due only to the natural hazard but is also constructed by social, economic and political conditions [50]. As advocated by the [53] and several scholars [51, 52], institutional responses can play an essential role in preventing psychological and physical problems related to a pandemic crisis among the population and specific vulnerable groups, such as doctors working in hospitals. [53] noted that during lockdown measures, clinical psychiatrists, psychologists and mental health social workers were considered "not essential" personnel and were strongly discouraged from entering isolation wards. Where psychological or support health services were

interrupted, and offered on the basis of volunteers and local initiatives. Institutions made efforts to protect citizens and to gather and develop the structural and technical resources needed to manage the health emergency (e.g. new doctors and nurses, hospital beds), but marginalised the psychological side of health [54] and the impact on it of factors such as work and responsibility overload, grief over the death of patients, fear for their own health and that of their loved ones, and the dilemma of whether to apply for medical leave of absence, or to continue working during this critical period [55].

6. Conclusion

The emotional exhaustion faced by Algerian doctors working in hospitals during the COVID-19 pandemic emergency, related to working with highly infectious patients in the context of a paucity of material and psychological support and great uncertainty – about the virus and ways to treat patients and avoid infection – needs to be acknowledged.

The discussion above raised the issue of how perceived inadequacy of institutional responses may have fed the already high level of uncertainty faced by doctors working in hospitals, particularly those working on the frontline, influencing their psychological and physical distress. Providing hygiene and safety measures, psychological support to elaborate the negative affect associated with the death of patients, the responsibility of care and the concern for themselves and their loved ones, guidelines to increase their safety and confidence, and opportunities for them to identify their needs, both at a psychological and a functional level, constitute all important components of mobilising a therapeutic response to crisis scenarios. Doctors working in hospitals are essential to pandemic response. If they are incapacitated, the ability of countries to respond effectively to the unprecedented challenge imposed by the COVID-19 pandemic will be compromised.

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