Research Article

PSYCHOLOGICAL IMPACT OF THE COVID-19 PANDEMIC ON HEALTH WORKERS IN MOROCCO:
RESULTS OF A CROSS SECTIONAL SURVEY.

Bouchra Oneib, Mohammed Hasnaoui
Department of Psychiatry, Mohammed VI University Hospital, Oujda, Morocco.
Medical School of Oujda, University Mohammed Ist of Oujda, Oujda, Morocco.

ABSTRACT

Background: This study aims to assess the psychological impact of the COVID-19 pandemic, in particular stress, depression, and Post-traumatic disorder, among health care workers in Oujda. **Methods:** We conducted a survey among 85 health care workers by using a google form questionnaire, during three months (from to). We assessed the work condition, fears, negative emotions, relationships, lifestyle, and coping of medical staff. We also evaluated stress, depression, and post- traumatic stress disorder through the Perceived Stress Scale (PSS), The World Health Organization- Five Well-Being Index (WHO-5), and Primary Care-Post Traumatic Disorder. **Results**: 65.8% work in front-line, and did between 4 and 15 shifts per month. 71.1% are in fear of COVID-19 infection. 97.6% are afraid to transmit the virus to relatives. More than two-thirds of responders describe negative feelings and exhaustion. 49.4% had a low level of well-being and probably depressed. 67% presented high perceived stress. Anxiety and depression were associated with fears, negative feelings, previous psychiatric disorder, poor sleep, and lack of family support. **Conclusion**: Our current study showed the high prevalence of depression and perceived stress among medical staff, hence the need to accompany and support all health workers.

Keywords: COVID -19 Impact; Depression; Healthcare workers; Pandemic, Perceived stress; style life.

Corresponding Author:
Bouchra Oneib, **MD.**
Affliation: Department of psychiatry, CHU Mohammed VI, Faculty of medicine, University Mohammed I, Oujda, Morocco.
Email: boucha82@hotmail.com
Tel: + (212)665317133

BACKGROUND

After the first cases of COVID-19 pneumonia reported in China in December 2019, the disease quickly spread and was declared a pandemic on March 11, 2020. [1-2]

The majority of medical staff were directly or indirectly exposed to the risk of COVID-19 infection and work overload. They have to face a stressful situation where uncertainty reigns and an increasing number of cases. Indeed, in Morocco, until January 2021, we count a total of 452,988 confirmed cases, 7,767 deaths with a prevalence of 1.71%, while we dispose only of 1.65 medical personnel per 1,000 inhabitants. [3]

Besides, health workers are overwhelmed by negative emotions, feeling ineffectual, depletion of protective measures, and fear of transmission of the virus to their close. [4] Therefore, health personnel, especially those who work on the front line against the disease, risk disrupting their mental health or even psychiatric disorders. [5]

So, the objective of our study was to evaluate the psychological impact of the outbreak on health workers and detect any factors increasing the risk of psychological distress.

METHODS

We carried out a cross-sectional study with an online open survey destined for health professionals working in health structures mostly in Oujda during July 2020. We used this method to respect physical distancing. The sampling procedure is non-probability, and the study opted for the snowball method. We established an anonymous self-questionnaire with 90 items in the French language via the Google Forms platform (with an automatic method for capturing responses), and then we sent this questionnaire to groups of health professionals on Facebook and WhatsApp. In the questionnaire header, we explain to the participants the study's objective, and they have to be consenting before they start to respond. Every participant can complete the questionnaire only once. The anonymity and confidentiality of the responses were respected. The participants had voluntary respond to questions, with no incentives offered, and they had the right to quit the survey at any point or change their responses. To minimize missing data, we designed answer fields to be mandatorily filled before going to the next question. No personal information was collected or stored. We don't use a timeframe for data collection. All data are anonymous and are not able to identify the participants.

We included in the study only the health workers who worked during the pandemic, and we excluded medical students, those who are not medical professionals, and those who have not completed the questionnaire.

The survey was extended to all healthcare workers directly or indirectly involved in managing patients with COVID-19. Participants included in the study were physicians (general practitioners, specialists, emergency physicians, resuscitators of occupational physicians) and nurses.

Front-line work was defined as jobs in which one may be in contact with suspected or confirmed cases. We collected with this survey demographic data, work conditions under the outbreak, fears, and the psychological status of responders.

The study questionnaire included demographic characteristics such as age, gender, occupation (physician or nurse), marital status, past medical history, mission during the outbreak (COVID 19 unit, emergency, triage sorting patients with COVID-19, awareness company), making shifts. We assessed substance use and increased usage during the pandemic by direct questions (do you use any psychoactive substance? do you think your consumption increased during the pandemic?) . We also collected a series of information about exposure to COVID-19, such as recommendations, being infected, relatives' contamination. We measured the influence of the COVID-19 pandemic on their relationships, fears, the quality of sleep (how you rate your sleep before and during the pandemic), perceived social support, exhaustion, stigma toward COVID-19 infection, practice, and resilience capability against the COVID-19 outbreak.

The psychological impact (stress, depression and well-being, post-traumatic stress disorder) was assessed by Perceived Stress Scale (PSS), well-being who-5, and PC-PTSD (Primary Care-Post Traumatic Disorder)

The Primary Care PTSD is a scale designed to screen individuals with probable PTSD according to DSM-IV criteria. It's a four-item with a score of three as the screening threshold. [6-7]

The scale's psychometric properties resulted in good values, in comparison with other measures such as PTSD Screen (SIPS), the General Health Questionnaire (GHQ-12), and the Startle Physiological Arousal Anxiety Numbness (SPAN) questionnaire. [8-11]

The Perceived Stress Scale (PSS) is widely used to assess the perception of stress. This measure was developed in 1983 by Cohen, Kamarck, and Mermelstein, and it includes ten items. [12]

According to some studies, PSS-10 psychometric properties are superior to the 14-item version across various populations and languages. [13-16]

WHO-5 is a subjective unidimensional measure of the quality of life and a short self-reported scale of current mental wellbeing. It has adequate validity to screen depression, with a sensitivity of 93% and specificity of 83%. [17]

It's five items rated on a 6-point Likert scale. A high score means better well-being.

Ethics Approval And Consent To Participate

During the pandemic, the members of the ethics committee did not meet, so we did not submit to the ethics committee. But, we followed the principles outlined in the Declaration of Helsinki. All participants were informed of the study objectives, the focus of the inquiry, and data anonymity was ensured. The participants gave their consent voluntarily. No sensitive private data asked. Responders can interrupt anytime their participation. We respected an individual's privacy and confidentiality

Statistical Analysis

Quantitative variables were expressed as mean and standard deviation, while qualitative variables were expressed as percentage.

To compare continuous and categorial variables, we used non parametric test such as Mann and Whitney

white and Kruskal and Wallis. A P-value of less than 0.05 was considered significant for this study. All statistical analyses were performed using IBM SPSS Statistics for Windows, Version 21.0.

RESULTS

Eighteen five health workers participated in the survey and completed the questionnaire. 65.8% work in front-line. 19.9 % are nurses, and 80.1% are physicians. The majority (89.4%) of the responders work in the public sector, aged between 22 and 54 years, with a median age of 30. 56.4% of participants were women. 51.7% are singles. 45.6% have children. (**Table 1**)

Table 1: sociodemographic characteristics of the sample

Variables	% (n)
Age	30 [26; 38]*
Gender	
Man	43.5(37)
Women	56.5(48)
Profession	
Physicians	80(68)
Nurses	20(17)
Marital status	
Single	51.8(44)
Married	48.2(41)
Children	
None	54.1 (46)
1	12.9(11)
2	25.9(22)
>2	7.1(6)
Public sector	89.4(76)
Private sector	10.6(9)
Hospital	78.9(67)
Diagnostic center	15.3(13)

*Median [interquartile 25; interquartile 75]

Past medical history:

14.1% had an organic disease such as diabetes (2 participants), asthma (3 participants), breast cancer (one responder), myocardial infarction (one participant), and dermatological diseases (4 responders).
10.5% followed for psychiatric diseases. Four responders had a generalized anxiety disorder. Five participants suffer from a depressive disorder, (1) obsessive-compulsive disorder, (1) bipolar disorder, (1) panic disorder. 15.2% take medicines.

Substance use:

15.2% consume substances, mainly cigarettes (10 responders), cannabis (2), benzodiazepines (2), alcohol (1), and morphine (1). 11.7% confirm an increase in consumption.

Experience with previous epidemics:

71.7% already had mission during past epidemics of H1N1, avian flu, and swine flu.
54% keep bad memories of this experience, 45.9% were stressed de be infected or contaminate their family and fear of death. 5% were sad and isolated. 3.2% complained about the workload.

The mission during the current pandemic

11.7% work in triage unit and screening, 52.3% took care of hospitalized COVID patients, and 4.7% make awareness campaigns.
45.8% work at the COVID unit, 39% are affected in the emergency room. 45.8% did shift in this unit. 65.8% did between 4 and 15 shifts per month.

COVID-19 infection:

No one of the responders is infected by the virus, while 4.7% have a relative COVID-19 positive. But no one transmits the virus to the closes.

Emotions and fears:

58.8% was thinking that they can deal with the pandemic. 71.1% are in fear of COVID-19 infection, and 11% are so scared of this contamination. 97.6% are afraid to transmit the virus to relatives, whose 57% are so worried. 70.5% are affected by the contamination of a colleague. They were sad, stressed that they would be the next to contract the virus.
37.6% feel isolated, 40% feel stigmatized, and 55.3% feel exhausted.
80% are worried about the second wave.
All participants affirm the negative effect of the media on their psychological state.

Relationships:

25.8% believe that family relations have deteriorated during the confinement. 22.3% make their relationships strong, and 51.7% confirm that their link with families is unchanged.
97.6% of medical staff receive support from their family. 89.4% get reassurance from their friends.

Financial impact:

Five physicians in the private sector stopped working during the outbreak. 13 of them confirm the negative impact on their income especially, they had to reduce the patients' number.

COVID-19 physical impact:

16.47% feeling tired, 11.7% took weight, 10.5% had eczema, 10.5% suffer from anxiety, 3.5% had sleeping difficulty, 2.3% feel sad, 5.8% had digestive disorders, 8.2% lost weight, and 2.3% had anorexia.

The pandemic and sleep:

31.7% had disrupted sleep before the pandemic, while 47% affirm that they can't sleep well during the outbreak, with a significant difference (p=0.002). 40% suffer from sleep-onset insomnia. 6% of responders describe a decrease in the number of hours of sleep. 1% wake up early.

Lifestyle and coping during the outbreak

Lifestyle: Before the outbreak, 12.9% lived alone, 80% with family, and 7% share their house with friends. While during the pandemic, 57.6% continue to live with their families, 17.6% live alone, 8.2% live with friends, and 16.4% are in hotel isolation. 63.5% avoid visiting family during the outbreak.

Coping: All participants try to deal with this new virus by using at least one of these ways. 74.1% receive training on managing COVID infection. 83.5% tried self-study to perform their knowledge on the pandemic using articles and official WHO documents. 17.6% overcome the outbreak by checking support from family and friends, 22.3% resort to religion and faith, 9.4 % think that it is their duty, 100% used protective measures, 13 % are optimistic by nature, and living day by day. All participants diversify activities leisure. Indeed, outside of working hours, they spent their time watching movies (74.1%), praying (75.3%), reading (69.4%), playing video games (1.1%), cooking (3.5%), calling families and friends (76.4%), doing some research (3.5%), and sport (31.7%).

After Covid-19 Pandemic

The conditions of the pandemic have prompted some physicians to reflect on the measures of their practice. 57.6% say that their practice will change after the pandemic.
43.5% believe they will maintain protective measures even after the end of the pandemic. 3.5% want to reduce working hours and making more free time.

Psychological Impact: 49.4% had a low level of well-being and probably depressed. 67% presented high perceived stress, and 24.7% had moderate tension to manage some stressful situations. 15.3% confirm that they need specialized help from a psychiatrist.

WHO-5: A low level of well-being is associated with poor sleep (**p=0.003**), feeling isolated (**p=0.04**), not being able to face the pandemic (**p=0.03**), the fear of COVID-19 infection (**p=0.052**), working in the COVID-19 unit (**p=0.03**), taking medicine (**p=0.03**), having a psychiatric disorder (**p=0.013**), contamination of a colleague (**p=0.08**), high level of stress (**p=0.002).**

PPS: High perceived stress was associated with feeling unprepared for the pandemic (p=0.018), having a psychiatric disorder (p=0.018), taking drugs (p=0.044), working in the COVID unit (p=0.013), the worry of contamination (p=0.09), lack of family support (p=0.06), feeling isolated (p=0.07), sleep disorders (p=0.07).

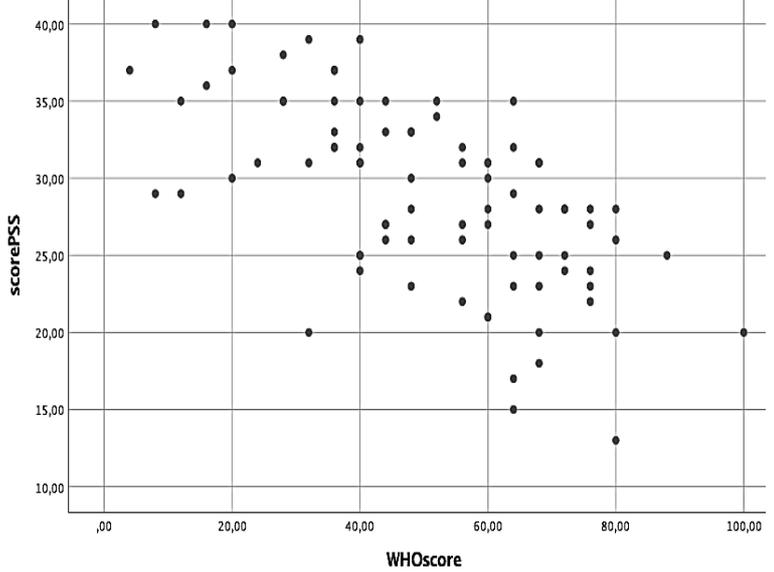A negative correlation was found between the two scores of WHO-5 and PSS with a p<0.0001 and r=-0.63.

Figure: Correlation between PPS score and WHO score

PTSD: None of the participants have directly experienced a horrific or frightening event related to the pandemic. However, 16.5% involuntarily think about uncomfortable feelings and memories related to the pandemic, and they have nightmares, 6% make an effort to avoid thinking about these negative feelings. 11.7% feel detached and can't focus on their work or activities.

DISCUSSION

In our sample, the prevalence of probable depression and perceived stress are high. Several studies confirm this finding. In Cameroon, anxiety was found in 41.8%, and depression in 42.8%. [18] While, Lai, Ma Wang et al. reported that 50.4% of health workers had depression and 44.6% were anxious. [19]. We can infer that this pandemic negatively impacts the mental health of physicians and nurses and inducing anxiety. [18-19] 47% of doctors and nurses are insomniacs. Insomnia affects cognitive functions, such as concentration, and mood. Insomnia could be a symptom of an underlying depressive anxiety disorder [20], although medical staff had to make quick decisions and delicate sorting.

Some authors have found that depressive and anxiety symptoms increase and worsen after the onset of the epidemic. They suggest that health workers should be considered a particularly high-risk group for developing psychiatric disorders [21]. In the literature, the associated factors increasing the risk of developing depressive and anxiety symptoms were female gender, past medical history, isolation, and fear of infection [22].

We can't demonstrate if responders had PTSD, but some report some symptoms of this disorder. Perhaps we don't use an adequate scale, and these individuals could present vicarious traumatization. In a Chinese study, authors confirm that nurses in front-line and non-front-line have developed vicarious traumatization. [23]

In our study, we identified also some risk factors associated with psychological distress in particular being in frontline, having psychiatric disorders, fears, and negative emotions.

Negative emotions like the feeling of stigmatization and loneliness, a permanent feeling of threat, and fears intensify the sadness and panic. [24-25]

In fact, the health workers mainly working in the front-line are exposed to stigmatization, exhaustion, fear of infection, and worry about losing relatives. [24, 26]

More than half of the participants feel tired and exhausted, as Beziers' result. [27] But this prevalence is lower than other institutions where the infection rate is high, [27-28] with a heavy workload. Being directly or indirectly exposed to the virus, working in an anxiety-provoking climate, with a heavy workload, all these factors make professionals tired and demoralized. [29]

41.2 % feel unprepared to face this new virus, split between duty and self-security. Indeed, the feeling of altered mastery increases anxiety. [28] Therefore, the majority of participants use training to reduce this feeling of helplessness.

We found that vulnerable healthcare workers are with prior psychiatric illness. Indeed, being exposed to a stressful situation like the COVID-19 pandemic, carry to the exacerbation symptoms of anxiety and depression.

Even there is no participant infected by the virus, the fear to contact is still huge. Also, the worry to be the probable next contaminate increases the feeling of anxiety and sadness. [29, 30]

In Morocco, sixty doctors have died after being infected by the COVID-19 for nine months of the pandemic, while there are few human resources. According to a study, the distress of medical staff is not correlated to confirmed COVID-19 cases. Even the number of confirmed cases and death is low in the oriental region, but that's not decreasing the health workers' anxiety. They are more vulnerable to societal and cultural factors and insufficient knowledge about the virus. [31]

Health workers, who were in direct exposure to patients with the COVID-19, choose to separate from their family living in hotel isolation or alone. According to our results, 97.6% are worrying about family members, 34% decide to isolate themselves, and 63.5% avoid visiting their families. Even medical staff is used to possible contamination, but they can't admit that could happen to their families. This worry is a great source of stress for the health professional.

But technological innovation has facilitated remote contact with family and friends. This social support has helped doctors and nurses to overcome the pandemic' challenge.

65.8 % had one to two weeks of shifts per month. We could explain this by the reduced number of health workers. Besides, some prefer this system to avoid turning back to home and find themselves forced to carry out a whole ritual of precautions. [32]

While 71.7 % have already worked during a previous epidemic, this experience did not help professionals to reduce their anxiety. Perhaps previous epidemics were not fatal and contagious like the current pandemic.

All the participants affirmed the negative effect of the media on their psychological state. Media coverage grows the health workers' anxiety and impacts their mental health. [33] The media have affected the medical staff through information, disinformation, infobesity, and the Unknown [34].

Professionals have tried to adapt to this new situation by seeking guidance, diversifying hobbies, social support, and opting for protective measures. [35] These elements could protect caregivers. Indeed, the use of protective measures reduces the infection risk significantly. Also, the use of telemedicine allows national and international experts to help physicians

less experienced in the diagnosis and management of COVID-19 patients.

Social support was more effective to overcome a difficult situation, and the lack of social support is a crucial risk for developing psychiatric disorders.[36] 15.2 % affirm the increase in substance use. The literature confirms that an increase in drug use in the short and medium-term is possible. Also, it's mean to adapt to this situation and decrease negative feelings. [37] 15.3 % think they need psychiatrist help. Indeed, the psychological assistances confirm that doctors and nurses have requested their support, but in small proportions, not reflecting the high prevalence of anxiety and depression.

At the end of this study, we suggest the priority to give to resilience through primary prevention. We recommend providing psychological support and screening for psychiatric disorders as early as possible. In our institution, we have set up psychological support for medical staff. But our study has many limitations, mainly the low rate of respondents given the concern of health workers by their mission. The scales used can only detect these disorders but to confirm them, we have to complete them by a direct interview. The causal link could not be detected by a cross-sectional study.

CONCLUSION

The results of our study demonstrate the stressful experience and lifestyle change of medical staff during the pandemic as well as the high prevalence of depression hence the interest to focus on the mental health of these workers.

ABBREVIATIONS:

COVID-19: coronavirus disease of 2019
PTSD: post-traumatic stress disorder
PSS: Perceived Stress Scale
WHO-5: The World Health Organisation- Five Well-Being Index
PC-PTSD: (Primary Care-Post Traumatic Disorder
DSM-IV: the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition
SIPS: PTSD Screen
GHQ-1: the General Health Questionnaire
SPAN: the Startle Physiological Arousal Anxiety Numbness
H1N1: Hemagglutinin Type 1 and Neuraminidase Type 1

DECLARATION

Ethics approval and consent to participate: During the pandemic, the members of the ethics committee did not meet, so we did not submit to the ethics committee. But, we followed the principles outlined in the Declaration of Helsinki. All participants were informed of the study objectives, the focus of the inquiry, and data anonymity was ensured. The participants gave their consent voluntarily. No sensitive private data asked. Responders can interrupt anytime their participation. We respected an individual's privacy and confidentiality.

The responders were consent before to participate but we can't obtain the written consent.
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