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The Psychological Impact of COVID-19 on the Healthcare Workers

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Abstract

The COVID-19 pandemic has had a major psychological impact on the healthcare workers (HCWs). The purpose of the study was to investigate and analyze the extent of this impact, the measures taken to address it, and to offer a set of healthy lifestyle habits to deal with the difficulties posed by the pandemic. The data was collected through an electronic questionnaire, which targeted doctors and nurses in the public and private sectors, throughout the country. The results of our study showed an increased vulnerability in women. Also, the large flow of new and often contradictory information has had an anxiety-provoking effect on our subjects. It is worth noting that, only a minority of them received the necessary psychological support, and therefore the need for psychological support is mandatory in crisis situations. The study also highlighted the physical and psychological symptoms reported by our subjects and the importance of implementing proper lifestyle habits in order to maintain psychological balance. Our study was carried out on a small sample and the containment measures represent its major limits. Other larger studies may provide more insight.

Keywords: COVID-19; healthcare workers; lifestyle habits; physical and psychological symptoms; psychological impact; sources of information.

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1. Introduction

With more than 176.951.988 confirmed COVID-19 cases worldwide and 3.823.525 deaths (as of 14/06/2021), the Coronavirus wave has spread to a large number of countries, thus inducing the current pandemic. In Morocco, the first case of coronavirus was confirmed on March 2, 2020. Very quickly, several cases appeared throughout the kingdom. As of today (14/06/2021) the national pandemic toll is 523.999 confirmed cases with 9.213 deaths. Doctors and nurses play a key role in managing and controlling this pandemic. As such, they are continuously exposed to a great risk of contamination. The objective of our study is to shed the light on the psychological challenge that healthcare workers (HCWs) face during this pandemic, and suggest lifestyle habits that are essential for maintaining a good psychological balance. Considering the peculiarity of the current situation, what are the psychological and somatic consequences of this condition on HCWs? What is the share allocated to them in the framework of the initiatives undertaken by the competent authorities? and what additional measures should be implemented in order to optimize their professional and personal life ?

2. Material and method

The study was carried out over a period of 10 months from 10 June 2020 to 10 April 2021 in the different regions of Morocco. The collection of data was carried out via an anonymous electronic questionnaire. The population studied included doctors and nurses in the private sector as well as the public sector. This group was chosen randomly, including those who have worked directly and indirectly with patients infected with COVID-19. A total of 313 completed questionnaires were obtained, of which 300 were retained.

Inclusion criteria:

- Healthcare workers (HCWs) who answered the questionnaire completely
- HCWs living in Morocco
- HCWs not suffering from major and unstable medical condition
- HCWSs in practice for at least 2 years Exclusion criteria:
- HCWs who have not completed the questionnaire
- HCWs not living in Morocco.
- HCWs suffering from major and unstable medical condition
- HCWSs in practice less than 2 years

The objective of this study was to analyze the psychological impact of the coronavirus pandemic on the HCWs. The questionnaire enabled us to collect information regarding this population, precisely:

- Demographics (sex, age, marital status).
- Stressors (protective measures, availability of screening tools, risk of contamination, sources of information, workload, teamwork, psychological support).
- The physical state (sleep, fatigue and lack of energy, gastrointestinal disorders, palpitations).
- The psychological state (anxiety, negative thoughts, concentration, irritability)

- Lifestyle habits (physical activity, social life, stress management).

The data collected was integrated into a data collection file, and subjected to statistical processing using SPSS software version 22.0. A descriptive and bivariate analysis of the data collected using the chi-square test, allowed us to pinpoint the challenges that HCWs face..

3. Results

Demographic results are grouped in the following table:

Table 1: sex, age, family situation, area of practice, region and place of practice

3	4	Responses N=300	Percentage
Sex	Woman Man	201 99	67% 33%
Age	20-29 30-39 40-50 > 50	158 94 25 23	52.7% 31.3% 8.3% 7.7%
Family situation	Single Married With kids	158 135 76	52.8% 45.2% 25.4%
Area of practice	Doctor Nurse	219 81	73% 27%
Region	Tangier, Tetouan, Houceima Casablanca Rabat, Salé, Kenitra Marrakesh, Safi Fez, Meknes Draa, Tafilalt Oujda Khenifra, Beni Mellal Ben Guerir Guelmim, Oued noun Dakhla Ouad Eddahab	13 175 48 34 7 4 8 6 1 2 2	4.2% 56.8% 15.6% 11% 2.3% 1.3% 2.6% 2% 0.3% 0.6% 0.6%
Place of practice	University Hospital Public practice (peripheral, polyclinic...) Private practice COVID unit Radiology Laboratory	135 67 67 15 5 6	45% 22.3% 22.3% 5% 1.6% 2%

3.1. The protective measures available

The protective measures made available to HCWs vary: 41.3% received masks, gloves and products intended for hand hygiene, 26.5% received FFP2 masks, gloves, products intended for hand hygiene, and finally 32.2% received personal protective equipment. Masks, gloves, hand hygiene products Masks (FFP2), gloves, hand

hygiene products Personal protective equipment

Figure 1: Protective measures available:

3.2. Screening tools

Screening tests made available to HCWs in their respective facilities was reported to be at 47%.

3.3. Exposure risk assessment (%)

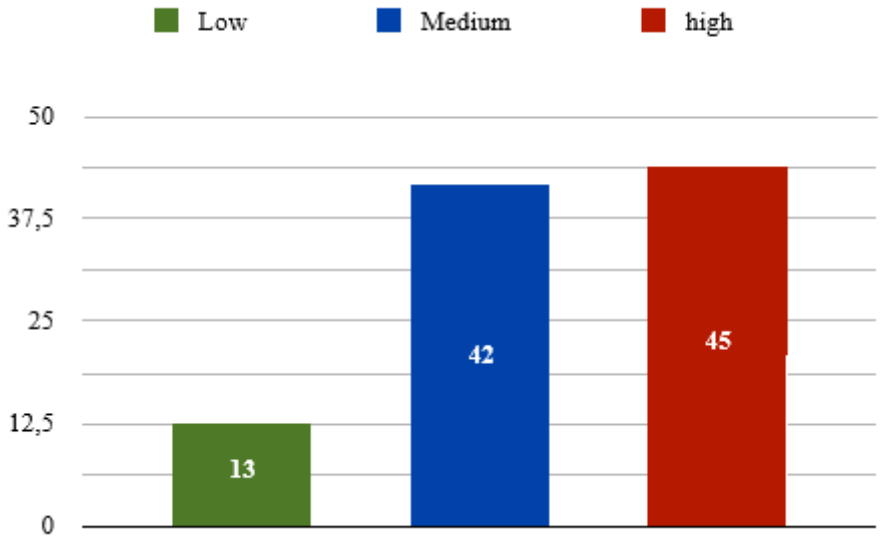

Figure 2: Exposure risk

3.3. Sources of information (%)

The sources of information used by HCWs are listed in the graph below:

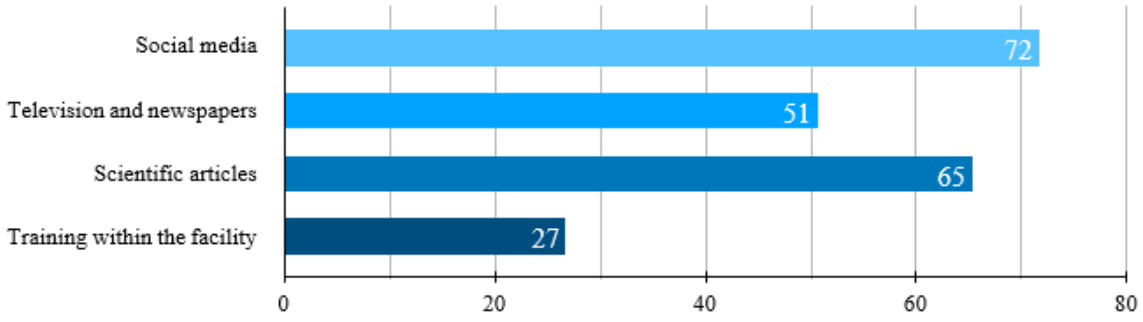

Figure 3: Sources of information used

3.4. Workload and teamwork

In 54.2% of cases, our subjects reported an increase in the workload, with more than 25% of them without break time and 30% without access to a rest room. Teamwork was rated good to satisfactory by over 83% of our subjects.

3.5. Psychological support

Psychological support was absent in 90% of cases. The subjects who received psychological support within their facility (10%), were distributed as follows:

- 43% of them consulted a healthcare professional.
- 41% had access to it through telemedicine.
- 16% reported that those around them were their main source of support.

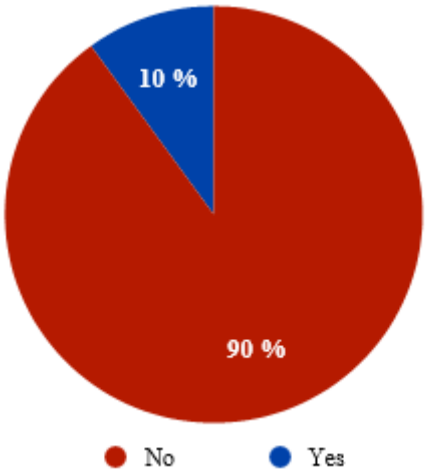

Figure 4: Psychological support

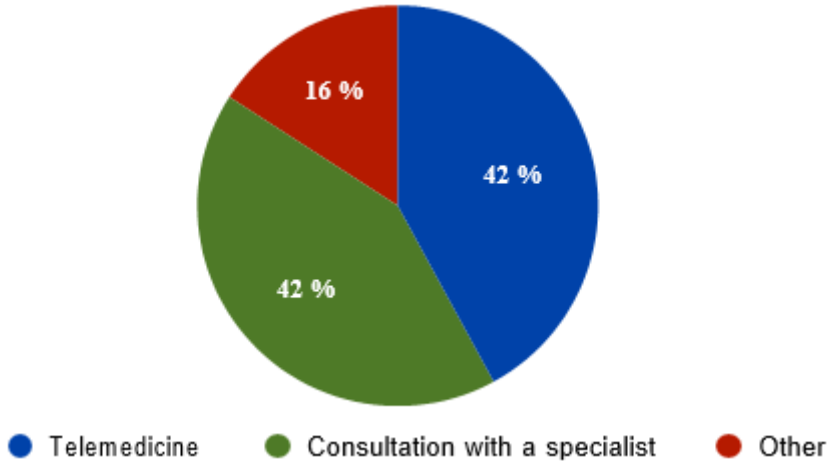

Figure 5: If yes, which type

3.6. Physical symptoms

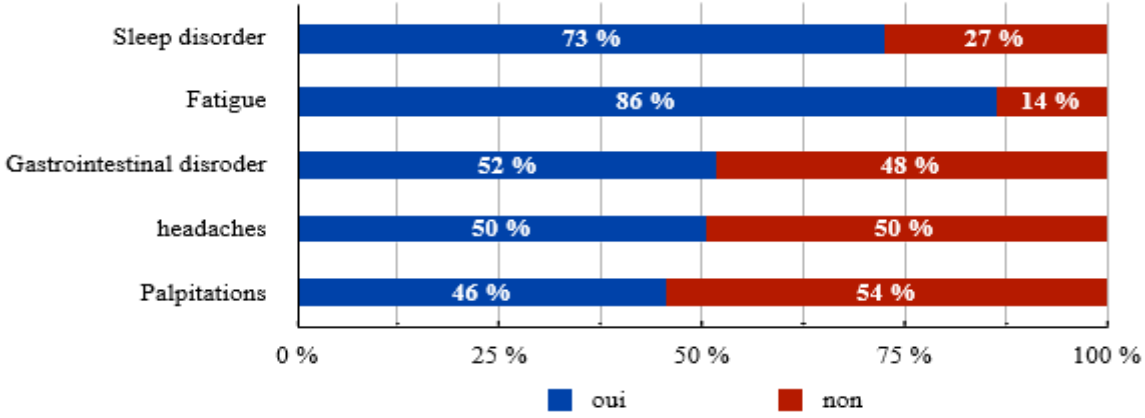

Figure 6: Physical symptoms

3.7. Psychological symptoms

Anxiety levels (%)

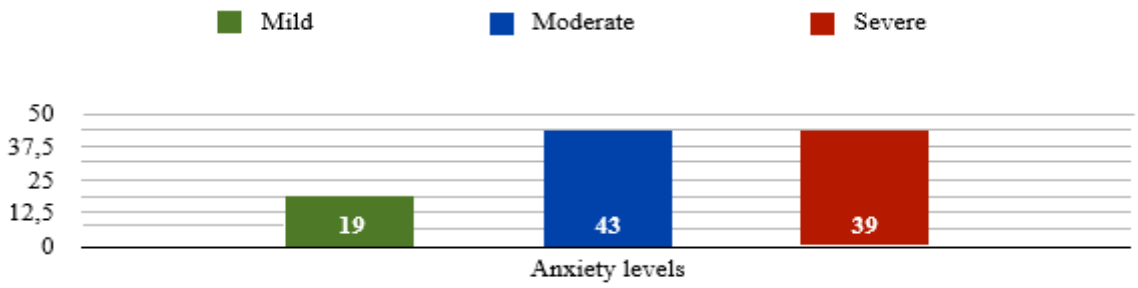

Figure 7: Anxiety levels

Other data regarding the mental state are collected in this graph:

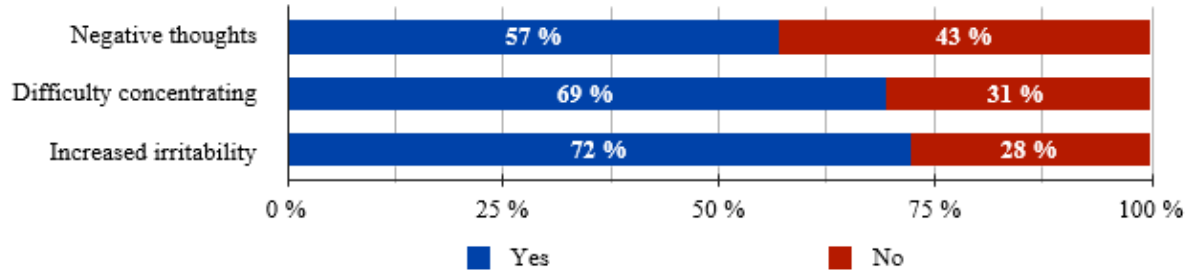

Figure 8: Other psychological symptoms

3.8. Psychological impact on the HCWs

The death of COVID patients was reported as traumatic by 22% of our subjects, among whom, 31.2% experienced a decrease inn their quality of work.

3.9. Lifestyle habits

3.9.1. Physical activity

38% of our subjects reported practicing regular physical activity, with variation in the activity during the COVID pandemic:

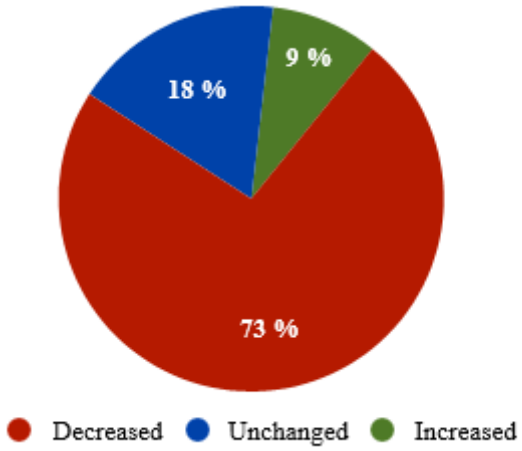

Figure 9: physical activity

3.9.2. Consumption of psychoactive substance

60% of our subjects reported consuming a psychoactive substance. 34,2% of them expressed an increase in their consumption. The psychoactive substances consumed are listed in percentages on this graph:

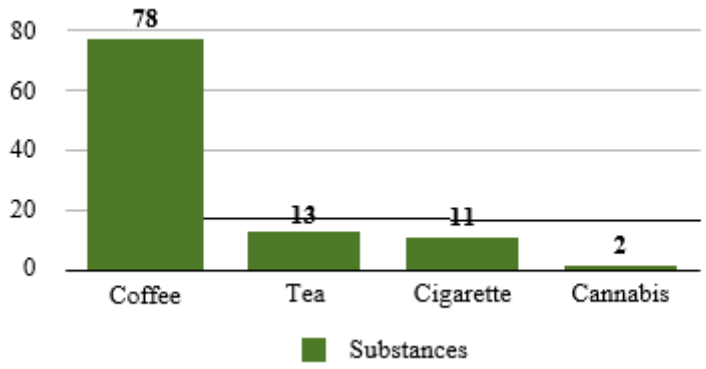

Figure 10: Psychoactive substances consumed

3.9.3. Water consumption

The daily consumption of water among our subjects is represented in the following chart:

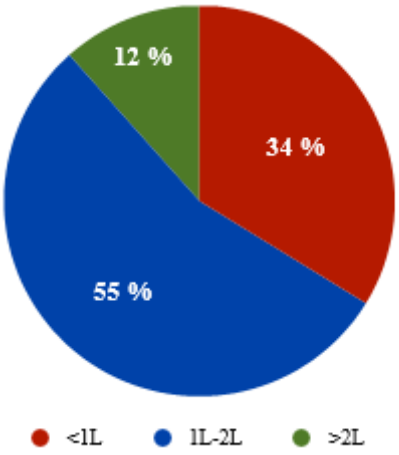

Figure 11: water consumption

3.9.4. The impact on social life

Among the 300 subjects studied, 125 (41,7%) of them reported being far from their relatives. The psychological impact of this on our subjects is as follows:

- 14.4% of the subjects reported tolerating the distance.
- 46.2% of the subjects reported being affected by it.
- 39% of the subjects reported having a great difficulty tolerating the distance.

3.9.5. Stress management

The methods used by our subjects to manage stress are represented on this chart: other activities cited as follows: naps, movies, yoga, reading, physical activity.

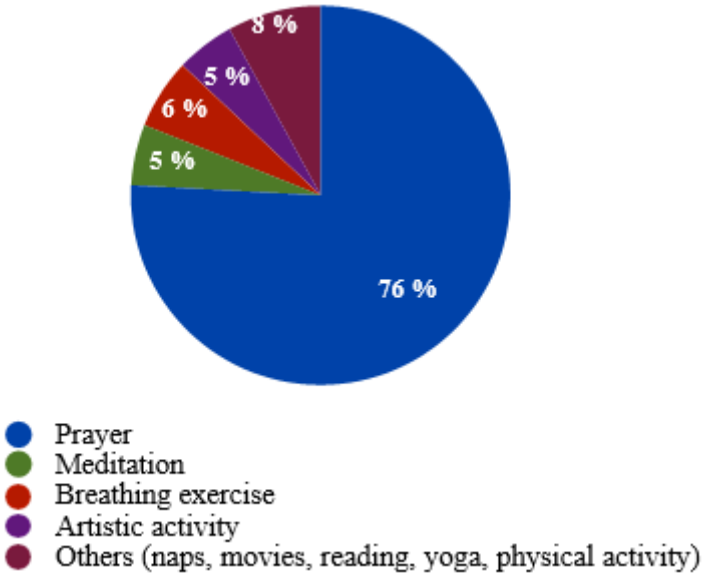

Figure 12: Stress management methods

3.9.6. Psychological support unit

Finally, the question of forming a crisis management unit specialized in the psychological monitoring and supervision of HCWs elicited a favorable response from 95% of the subjects.

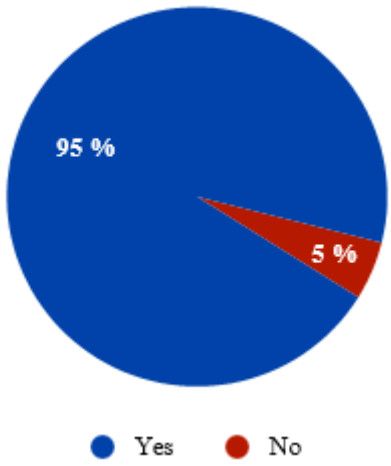

Figure 13: Psychological support unit

4. Discussion

4.1. Demography

Following the analysis of our results, women constituted two-thirds of the subjects surveyed, which represented

a percentage of 67%. They turned out to be more psychologically vulnerable than their colleagues, with signs of irritability (P = 0.038), negative thoughts (P = 0.048), sleep disorder (P = 0.039) and headaches (P = 0.035). These elements confirmed the results of several studies carried out previously [1;2;3]. A study by Paul R. Albert suggests that biological factors, such as the variation in the ovarian hormone levels and particularly decreases in estrogen, my contribute to the increased prevalence of depression and anxiety in women and that strategies to mitigate decreases in estrogen levels may be protective [1]. 1It would therefore be necessary to take into account the specificity of this population in order to provide support more suited to their needs.

4.2. Non-regulated information

The majority of the subjects; which represented 71.2%; used social media as a source of information. This large percentage was particularly due to one of the following three factors: Ease of access to this type of platform, the lockdown and all the questions that accompanied the emergence of this virus or again to all these three factors combined. Indeed, scientific research on coronavirus has been carried out in parallel with the progression of the pandemic. Such communication tools have proven to be a double-edged sword; On one hand, they made a positive contribution through rapid and effective exchange of data of massive exposure and the first genome sequencing (twitter) and the dissemination of a number of preventive measures [4]. On the other hand, this flow of new information through little or even uncontrolled channels generated a wave of unreliable information and caused an anxiety-inducing effect [5]. A study by Daniel A. González-Padilla and his colleagues highlighted the fact that probably the worst face of social media is the potential to disseminate erroneous, alarmist, and exaggerated information that can cause fear, stress, depression, and anxiety in people with or without underlying psychiatric illnesses [6]. The overlay analysis of collected data may in part explain the negative psychological signs reported by our subjects. Other studies have examined the importance of using reliable sources of scientific information, which have been considered to be a protective psychological factor for HCWs [7]. This finding was objectified in a study done by Cuiyan Wang and his colleagues which showed that specific up-to-date and accurate health information (e.g., treatment, local outbreak situation) was associated with a lower psychological impact of the outbreak and lower levels of stress, anxiety, and depression [8]. Doctors, as well as nurses, should therefore be encouraged to rely on this same type of source, the aim of which is to reduce their level of anxiety and stress.

4.3. Overwork

It should also be noted that the mental health of HCWs may deteriorate as a result of their increased efforts when treating patients with COVID, which could have repercussions on all non-COVID patients. They may also be at high risk for post traumatic stress disorder [9;10]. For Frédéric Dutheil and his colleagues PTSD was considered a secondary effect of the SARS-Cov-2 pandemic, both for general population, patients, and healthcare workers and recommended that healthcare policies need to take into account preventive strategy of PTSD, and the related risk of suicide in the future [11]. Consequently, long-term monitoring of health professionals deemed to be at risk should be instituted by the qualified authorities, in order to provide the necessary support to protect them, but also to optimize the care of all COVID and non-COVID patients.

4.4. Psychological support

The results of our study indicate that only a minority of the subjects received psychological support, which may be due to a lack of resources, or the belief that they don't need one. However, in a context of crisis, regular monitoring of HCWs should be established by a multidisciplinary team [12], as has been the case for China [13]. The main objective of this, would be to support and assess HCWs via a toll-free number, a smartphone application or a mobile consultation unit. These methods will, on one hand, facilitate access to high quality services to evaluate their needs. On the other hand, regular monitoring of HCWs will help detect states of psychological impairment (stress, anxiety, depression ...), by using The Stuart stress adaptation model [14].

Indeed, their condition could be strengthened, in particular, by:

- optimizing their health insurance coverage in the event of a work-related accidents.
- insuring clear and regular communication of preventive measures.
- making medical equipment widely available to them.

These measures will also increase their confidence and improve their resilience in the face of crisis situations.

5. The impact of lifestyle habits

Our study showed that subjects who have witnessed a decrease in their physical activity, reported signs of irritability and difficulty concentrating. This was also demonstrated in numerous studies illustrating the effectiveness of regular physical activity on stress, anxiety and the risk of depression [15;16;17;18]. A study done by Thomas G. Plante and his colleagues showed that exercise improved mood and psychological well-being as well as self-esteem, and influenced stress responsivity and cognitive functioning [18]. Other studies [19:20] have also objectified the positive effect of physical activity on the quality of sleep (sleep time, REM sleep), as it can play a role in reducing the rate of insomnia, which is the major symptom reported by our subjects. The consumption of psychoactive substances was increased in 34.2% of subjects, mainly coffee. This increase in consumption is also associated with some of the physical (sleep disorder ($p = 0.001$), headache $p = 0.043$)) and psychological (anxiety ($p = 0.003$) and negative thoughts ($p = 0.011$)) signs reported. Indeed, the caffeine present in coffee is known to improve the cognitive performance [21;22] and alertness [23]. A study done by K Rees and his colleagues demonstrated that caffeine induced small but significant improvements in vigilance and psychomotor performance [24].These effects can motivate HCWs to use it especially to face difficult situations, as in this pandemic. That said, excessive caffeine consumption has also side effects that can negatively influence the physical and mental state, causing tachycardia, nausea, vomiting, insomnia, anxiety, and depression. [25;26;27;28;29;30]. These effects described in the literature are consistent with the results found in our study. Our study showed that 89% of our subjects reported a daily consumption of less than 2 liters of water. This quantity, considered insufficient, could explain the increased level of anxiety ($p = 0.002$), irritability ($p = 0.0001$), negative thoughts ($p = 0.018$) and difficulty concentrating ($p = 0.0001$). Indeed, several studies show that insufficient water consumption can lead to the onset of headaches [31], difficulty concentrating, and increased irritability [32;33]. The social impact of this pandemic was also objectified in our

study, as 85,2% of our subjects claimed that this pandemic affected their mental state to a moderate or severe extent. Also, the risk of being exposed and exposing others to the virus, represented a reason that would explain why HCWs were living far from their families (P = 0.033). As such, family estrangement affects both their physical (fatigue P = 0.036, difficulty sleeping P = 0.022,) and mental state (anxiety P = 0.002, negative thoughts P = 0.018, concentration 0, 0001). As a matter of fact, the social aspect of the human being represents a fundamental point in the maintenance of his well-being [34;35]. Furthermore, Petra Symister and his colleagues highlighted the fact that social support, and more particularly family support, can positively influence a person's self-esteem and emotional state and thus ensure good mental health [36]. However, if relationship tensions exist, this can be harmful and negatively affect his/her well-being [37;38].

6. Recommendations

Our study, all of our subjects reported practicing some stress management methods (prayer, mediation, breathing exercise,...). These methods have proven their effectiveness in several studies, acting as defense mechanisms against stress and anxiety, as well as promoting one's well-being [39;40]. This finding was also objectified in a study done by Madhav Goyal and his colleagues which showed that mindfulness meditation improved anxiety, depression, pain, and improved stress/distress and mental health-related quality of life [41]. However, despite the implementation of these methods, their positive effect seemed absent given the impaired physical and mental state of our subjects. Our hypothesis suggests that it may be related to an irregular practice, or the non-compliance with the technical aspect of the methods described above. Establishing a healthy lifestyle can be crucial for maintaining good physical and mental health, especially in critical times [42]. Furthermore, Phillippa Lally and his colleagues emphasized the importance of forming and maintaining healthy habits in order to disrupt the ingrained unhealthy behaviours [43]. Our attention will be especially focused on creating and optimizing certain habits more than others, in order to help the HCWs adhere more easily and efficiently to the proposed program. Physical activity is essential. Although some authors favor the practice of aerobic activity [44;45], the priority is to avoid a sedentary lifestyle, and find activities that the HCWs will enjoy, in order to ensure their long-term maintenance [46]. However, with the arrival of this pandemic, several places are closed, and thus practicing some form of physical activity is difficult. Nevertheless there is always the alternative of exercising at home, and thus achieving satisfactory results. We can therefore recommend the practice of moderate to intense physical activity lasting 30 min, 3 to 4 times per week (for a total of 150 min / week) [47]. Ensuring good sleep hygiene is also necessary to improve the quality of life of the HCWs. As such, it is important to:

- Avoid stimulants (coffee, tea, tobacco) or alcohol before going to bed
- Avoid heavy snacks and spicy meals before bed
- Sleep and wake up at the same time every day,
- Engage in physical activity during the day rather than the evening
- Keep the bedroom calm and comfortable [48;49].

Consumption of healthy products, such as fruits and vegetables, rather than processed or “fast food” products. For some people, lack of time represents a barrier preventing them from eating healthy. However, preparing

meals at home and storing them in the refrigerator for 3 to 4 days offers a healthy alternative [50]. Adequate and safe consumption is equivalent to 300 to 400 mg per day or 3-4 cups of coffee per day [51;52;53;54]. Given that some of the physical and psychological signs are linked to consumption of less than 2 liters of water, we can advise our subjects to set up spaced alarms dedicated to water intake, that will ensure consumption of more than 2 liters daily. HCWs should be advised to stay connected with their loved ones, using what they have at their disposal , such as telephone calls, video calls, and certain platforms like “Whatsapp” or “Skype”. The practice of recreational activities is also recommended. A study done by Sarah D Pressman and his colleagues showed that their implementation, given their physical and mental benefits, could promote positive psychosocial states and reduce levels of depression and negative affect [55]. Indeed, affording time for oneself (reading, music, cooking, ...), could help one find and maintain a much sought-after inner balance. Our subjects should learn more about the stress management methods they intend to practice, as well as the technical aspect of each method in order to know which one suits their individual needs:

Prayer is practiced by 76% of our subjects. Prayer in Islam is a complete meditation, which combines a purification ritual, and movements punctuated by the reading of Koranic texts, well distribution throughout the day. Thus, its temporal organization may help one find inner stability and balance. If one wants to benefit from its therapeutic potential, focusing on its components is deemed necessary [56]. Mindfulness meditation consists of focusing on the present moment, or a single aspect of the present moment such as breathing. A 15 min per day in a comfortable position is recommended [57]. Finally, regular practice will ensure optimal results .

6. Conclusion

The COVID-19 pandemic represents a real challenge for the entire world, and precisely for the healthcare workers. This pilot study sheds light on the psychological challenges the doctors and nurses face during this crisis. Indeed, the increased workload, the risk of contagion as well as the psychological and physical effects of this pandemic, are all consequences highlighted by our study. The commitment of the hospitals to deal with this unprecedented situation is strongly recommended. Providing protective and screening equipment, and creating psychological support units capable of managing any situation that may arise, represent only parts of the overall measures that must be implemented. At the same time, healthcare workers must also be aware of the important role they play in maintaining their physical and mental state, in particular by adopting healthy lifestyle habits.

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