

Prevalence, Factors and Consequences of Burnout among a Group of Moroccan Personal Health during COVID-19 Pandemic

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Abstract

Original Research Article

The main objective of the study was to assess the prevalence of burnout in a group of health personnel during the COVID-19 epidemic in Morocco. The secondary objective was to identify risk factors associated with burnout in this population. In this survey, albeit limited, a questionnaire was sent by e-mail to all the people who form the team during the month of September 2020. The prevalence of burnout was assessed with the validated French version of the Maslach Burnout Inventair. The questionnaire also contained items on socio-demographic characteristics and professional situation. The prevalence of burnout was 46.7%. He had an association between burnout and exposure to the consequences of COVID-19. Hours worked per week and anxiety scores were significantly associated with burnout.

Keywords: Burnout, COVID-19, Morocco, Anxiety, Working hours, Maslach Burnout Inventory (MBI).

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INTRODUCTION

The World Health Organization declared COVID-19 as a pandemic in March 2020 [1]. The disease has since spread rapidly, with millions of infections documented globally. The spectrum of the disease is wide and varies from asymptomatic to severe disease; the latter may require hospitalization or even artificial ventilation [2]. The average death rate is 5.7% worldwide, with higher deaths among the elderly and those with pre-existing health conditions [3] in Morocco, during the months of July, August and September 2020 the number of cases had drastically increased from almost 9,000 at the end of June to 121,183 cases with more than 2,000 deaths at the end of September 2020 [4]. This rapid spread of the disease has caused the confinement of entire populations, filling hospitals overwhelmed by massive inflows of patients with severe forms of the disease, and resulting in a dramatic increase in mortality within health services. This has led to the creation of several companion military hospitals within the framework of the cooperation of the various Moroccan civil and military

health services; including one in Tangier where our study was taking place. The indirect issues of such a pandemic in terms of mental health are at least two-fold: the potential psychological impact of confinement on the general population and on vulnerable people, especially those suffering from mental disorders [5] and impact on caregivers. Health services are strained by the pandemic, some caregivers are on the front line. Frontline healthcare workers face many challenges, such as direct exposure to patients with high viral loads, exposure to risk of contamination, physical exhaustion, reorganization of workspaces, adaptation to rigid organizations of work, the management of the shortage of materials, the unusually high number of deaths among patients, colleagues or relatives, ethical questions relating to decision-making in a strained healthcare system.

The "Burn out" or the "Professional exhaustion syndrome", currently recognized as an occupational disease [6], is nothing more than a description of the caregiver's agony. The syndrome consists of a tripod of progressively evolving phases: 1° emotional exhaustion

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2° depersonalization or dehumanization of the relationship with others 3° decrease in professional achievement. The prevalence of 'Burn out' among healthcare workforce with Covid 19 amputation varies between 50 and 70%. The highest rates were observed among young personnel and those working in intensive care units [7, 8]. The objective of our study is to clarify the prevalence of exhaustion syndrome professional within the medical and paramedical corps of the company military hospital in Tangier and by identifying its main risk factors.

Number of doctors 32, nurse 56, lab technician 4, pharmacy 1, radio tech 1 and the rest are civilians.

Pandemic situation in Morocco

The first case declared in Morocco was March 2 of a man of Moroccan nationality returning from Italy and since then the number of cases has been increasing gradually and not exceeding 200 cases per day for almost 3 months. Morocco has put in place measures to contain the spread of the pandemic, closing borders, schools and universities, public spaces and finally the declaration of a state of health emergency and restriction of movement. 7 ("Coronavirus: Authorities declare state of health emergency and containment" [archive], on medias24.com, March 19, 2020.) However, from July, the number of cases had increased drastically, bringing the daily number of new ones to exceed 4000, with individualization of many clusters in many cities such as Tangier, Casablanca and Marrakech. Faced with this new situation, the military health service decided to deploy several companion military hospitals, including one in the city of Tangier, as part of multi-sector cooperation in the fight against the pandemic.

Tangier military company hospital

It was deployed from July 22 to October 10, 2020 in the city of Tangier in cooperation with the hospitals of the health ministry to deal with the second wave of the pandemic. it consisted of around 100 participant, with 32 doctors from different specialties, anesthetist-resuscitators, emergency physicians, pulmonologists and radiologists, as well as pharmacists; 58 nurses, radiology and laboratory technicians, nursing assistants and secretaries as well as social workers.

It consisted of an intensive care unit with 8 beds, 11 intensive care beds, 2 hemodialysis boxes, two inpatient departments with a litter capacity of 86 beds, a radiology department with computed tomography, and a P1 laboratory.

MATERIALS AND METHODS

This is an analytical study, carried out during the month of August 2020 at the polyclinic of Tangier / Morocco, using a computerized questionnaire, via the "Google form" site

1. Sampling: the target population consisted of health

professionals working during this SARS-CoV 2 (COVID 19) pandemic. The choice was based on the fact that these health professionals increasingly exposed to an increased risk of contamination by the virus due to the high number of people affected in different communities and therefore they are frequently exposed to stress.

2. Data collection: the burnout assessment was carried out using two scales: the data was collected using a computerized questionnaire via the "Google form" site. The questions were chosen following an analysis of the criteria that could influence burnout found in the literature. The questionnaire consists of three parts:
 - The initial step is to define demographic and personal data, research progress, and practice circumstances. Questions specific to each mode of exercise were proposed in order to obtain more precise data on the mode and pace of work.
 - A second using the "Maslach Burnout Inventory" (MBI) burnout scale; this MBI scale makes it possible to expose its 3 dimensions: emotional exhaustion (explored by 9 items), depersonalization (explored by 5 items) and personal accomplishment (explored by 8 items) were used to establish the frequency. The response methods for the 22 items are based on a 7-point frequency scale with an intensity ranging from 0 to 6: "0 = never to 6 = every day". The score in each dimension is used to determine the degree of impairment as high, moderate, or low. This scale is the most widely used in the literature to describe each dimension of burnout in the workplace.
 - A final one featuring the Siegrist measurement scale which includes both a questionnaire that assesses the effort-to-reward ratio and a questionnaire that assesses overinvestment (intrinsic effort) in work. This model is based on the assumption that a work situation characterized by a combination of high effort and low rewards is followed by pathological emotional and physiological reactions.

Anonymity was maintained throughout the questionnaire.

3. Data processing and analysis: we collected the responses to the questionnaires anonymously, via the "Google form" site. We then exported them in the form of a table with "Excel 2017" software. All descriptive, univariate or multivariate analyzes were performed with SPSS 10 software. Statistical tests were carried out using SPSS10 software at the biostatistics and clinical research laboratory of the Faculty of Medicine and Pharmacy of Rabat.

RESULTS

Socio-demographic and professional characteristics:

The male gender was in the majority with 92.3% male. The most represented age group was that of caregivers aged 25 and 34 (82.23%). Several

professional categories had been identified: doctors (15.07%), pharmacists (2%), nurses (62.34%), nursing assistants (15.32%), and medical secretaries (5.27%).

Their distribution according to the COVID-19 service or not has been specified as follows: 100% of health professionals work in a service specializing in

the care of COVID-19 patients.

Regarding the frequency of work, the majority of respondents held a full-time job (80.21%).

Hygiene measures available to fight Covid-19: this table summarizes the main results obtained

	Yes	No
Wearing an FFP2 respirator	100%	00%
Protection of professional clothing with a disposable long-sleeved gown	85%	15%
Preventing any projection in the eyes by systematically wearing protective goggles	80%	20%
Wearing complete hair protection (charlotte, covering cap, etc.)	100%	00%
The realization with absolute rigor of hand hygiene gestures by hydro alcoholic friction	100%	00%
The elimination of this personal protective equipment (PPE) in DASRI	100%	00%

Frequency and characteristics of burnout:

The MBI scale used in our study revealed at the time of the survey 46.77% healthcare workforce in

burnout, 33.88% at risk of burnout, 19.35% not in burnout (Table 2).

Burnout profiles			
Identity card and simplified MBI-GS	Detailed MBI-GS	Frequency	Pourcentage
Not in burnout	Engaged	12	19.35
	ineffective	3	4.83
At risk of burnout	overload	5	8.06
	disengaged	7	11.29
	At the limit of burnout	6	9.67
In burnout	In burnout	29	46.77

The distribution of the number of burnout cases according to professional categories was as follows: (14.51%) of doctor, nurses (19.35%), nursing assistants (9.67%) and medical secretaries (3.22 %).

Factors associated with burnout: we did not spot any interconnection between burnout and the Covid Service19, Number of children, young children

(under 3 years), the protective measures provided, the degree of risk Covid19 exposure, the degree of patient protection and the concern of infecting family members.

A significant positive association was found between burnout and the following socio-demographic characteristics: Status, Routine service, Sex, age, Marital status and Working time with p <0.05 (Table 3).

Caractéristiques	Pas en burnout	A risque de faire un burnout	En burnout	Khi-deux	Valeur de p	<0,05 = *	
	Médecin	4	6	9	22,364	0,017	*
	infirmier	4	9	12			
	Aide soignante	2	3	6			
	Secrétaire médicale	2	3	2			
Service Covid19	Oui	12	21	12	2,192	0,334	N.S
Sexe	Homme	11	19	25	31,126	0,011	*
	Femme	1	2	4			
Âge	Inf à 25 ans	1	5	2	47,612	0,005	*
	25-34 ans	3	6	13			
	35-44ans	6	7	7			
	45-54 ans	2	3	4			
	55-64 ans	0	0	3			
Statut marital	Célibataire	2	4	3	52,613	0	*
	Marié(e)	10	17	25			
	Divorcé(e)	0	0	1			
	Veuf (ve)	0	0	0			

Nombre d'enfants	Pas d'enfants	3	11	9	5,623	0,314	N.S
	1	3	7	13			
	2	6	2	6			
	3 et plus	0	1	1			
Avez-vous des enfants en bas Âge (moins de 3 ans)	Oui	3	5	4	6,277	0,119	N.S
	non	9	16	25			
Vos enfants sont toujours avec vous	oui	0	0	0	7,165	0,134	N.S
	Non	12	21	29			
Vos enfants, Vous les avez confinés chez un membre de la famille	Oui	0	0	0	1,812	0,465	N.S
	Non	12	21	29			
Temps de travail	Temps plein	9	19	27	7,939	0,019	*
	Temps partiel	3	2	2			
Comment jugez-vous les mesures de protection mise à disposition	Absente	0	0	0	5,347	0,714	N.S
	Moyenne	0	0	0			
	Bien	7	4	8			
	Excellente	5	17	21			
Comment jugez-vous le degré de risque d'exposition Covid19	Très faible	1	3	0	13,641	1,085	N.S
	Faible	6	9	0			
	Moyen	4	7	19			
	Élevé	1	2	10			
Comment jugez-vous le degré de protection des patients que vous prenez en charge	Absente	0	0	0	7,677	1,543	N.S
	Moyenne	0	0	0			
	Bien	5	4	6			
	Excellente	7	17	23			
Avez-vous des craintes de contaminer des membres de la famille	Oui	2	6	8	0,666	0,751	N.S
	Non	10	15	21			

* considéré significatif pour une valeur de $p < 0,05$

N.S considéré non significatif pour une valeur de $p < 0,05$.

Siegrist scale: health professionals in burnout were more likely to have an unbalanced effort/reward ratio: 43.54% of caregivers in burnout versus 17.74% of health professionals in non-burnout (Table 4).

Caractéristiques		Pas en burnout	A risque de faire un burnout	En burnout	Khi-deux	Valeur de p	$< 0,05 = *$
Ratio Efforts/Récompenses	ratio inférieur a 1	11	17	27	7,231	0,01	*
	ratio supérieur ou égal à 1	1	4	2			
Le score de surinvestissement	inférieur ou égal 19	9	15	15	34,319	0,01	*
	Supérieur à 19	3	6	14			

* considéré significatif pour une valeur de $p < 0,05$

N.S considéré non significatif pour une valeur de $p < 0,05$.

DISCUSSION

Burnout syndrome is a state of physical and mental exhaustion Related to work or care activities [9, 10]. Emotional weariness, depersonalization and diminished personal accomplishment are the main characteristics of this syndrome [11]. While emotional exhaustion refers to feelings of overload and depletion of emotional resources; Depersonalization represents a cynical "isolationist" attitude toward day-to-day interactions with others. Reduced personal achievement occurs when the subject feels less competent in their role [11, 12]. With prevalence close to or greater than 50%, BOS has become a serious mental health issue for health care professionals in many countries.

The consequences of BOS include an increased risk of errors, decreased patient satisfaction and depression [13, 14].

The COVID-19 pandemic is an exceptional situation that may add up new factors for the development of BOS in caregivers, especially doctors. Here, we sought to assess the frequency of burnout syndrome among a sample of Moroccan health manpower during the COVID-19 pandemic and to identify some of its determinants.

Our results revealed that more than 43% of participants had BOS, compared to 40% in an Egyptian study during the peak of COVID-19 in Egypt in 2020

which objectified that most of them suffered from losses of personal achievement, and a lesser proportion of depersonalization and the emotional exhaustion [53]. According to a report by SFAR (The French Society of Anesthesia and Resuscitation), the burnout syndrome would concern currently 20 to 50% of Anesthetist Resuscitators [15]. According to the results of a Portuguese study, anesthetists would be the most concerned among physicians since 50 to 60% of all anesthetists would be subject to it [16, 17].

I. THE STEPS OF BURN THE STEPS OF BURN TAPES OF BURN OUT [18, 19]

It is rare for the burnout syndrome to set in immediately in one piece. With different degrees of intensity and following a staggered progression over months or even years, the exhaustion is rather insidious, so that it can be, most of the time, described in 4 successive phases [19, 20]:

A) Phase of idealistic enthusiasm:

This is a gait that characterizes the beginner, with attitudes fanciful dreams, unrealistic hopes and excessive optimism.

This is associated with an overinvestment, hence this notion of "burn".

B) Ineffective stagnation phase:

Caregiver begins to run out of steam, things are not going as they are planned, the patients do not change quickly, the administration does not cooperate enough and the demands for care do not decrease.

C) Phase of disillusion, frustration:

It is at this time that the disorders classically develop physical, behavioral and emotional syndrome. They begin to doubt themselves, their judgment, their abilities, and their effectiveness in the helping relationships. They feel less close to their family, their spouse and their children; their family or intimate life is impoverished.

D) Phase of apathy, demoralization:

The candidate on the way to "Burn out" then feels clearly overwhelmed, incompetent and almost chronically frustrated at work.

While acknowledging that they only need it for purely economic.

At this phase, the "burnt" individual needs specialized care because if this condition is prolonged, it probably leads to a classic major depression.

It should be noted that, of course, exhaustion does not develop always unequivocally, progressively and linearly.

II. BURN OUT MEASUREMENT INSTRUMENTS:

It should be noted that to date, there are massive number of measurement tools burnout [21-23].

However, it seems that the 22-item MBI instrument of Maslach and Jackson is the dominant perspective on the evaluation of Professional exhaustion. Indeed, nearly 90% of empirical research uses this instrument whose psychometric properties are considered satisfactory [24].

A) Maslach Burnout Inventory (MBI):

As previously mentioned, the MBI allows you to return three cents scales which respectively measure the three dimensions of Burnout: emotional exhaustion, depersonalization and reduced personal accomplishment at work.

B) Burnout Measure (BM) or Burnout Measure Short Version (BMS) [25]:

This instrument, validated in the French version, restores a single score which illustrates the degree of exhaustion of the subject.

This degree includes physical, mental and emotional weariness: For its part, the BM tool consists of 21 items with a scale of seven-point answer (1: "never" to 7 "always")

C) The Oldenburg Burnout Inventory (OLBI) [26]:

Developed by Dermouti, this tool was built from the work theories of Cherniss (1980) and Hall (1976). It includes the two fundamental dimensions of Burnout, which are exhaustion and disengagement from work (disengagement for work). These are the core of burnout [27].

What mainly differentiates the OLBI from the MBI, beyond their factor structures is that, in accordance with good practice psychometrically, the OLBI subscales both contain both negatively worded and positively worded items.

Unlike the original MBI, the OLBI not only covers aspects emotional exhaustion, but also physical and cognitive.

D) Areas of Work life Survey (AWLS) [28, 29]:

The idea behind the development of this scale is that the qualities of the work environment play a decisive role in the relationships that individuals establish at work.

The objective is to provide a practical and economic evaluation of the central questions for the improvement of the quality of life at work.

Other burnout assessment instruments have been developed in the context of ad hoc research, such as the Burn out questionnaire by Freudenberger and

Richelson, the S-MBM by Shirom-Melamed, the Staff Burn out scale for health professionals by Jones, etc.

These instruments mainly assess the physical and mental state of an individual and have limited statistical validity [30, 31]. The difficulty in evaluating burnout lies in the fact that the symptoms analyzed are not specific, but may be part of other nosological frameworks.

Hence the interest of the MBI, which evaluates a particular aspect of exhaustion professional, that is to say the depersonalization of the relationship with the other, which gives it all its value and which is not evaluated by other measuring instruments.

III. THE CAUSES OF BURNOUT

A) Socio-demographic variables:

It is difficult to draw conclusions about the role of the variables socio-demographic on the appearance of Burnout because the studies have divergent results.

1) Age:

The role of age is still much debated in the literature.

For some, it could influence the appearance of the syndrome, and therefore the younger people are more likely to burn out [32]; it is more common among young anesthesiologists [33]. while for others, people between 40 and 50 years old are more at risk [34].

The average age of our practitioners was 34.35 ± 9 years old, with extremes of 21 and 60 years old.

The results of our study reveal a significant association between age and burnout.

2) Gender:

The role of gender in the occurrence of burnout is also controversial. This data was statistically significant in univariate analysis. However, there is no statistically significant link between gender and the degree of burnout (high, moderate or low).

Our study shows that women are more affected than men. This probably because of their physical and emotional vulnerability, or would they have less mastery of work because of other social constraints and this permanent concern to be able to reconcile their professional life with their family life, both as important as the other, or would they simply be one aspects of the "feminization" of medicine.

These same results have been found in some studies [35, 36]. An American multivariate study shows that women have a 60% greater risk of being in Burnout than men, specifying that women are more "intensely" affected than men (26% of women have a high degree

of Burnout in its three dimensions compared to 21% of men).

For other scholars, such as Maslach, it is rather men who would be more affected than women [37].

3) The family status:

The family situation of caregivers (marital status and dependent children) is often asked in the various studies on the subject.

Unfortunately, the conclusion is seldom utilized, and when it is, it is usually insignificant, as was the case in our study; yet, it appears from certain scholars that family life has a favorable effect on morale [38] and is related to job satisfaction [39].

B) Occupational variables:

Several studies have been carried out on the relationship between training, function, titles, number of years of experience and burnout. The results concluded that there is no direct link [34].

1) Seniority or number of years of practice

According to some scholars, burnout (and in particular depersonalization) decreases with professional seniority. There would be a peak in incidence at the start of a career, specified at less than 5 years of activity for most studies [39, 40].

2) The place of practice

For some scholars (surveys carried out among general practitioners), settling in a rural environment seems to be a particular source of stress [42, 41] and would favor the emergence of burnout [42, 40], but several other studies find the results not significant [43].

3) Professional Status

Anyone engaged in a daily helping relationship with others and subjected to chronic professional stress is likely to one day suffer from burnout syndrome.

This concern, in the first place, the nursing staff as a whole and nurses in particular [44].

Indeed, many European epidemiological studies and studies show convergent results: burnout affects around a quarter of nurses in general hospitals, all departments combined [45]. Some scholars explain this vulnerability by the accumulation of a certain number of factors, namely the organizational complexity of the work but above all the chronic devaluation felt by nurses following the virtual absence of gratification from doctors and superiors, inducing a real feeling of abandonment.

The lack of participation in decision-making and the weak autonomy at work are also sources of stress, especially when it comes to a decision to stop treatment [46].

Doctors (14.51 percent), nurses (19.35 percent), caretakers (9.67 percent), and medical secretaries (14.51 percent) were all represented in our series (3.22 percent).

There is therefore a statistically significant link between the status professional and Burn out ($p=0.01$). Nurses are the most exposed, followed by doctors.

Our results are partly consistent with these data, as long as we were able to retain this factor as outstandingly associated with burnout and “independent” and that nurses were the most affected.

Psychological distress factors for caregivers during the COVID-19 pandemic A particularly stressful situation

The characteristics of this pandemic – speed of spread, uncertain knowledge, severity, deaths among caregivers – heighten the potential psychological impact on professionals of health [47]. The sources of concern are diverse. Some evolve in a new environment, materially and technically, having to assimilate a large mass in a short time information and acquire new technical skills, in serious clinical situations. This need to acquire quick skill can be the cause of an alteration of the feeling of mastery which has proven to be a good factor in protection. Concern about material means alters this sense of control and security for all. The environment relationship is often new, due to reinforcements or the creation of new teams, weakening or strengthening the feeling of belonging. Communication between caregivers [48], the positioning of management, management personnel, are also key protective or anxiety-provoking parameters. Fears are multiple: lack of skills, means to carry out his work [49], making choices (or implementing them) in disagreement with their personal ethical options. A new private balance with the turmoil of daily family life, with the feeling of constant threat [50], without escape, for oneself and those close to it, might be added to this.

Exhaustion factors specific to the COVID-19 crisis

Caregivers face a large amount of work and information to manage: massive influx of patients and instructions organizations in continuous evolution strongly soliciting the cognitive abilities (working memory and flexibility). The catches of decisions are repeated, rapid, difficult, leading to strong psychic tension and possible cognitive exhaustion. Moreover, these efforts are not rewarded by therapeutic success, the number of deaths being unusually high. The regular count of mortality comes to materialize this reality, which reinforces the feeling of personal inefficiency and of the very function of caregiver in its ideal of reducing care to the sole objectives of curing the acute disease. In addition, supporting families is made impossible in the context of confinement. Prohibiting the visit or the presentation of the deceased increases the emotional charge, in particular the feeling of guilt.

Usually, this professional, cognitive and emotional load is balanced by personal life, but which is also put to the test with confinement, concern for loved ones, and reduction of leisure and rest time.

Low use of support devices by caregivers

Outside of the pandemic, caregivers are more at risk than the general population of having mental disorders, of being underdiagnosed and undertreated. During the pandemic, psychological support systems have been put in place for caregivers [51, 52]. Feedback describes reluctance, even the absence of solicitation of listening cells in times of crisis sanitary. One of the explanations is the lack of recognition of psychological difficulties and the need put forward for more rest and PPE. It seems that concrete measures for the development of rest rooms, facilitation of the logistics of meals, daily life, and the possibility of having leisure and moments of relaxation are more appropriate to the needs of caregivers than support psychological [51].

CONCLUSION

Our results show that the COVID-19 pandemic has added new demographic and workload-related factors responsible for the development of burnout in our research group. From our point of view, several measures should be taken to support doctors at this stage. These measures include psychological and moral support, especially in different media and platforms. Other measures should include implementing better conditions and management of working hours, adjusting wages and providing supplies as they go along as well as infection prevention.

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