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# DETERMINANTS OF BURNOUT AND ITS PREVALENCE AMONG EMPLOYEES IN A MOROCCAN PRIVATE COMPANY

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## Background:

Burnout or occupational exhaustion syndrome is a neuropsychological disorder resulting from chronic stress at work. Employees of private companies are highly exposed to this risk because of the overload of work in addition to the long daily working hours. We have therefore conducted a study whose aim is to assess the prevalence of burnout and its components, as well as to study socio-professional determinants among employees.

## Material/Methods:

We tested 102 employees aged between 22 and 60 years with an average age of 36.76 years  $\pm$  10.5 years. 77% were men and 24% were women. They were asked to complete freely and anonymously a general information sheet and the MBI questionnaire "Maslach Burn-out Inventory" in its French version with language adaptation. This consists of 22 items, evaluating three dimensions: emotional exhaustion (EE), depersonalization (DP) and personal accomplishment (PA). A score was calculated and a rating in the degree of severity (low, moderate and high) was given for each of the dimensions, according to internationally accepted standards.

## Results:

The analysis of the results showed a high prevalence of burnout. Statistical analyses show that the rate of burnout in the age group over 40 equals 47.2% against 31.8% only among employees aged under 40. Similarly, the burnout rate among women is about the same as men ( $p=0.977$ ). Emotional exhaustion (EE) is the most widespread component in exhausted subjects. It was found to be high for 14.7% of employees; while depersonalization (DP) or high cynicism affects only 3.9% of subjects. Significant links between depersonalization and gender as well as professional seniority are obtained. Concerning the level of schooling, the rate of burnout decreases when the school level increases but without significance ( $p = 0.474$ ). The rate of burnout is high among executing workers followed by senior managers. However, this link remains statistically insignificant. Concerning seniority, we note that the prevalence of burnout increases with professional seniority and even in the meaningless position. We also observe a higher rate of burnout among employees with company seniority of less than 10 years in addition to the oldest, but without any meaning.

## Conclusions:

Professional exhaustion or burnout exists strongly in Moroccan companies. In order to be able to adapt to the rapid development of the market and its increased demands, it is essential that business leaders prevent this pathology by improving the psychosocial work environment.

**Keywords:** emotional exhaustion; depersonalization; personal accomplishment, work environment

## SUMMARY

## INTRODUCTION

Burn-out or professional exhaustion is an evil of the century (Zawieja, 2017). It results from chronic work related stress (Maslach & Leiter, 2016). It is a professional syndrome characterized by overwhelming feelings of emotional exhaustion, negativity towards work (cynicism or depersonalization) and a lack of personal fulfilment or professional inefficiency (Bakker&al., 2014; Maslach&Leiter, 2016).

Emotional exhaustion is considered the key component of burnout, as exhausted people mostly cite feelings of mental and physical exhaustion, a low mood, and lack of energy (Maslach & al., 2001; Naczenski & al., 2017; Schaufeli & al., 2009). Cynicism or depersonalization refers to the cognitive distance exhausted people take from their work. Reduced personal accomplishment or job ineffectiveness refers to feelings of being incompetent at work (Guan&al., 2017; Maslach&al., 2001). Burnout can have detrimental consequences not only at the individual level (e.g. physical and mental health problems) (Suñer-Soler& al, 2013), but also at the organizational level as absenteeism, poor job performance, misjudgments and errors, high staff turnover (Ochoa, 2018). A subject literature review on psychosocial risks (PSR) in different sectors in Morocco, indicates that burnout is the most common psychological risk with a prevalence of 49% (Es-serdi&al., 2019). Employees of Moroccan private companies are highly exposed to this risk because there is a total absence of legal texts governing PSR at work, in addition to difficult working hours and their excessive intensity. Therefore, we conducted this study to assess the prevalence of burnout and its components as well as to study its determining factors among these employees.

## MATERIAL AND METHODS

This work is a quantitative descriptive study conducted over two months, in a Moroccan company in Kenitra working in the industrial sector. The study population is made up of 102 volunteer employees with different functions: senior managers, supervisors, technicians and production workers.

Data collection was carried out using the MBI questionnaire (Maslach & Jackson, 1981) in its French-language version (Dion & Tessier, 1994) with relevant language adaptation. This is a self-questionnaire consisting of 22 items, evaluating three dimensions: emotional exhaustion (EE), depersonalization (DP) and personal accomplishment (PA). A score was calculated and a rating in the degree of severity (low, moderate and high) was given for each of the dimensions, according to the internationally accepted standards. A six-point scale; measured the frequency of symptoms where zero corresponds to the response “never”, and six corresponds to the response “every day”. Emotional exhaustion was considered moderate for a score greater than or equal to 18, and high for a score greater than 30. Depersonalization was considered moderate for a score of between six and 11, and high for a score greater than 12.

Finally, burn-out is defined by the presence of a so-called “pathological” level for at least one of the three components of the MBI. A pathological level for only

one of the three scores defines a low level of burnout; achieving two scores out of three makes it possible to speak of moderate burnout; a high score on the first two subscales and a low score on the last indicates a high level of burnout.

The indices of the internal consistency of the components of MBI for our sample are satisfactory:  $\alpha=0.78$  for depersonalization,  $\alpha=0.78$  for emotional exhaustion and  $\alpha=0.56$  for personal accomplishment and  $\alpha=0.70$  for the whole of MBI.

An information sheet was also completed, anonymously. It explored age, sex, professional status, seniority in the company, seniority in the position and any notable physical, emotional and behavioural symptoms.

Statistical analysis was performed with SPSS 25 software. The Khi2 test was used to verify the link between the categorical variables studied. Statistical significance is maintained at the 5% threshold.

## RESULTS

### Descriptive results

The study population consisted of 102 employees aged between 22 and 60 years with an average of 36.76 years  $\pm$  10.5 years. 77% were men and 24% were women. 31% were single, 67% were married and 2% were divorced. 41% had one to two dependent children and 19% had more than two children. Regarding the school leaving level, 50% of the subjects had a baccalaureate (bac) level to bac+2, 30% had a level higher than bac+2 and 20% had a level lower than baccalaureate. 48% of the participants were technicians and supervisors, 32% were production workers and 20% were senior managers.

Three types of seniority were taken into consideration, professional seniority was between 32 years and one year with an average of 11.68 years  $\pm$  8.94. Seniority in the position varied between 30 years and a few months with an average of 7.31 years  $\pm$  7.55. And seniority in the company varied between 1 month and 32 years with an average of 9.37 years  $\pm$  8. 13.7% of participants had blood pressure problems. 55.9% often felt general fatigue. 29.4% said they were nervous and 49% felt anxious. 34.3% had musculoskeletal pain and 10.8% consumed alcoholic beverages, cigarettes, or both.

### Components of burnout and socio-professional characters

37.3% of employees (i.e., 38) present a burnout syndrome, against 62.7% of employees (i.e., 64) who are free from it. Among 38 exhausted employees we find that 32.4% (33) have a low burnout, and that 4.9% (i.e., 5) have a moderate level.

Statistical analyses show that the rate of burnout in the age group over 40 equals 47.2% against 31.8% only among employees aged under 40 without statistical significance. Similarly, the burnout rate among women is about the same as among men ( $p = 0.977$ ). Concerning the school-leaving level, the rate of burnout decreases when the school-leavingage increases but without being statistically significance ( $p = 0.474$ ). The rate of burnout is high among executing

workers followed by senior managers. However, this link remains statistically insignificant. Concerning seniority, we note that the prevalence of burnout increases with professional seniority and even in a meaningless position. We also observe a higher rate of burnout among employees with a seniority in the company of less than 10 years in addition to the oldest, but without any meaning. Family status does not influence the occurrence of burnout, but we note that it is higher among married people, and its rate increases with the number of children.

Emotional exhaustion (EE) is high among 14.7% of employees. Depersonalization (DP) or high cynicism affects 3.9% of subjects. While personal achievement (PA) is reduced among 23.5% of employees. Age is not significantly related to any of these components; the rates of high EE and reduced PA are higher in older people, while the rate of high DP is higher for young people under 40 years of age. The high EE is more important for men, while the high DP is significantly more present among women ( $p=0.03$ ), the reduced PA is also high for women; however, this is not statistically significant. Similarly, no significant link is found between the level of study and the components of burnout: the highest rate of EE exists among employees with a level of education between bac and bac+2,

Table 1. Descriptive results

	Categories	Descriptive statistics	
		Frequency	Percentage
Age	20 to 40 years	n= 66	66%
	40 to 60 years	n = 36	34%
Gender	Female	n = 24	24%
	Male	n = 78	77%
Educational level	<Bac	n = 20	20%
	Bac to Bac + 2	n = 51	50%
	>Bac + 2	n = 31	30%
Professional status	Executing workers	n = 33	32%
	Technicians, supervisor	n = 49	48%
	Senior managers	n = 20	20%
Professional seniority	< 10 years old	n = 57	56%
	10 to 20 years old	n = 22	22%
	> 20 years old	n = 23	23%
Seniority in the company	< 10 years	n = 68	66%
	10 years to 20 years	n = 17	17%
	> 20 years	n = 17	17%
Seniority in the task	< 10 years old	n = 74	73%
	10 to 20 years old	n = 18	18%
	> 20 years old	n = 10	10%
Marital status	Single	n = 34	31%
	Married	n = 68	67%
	Divorce	n = 2	2%
Number of children in charge	Without children	n = 41	40%
	One to two children	n = 42	41%
	Two and more	n = 17	19%
Other symptoms	Blood pressure disorders	n = 14	13.7%
	General tiredness	n = 57	55.90%
	Anxiety	n = 50	49.00%
	Nervousness	n = 30	29.40%
	Musculoskeletal pain	n = 35	34.3%
	Consumption of alcohol or cigarettes or both	n = 11	10.8%

while the highest prevalence of DP and PA are present successively in the levels of studies higher than bac+2 and lower than bac. The prevalence of a high EE decreases with hierarchy, while the high DP increases with hierarchy. While PA

Table 2. Components of burnout and socio-professional characteristics

		EE		DP		PA		Burnout		
		High	P	High	P	Low	P	No	Yes	P
Age groups	20 to 40 years old	7	0.192	3	0.751	14	0.455	45	21	0.124
		10.6%		4.5%		21.2%		68.2%	31.8%	
	8	1		10		19		17		
	> 40 years	22.2%		2.8%		27.8%		52.8%	47.2%	
Gender	Female	2	0.589	3	0.035	6	0.846	15	9	0.977
		8.3%		12.5%		25.0%		62.5%	37.5%	
	13	1		18		49		29		
	Male	16.7%		1.3%		23.1%		62.8%	37.2%	
School-leaving level	< bac	3	0.586	0	0.609	7	0.384	11	9	0.474
		15.0%		0.0%		35.0%		55.0%	45.0%	
	10	2		10		31		20		
	19.6%	3.9%		19.6%		60.8%		39.2%		
	2	2		7		22		9		
	> bac+2	6.5%		6.5%		22.6%		71.0%	29.0%	
Professional status	production workers	7	0.638	1	0.766	10	0.451	17	16	0.253
		21.2%		3.0%		30.3%		51.5%	48.5%	
	6	2		9		34		15		
	12.2%	4.1%		18.4%		69.4%		30.6%		
	Senior managers	2		1		5		13	7	
		10.0%		5.0%		25.0%		65.0%	35.0%	
Professional seniority	< 10 years	7	0.747	2	0.003	11	0.133	40	17	0.16
		12.3%		3.5%		19.3%		70.2%	29.8%	
	4	1		4		13		9		
	18.2%	4.5%		18.2%		59.1%		40.9%		
	> 20 years	4		1		9		11	12	
		17.4%		4.3%		39.1%		47.8%	52.2%	
Seniority in the company	< 10 years old	10	0.662	4	0.531	16	0.270	42	26	0.746
		14.7%		5.9%		23.5%		61.8%	38.2%	
	3	0		2		12		5		
	17.6%	0.0%		11.8%		70.6%		29.4%		
	> 20 years old	2		0		6		10	7	
		11.8%		0.0%		35.3%		58.8%	41.2%	
Seniority in the position	< 10 years old	12	0.433	3	0.189	14	0.188	48	26	0.651
		16.2%		4.1%		18.9%		64.9%	35.1%	
	1	1		6		11		7		
	5.6%	5.6%		33.3%		61.1%		38.9%		
	> 20 years old	2		0		4		5	5	
		20.0%		0.0%		40.0%		50.0%	50.0%	
Family status	Single	6	0.880	1	0.900	6	0.510	21	11	0.478
		18.8%		3.1%		18.8%		65.6%	34.4%	
	9	3		18		41		27		
	13.2%	4.4%		26.5%		60.3%		39.7%		
	Divorced	0		0		0		2	0	
		0.0%		0.0%		0.0%		100.0%	0.0%	
Number of children	No children	6	0.984	1	0.450	8	0.735	28	13	0.501
		14.6%		2.4%		19.5%		68.3%	31.7%	
	6	1		11		26		16		
	14.3%	2.4%		26.2%		61.9%		38.1%		
	More than two children	3		2		5		10	9	
		15.8%		10.5%		26.3%		52.6%	47.4%	
Total		14.70%		3.90%		23.50%		62.7	37.30%	

reduces, it is higher among executing agents followed by managers. However, professional status does not influence the components of burnout. It is higher among production workers followed by senior managers.

By studying the relationship between the components of burnout and seniority; only DP is significantly related to professional seniority ( $p=0.003$ ). Indeed, the highest percentage of high DP as well as that of high EE are present among employees who have a professional seniority of between 10 and 20 years. While the reduced PA is more important among the oldest professionally, in the company and in the position. Singles are more emotionally exhausted. On the other hand, the married have a lower PA and a high DP. Subjects with more than two children have a higher EE, higher DP and reduced PA, but without any of this being statistically significant.

## DISCUSSION

This work aims to evaluate the prevalence of burnout and its components, and to study its socio-professional determinants within 102 employees of a Moroccan private industrial company. The overall prevalence of burnout in our sample is 37.3%. This prevalence is higher than that for Swiss workers, which is equal to 18% (Al-Gobari & al., 2022). However, it is lower than that of workers in different sectors in Morocco (49%) (Esserdi & al., 2019). Similarly, it is also lower than that found among employees of different sectors in Cameroon (67.9%) (Ndongo & al., 2020). These differences in the prevalence of burnout can be explained either by the employees' sector of work, or the differences in the socio-economic level as well as the working conditions of the populations, or even by the cross-sectional type of our study. According to (Van den Broeck & al., 2017), the risk of burnout can be explained by the combination of a high level of job demands and job resources in a given activity. Indeed, some factors can contribute to the development of burnout (job demands) and others can create enthusiasm (job resources), since these factors are very specific to each job and to each work situation in general (Demerouti & al., 2001).

In this study, emotional exhaustion (EE) was found to be high for 14.7% of employees; while depersonalization (DP) or high cynicism affects only 3.9% of subjects. The higher occurrence of emotional exhaustion compared to depersonalization aligns with the dynamic nature of burnout. Heightened efforts to handle external pressures result in emotional exhaustion, which acts as a catalyst for depersonalization. This, in turn, contributes to reduced personal fulfillment, further exacerbating emotional exhaustion in a self-reinforcing cycle (Maslach & al., 2001 ; Rużyczka & Zaczek, 2022). However, 23.5% of this population have reduced personal achievement (PA), this rate is close to other studies: 29.5% was found according to a meta-analysis of 2,153 physical education teachers (Alsalhe & al., 2021), 29.4% in 1461 Indonesian health workers (Soemarko & al., 2022), 21.1% among physicians (Deneva & al., 2019). Reduced personal accomplishment in some cases will be the direct consequence of emotional ex-

haustion (Gernet, 2021). This perhaps explains its high rate compared to the high DP in this population, considering that DP and PA result successively from EE.

In addition, an affection of a specific dimension of burnout is experienced differently according to the characteristics of the profession (Schaufeli & Enzmann, 1998).

The relationship between burnout and age has been proven in a number of studies (Adam & al., 2018; Ahola & al., 2008; Marchand & al., 2018). Our results show a statistically non-significant increase in the burnout rate, they also reveal high emotional exhaustion and a decrease in personal accomplishment among older employees. This corroborates other studies carried out on two nationally representative Finnish samples (Ahola & al., 2006; Kalimo, 2000), and in the working population of a Swedish county (Lindblom & al., 2006). Other researchers confirmed this only in men, while women reported a higher level of burnout between the ages of 20 and 35 and after 55 (Ahola & al., 2008). Similarly, the burnout rate increased with age among primary school teachers as well as doctors (Amri & al., 2020; Deneva & al., 2019). This can be explained by the accumulation of the exposure load as well as the psychological distress felt in the workplaces throughout employees' career. However, many researchers have reported that burnout decreases with age and have explained it by the protection provided by the experience of individuals and the development of coping and stress management capacities according to age and years of experience (El-Hage & al., 2020; Kamal & al., 2016; Marchand & al., 2018; Maslach & al., 2001; Schaufeli & Enzmann, 1998). Alternatively, there is another study of employees of several organizations, which has shown that age does not induce burnout (Tshikala & al., 2016).

In this study, female gender only significantly influences depersonalization. Indeed, men are more emotionally exhausted compared to women, who present a higher DP ( $p = 0.03$ ) and reduced PA. These results support some studies that have claimed that high values of emotional exhaustion were associated more often with men more than women (Deneva & al., 2019; Tironi & al., 2009). And that women seem to have a reduced sense of personal accomplishment more than men (Kapasa & al., 2021). But contrast those of a meta-analysis including studies spanning a range of occupations, which have found that men showed higher degrees of depersonalization, while women showed higher emotional exhaustion (Purvanova & Muros, 2010), in addition men also suffered more from a lack of PA (Maslach & al., 1997). Our results also indicate that the rate of exhausted people is about the same for both sexes. This result is similar to what has been found by several studies (Ahola & al., 2006; Amri & al., 2020; Canoui & al., 2015; Cooper & al., 2001; Moueleu Ngalagou & al., 2019; Ndongo & al., 2020). But others have stated that women are slightly more affected by burnout than men, probably because of extra-professional stressors (Chtibi & al., 2018; Giurgiu & al., 2016; Olié & al., 2016; Teixeira & al., 2013).

The level of education in this population is not a determining factor of burnout or its components: We note that burnout decreases not statistically significantly with the level of education. While other authors have significantly confirmed our

finding (Shin & al., 2022; Yilmaz, 2018). However, specialist and graduate teachers experienced higher levels of burnout (Guedes & Gaspar, 2016).

Marital status is also not significantly related to burnout or its components, even married people show more burnout, high DP and reduced PA, while single people are more emotionally exhausted. Our result is in line with other research that has found no significant link between marital status and burnout (Amri & al., 2020; Canouï & al., 2015; Moueleu Ngalagou & al., 2019). Yet others affirm high rates of burnout among singles when comparing them with married people (Popa & al., 2010; Teixeira & al, 2013). Similarly, others have claimed that being single or divorced increases the risk of burnout (Ahola & al., 2006). Our results also show that the rates of burnout and its components increase insignificantly with the employee's number of dependent children. This agrees with other studies that have shown this binding to a statistically significant extent (Ndongo & al., 2020; Shanafelt & al., 2009). However, a few studies have concluded that the number of children is not a determinant of burnout (Boyas & Wind, 2010; Garrosa & al., 2010).

In our study, no significant link was found between burnout and professional status. Even here, emotional exhaustion is high among executing agents and decreases with hierarchy and the reverse for DP; while production workers followed by senior managers showed high rates of reduced PA. However, other authors have found that job category was significantly associated with a high level of emotional exhaustion and depersonalization (Soemarko & al., 2022).

Professional seniority significantly influences participants' DP. Indeed, the DP is significantly high among employees with professional seniority between 10 and 20 years ( $p=0.003$ ) as well as the EE. While reduced PA is important in older employees professionally, in the company and even in their position. Similarly, burnout is high among the oldest. Our results confirm those of a study that found that seniority was significantly associated with burnout (Amri & al., 2020). Similarly, EE and DP were elevated significantly in the most experienced health workers during COVID-19 (Soemarko & al., 2022). However, other authors have found that professional experience was, in particular, a predictor of emotional exhaustion and personal success (Yilmaz, 2018). In addition, others have found no significant difference between work experience and burnout (Moueleu Ngalagou & al., 2019).

Finally, in this study, gender and professional seniority influence depersonalization that is also called dehumanization. This can be explained by the fact that these two categories maintain a certain cognitive distance from their work and even from their colleagues, as a coping strategy for psychological distress or emotional exhaustion felt in the workplace. This results in reduced personal accomplishment or a feeling of being incompetent at work (Guan & al., 2017; Maslach & al., 2001).

The results obtained might be interpreted according to microgenetic theory, thanks to the interpretation of brain and mental processes in time (phylogenesis, ontogenesis and microgenesis), and in particular by defining the essence of the mental state (including creative perception) and the nature of the symptom



(Brown and Pachalska, 2003; Brown, 2015). This creates the basis for distinguishing the two basic types of self (Fig. 1) necessary for proper adaptation to the existing conditions. Therefore, we have: (1) Minimal (working) self; (2) Longitudinal self (holistic, autobiographical). The path of development of each personal minimal (working) self follows the path of the mental state development, i.e., it follows a specific order, which means that the minimal (working) self develops:

1. *in the space of brain structures*, from classified processes to the level of the threshold of consciousness (ascending mental state) to disappear (disappearance of the mental state) or to cross this threshold (development of the mental state) and rise even higher to the appearance of full consciousness and conscious cognition (climax of the mental state);
2. *in time, in the form of pulsations* of the same or other types of (minimal) self, which ensures the renewal of these states. This allows you to become more aware of reality.

Research in neuroscience has shown that professional exhaustion or burnout are devastating for the Self system (Rużyczka and Zaczyk, 2022). This is especially devastating in the case of professional seniority in whom reduced personal achievement or feelings of incompetence at work weaken the reward system while strengthening the punishment system (Rużyczka, 2023), which not only does not promote health and causes professional exhaustion, but also leads to a dramatic change in the Self system (Pachalska, 2019). Older people, as many scientists point out, cope worse with such stress (Damasio, 1999). It is therefore essential that business leaders should prevent this pathology by improving the psychosocial work environment in the nearest future.

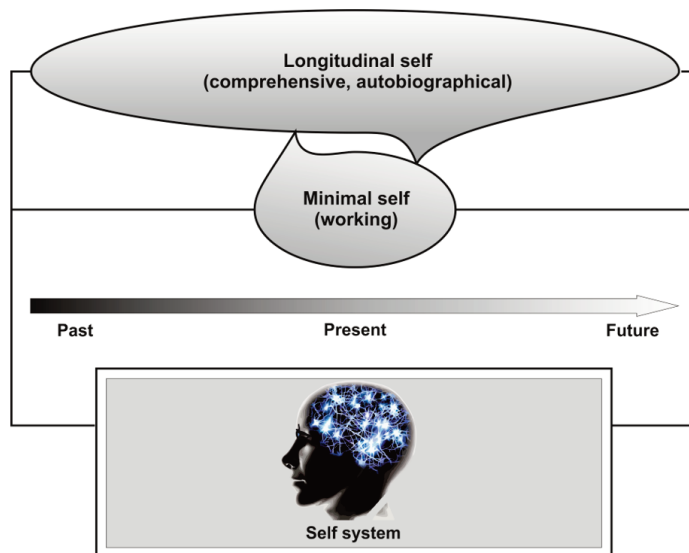


Fig. 1. Minimal (working) self in relation to the longitudinal (comprehensive, autobiographical) self (Pachalska, 2019)

## CONCLUSION

Professional exhaustion or burnout is strongly present in Moroccan companies. The determinants identified in this study are gender and professional seniority. They particularly influence depersonalization. This state can be explained by the fact that these two categories adopt a certain cognitive distance from their work and colleagues. It is a coping strategy for psychological distress and emotional exhaustion experienced in the workplace. The result is reduced personal fulfilment or a feeling of incompetence at work. Considering the negative consequences of burnout on the performance of employees and organizations, and in order to be able to adapt to the rapid development of the market and its increased demands, it is essential that business leaders prevent this pathology by improving the psychosocial work environment.

### Perspectives

The establishment of scientific research units incorporating relevant and tailored protocols for Moroccan private sectors is recommended due to their current absence. Indeed, the precise diagnosis of chronic stress levels, as well as the evaluation of specific working conditions affecting the moderation of burnout, such as social support, the reduction of psychological job demands, and rewards, are of paramount importance for the prevention and protection of the occupational health of private sector employees in Morocco.

## REFERENCES

- Adam, S., Mohos, A., Kalabay, L., Torzsa, P. (2018). Potential correlates of burnout among general practitioners and residents in Hungary : The significant role of gender, age, dependant care and experience. *BMC Family Practice*, 19(1), 193. doi: 10.1186/s12875-018-0886-3.
- Ahola, K., Honkonen, T., Isometsä, E., Kalimo, R., Nykyri, E., Koskinen, S., Aromaa, A., Lönnqvist, J. (2006). Burnout in the general population. Results from the Finnish Health 2000 Study. *Social Psychiatry and Psychiatric Epidemiology*, 41(1), 11-17. doi: 10.1007/s00127-005-0011-5.
- Ahola, K., Honkonen, T., Virtanen, M., Aromaa, A., Lönnqvist, J. (2008). Burnout in Relation to Age in the Adult Working Population. *Journal of Occupational Health*, 50(4), 362-365. doi: 10.1539/joh.M8002.
- Al-Gobari, M., Shoman, Y., Blanc, S., Canu, I. G. (2022). Prevalence of occupational burnout in Swiss workers : A systematic review and meta-analysis. *Safety and Health at Work*, 13, S126-S127. doi: 10.1016/j.shaw.2021.12.1148.
- Alsalhe, T. A., Chalhaf, N., Guelmami, N., Azaiez, F., Bragazzi, N. L. (2021). Occupational Burnout Prevalence and Its Determinants Among Physical Education Teachers : A Systematic Review and Meta-Analysis. *Frontiers in Human Neuroscience*, 15. doi: 10.3389/fnhum.2021.553230.
- Amri, A., Abidli, Z., Elhamzaoui, M., Bouzaboul, M., Rabea, Z., Ahami, A. O. T. (2020a). Assessment of burnout among primary teachers in confinement during the COVID-19 period in Morocco: Case of the Kenitra. *The Pan African Medical Journal*, 35(Supp 2). doi: 10.11604/pamj.supp.2020.35.2.24345.
- Amri, A., Abidli, Z., Elhamzaoui, M., Bouzaboul, M., Rabea, Z., Ahami, A. O. T. (2020b). Assessment of burnout among primary teachers in confinement during the COVID-19 period in Morocco : Case of the Kenitra. *Pan African Medical Journal*, 35(92), Article 92. doi: 10.11604/pamj.supp.2020.35.2.24345.

- Bakker, A. B., Demerouti, E., Sanz-Vergel, A. I. (2014). Burnout and Work Engagement: The JD–R Approach. *Annual Review of Organizational Psychology and Organizational Behavior*, 1(1), 389-411. doi: 10.1146/annurev-orgpsych-031413-091235.
- Boyas, J., Wind, L. (2010). Employment-based social capital, job stress, and employee burnout : A public child welfare employee structural model. *Children and Youth Services Review*, 32, 380-388. doi: 10.1016/j.childyouth.2009.10.009.
- Brown, J. W. (2015). *Microgenetic Theory and Process Thought*. Exeter: Imprint Academic.
- Brown, J. W., Paçhalska, M. (2003). The nature of the symptom and its relevance for neuropsychology. *Acta Neuropsychologica*, 1(1), 1-11.
- Canouï, P., Mauranges, A., Florentin, A., Hirsch, M. (2015). Le burn-out à l'hôpital: Le syndrome d'épuisement professionnel des soignants. *Elsevier Masson*, 1(5e édition), (XVI), 192.
- Chtibi, H., Ahami, A., Azzaoui, F.-Z., Khadmaoui, A., Mammad, K., Mottier, C., Wallon, P. (2018). Study of Resistance to Stress and Burnout among Public Health Professionals: The Case of Nurses and Physicians at Ibn Sina Hospital in Rabat Morocco. *Open Journal of Medical Psychology*, 07, 34-46. doi: 10.4236/ojmp.2018.73004.
- Cooper, C. L., Dewe, P. J., O'Driscoll, M. P. (2001). *Organizational Stress: A Review and Critique of Theory, Research, and Applications*. London, New Delhi: SAGE.
- Damasio, A. R. (1999). *The feeling of what happens: Body and emotion in the making of consciousness*. New York: Harcourt Brace.
- Demerouti, E., Bakker, A. B., Nachreiner, F., Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86, 499-512. doi: 10.1037/0021-9010.86.3.499.
- Deneva, T., Ianakiev, Y., Keskinova, D. (2019). Burnout Syndrome in Physicians—Psychological Assessment and Biomarker Research. *Medicina*, 55(5). doi: 10.3390/medicina55050209.
- Dion, G., Tessier, R. (1994). Validation de la traduction de l'Inventaire d'épuisement professionnel de Maslach et Jackson. [Validation of a French translation of the Maslach Burnout Inventory (MBI)]. *Canadian Journal of Behavioural Science / Revue canadienne des sciences du comportement*, 26, 210-227. doi: 10.1037/0008-400X.26.2.210.
- El-Hage, W., Hingray, C., Lemogne, C., Yroni, A., Brunault, P., Bienvenu, T., Etain, B., Paquet, C., Gohier, B., Bennabi, D., Birmes, P., Sauvaget, A., Fakra, E., Prieto, N., Bulteau, S., Vidailhet, P., Camus, V., Leboyer, M., Krebs, M.-O., Aouizerate, B. (2020). Les professionnels de santé face à la pandémie de la maladie à coronavirus (COVID-19): Quels risques pour leur santé mentale? *L'Encephale*, 46(3), S73-S80. doi: 10.1016/j.encep.2020.04.008.
- Esserd, H., Chaudat, P., Mériade, L. (2019). *Les risques psychosociaux (RPS) Sur le lieu de travail au Maroc: une revue de littérature*. Yaounde, Camerun: Congres Institut de l'audit social autour de l'homme et de l'homme au travail.
- Garrosa, E., Rainho, C., Moreno-Jiménez, B., Monteiro, M. J. (2010). The relationship between job stressors, hardy personality, coping resources and burnout in a sample of nurses: A correlational study at two time points. *International Journal of Nursing Studies*, 47(2), 205-215. doi: 10.1016/j.ijnurstu.2009.05.014.
- Gernet, I. (2021). Approche clinique et psychopathologique du burn out : Discussion à partir de la psychodynamique du travail. *L'Évolution Psychiatrique*, 86(1), 119-130. doi: 10.1016/j.evopsy.2020.11.001.
- Giurgiu, D. I., Jeoffrion, C., Roland-Lévy, C., Grasset, B., Dessomme, B. K., Moret, L., ... Tripodi, D. (2016). Wellbeing and occupational risk perception among health care workers: A multicenter study in Morocco and France. *Journal of Occupational Medicine and Toxicology (London, England)*, 11, 20. doi: 10.1186/s12995-016-0110-0.
- Guan, S., Xiaerfuding, X., Ning, L., Lian, Y., Jiang, Y., Liu, J., Ng, T. B. (2017). Effect of Job Strain on Job Burnout, Mental Fatigue and Chronic Diseases among Civil Servants in the Xinjiang Uygur Autonomous Region of China. *International Journal of Environmental Research and Public Health*, 14(8), 872. doi: 10.3390/ijerph14080872.
- Guedes, D. P., Gaspar, E. J. (2016). Síndrome de estrés laboral crónico por el trabajo (burnout) en los profesionales de la educación física brasileños. *Revista de psicología del deporte*, 25, 253-260.

- Kalimo, R. (2000). The challenge of changing work and stress for human resources. The case of Finland. *The Journal of Tokyo Medical University*, 58(3), 349-356.
- Kamal, A. H., Bull, J. H., Wolf, S. P., Swetz, K. M., Shanafelt, T. D., Ast, K., ... Abernethy, A. P. (2016). Prevalence and Predictors of Burnout Among Hospice and Palliative Care Clinicians in the U.S. *Journal of Pain and Symptom Management*, 51(4), 690-696. doi: 10.1016/j.jpain-symman.2015.10.020.
- Kapasa, R. L., Hannoun, A., Rachidi, S., Ilunga, M. K., Toirambe, S. E., Tady, C., ... Khalis, M. (2021). Évaluation du burn-out chez les professionnels de santé des unités de veille sanitaire COVID-19 au Maroc. *Archives des Maladies Professionnelles et de l'Environnement*. doi: 10.1016/j.admp.2021.06.001.
- Lindblom, K. M., Linton, S. J., Fedeli, C., Bryngelsson, I.-L. (2006). Burnout in the working population: Relations to psychosocial work factors. *International Journal of Behavioral Medicine*, 13(1), 51-59. doi: 10.1207/s15327558ijbm1301\_7.
- Marchand, A., Blanc, M.-E., Beaugard, N. (2018). Do age and gender contribute to workers' burnout symptoms? *Occupational Medicine (Oxford, England)*, 68(6), 405-411. doi: 10.1093/ocmed/kqy088.
- Maslach, C., Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Organizational Behavior*, 2(2), 99-113. doi: 10.1002/job.4030020205.
- Maslach, C., Jackson, S., Leiter, M. (1997). The Maslach Burnout Inventory Manual. In: C. P. Zazaquett, R. J. Wood (eds.), *Evaluating Stress: A Book of Resources*. 191-218. Lanham: The Scarecrow Press.
- Maslach, C., Leiter, M. P. (2016). Understanding the burnout experience : Recent research and its implications for psychiatry. *World Psychiatry*, 15(2), 103-111. doi: 10.1002/wps.20311.
- Maslach, C., Schaufeli, W. B., Leiter, M. P. (2001). Job Burnout. *Annual Review of Psychology*, 52(1), 397-422. doi: 10.1146/annurev.psych.52.1.397.
- Moueleu Ngalagou, P. T., Assomo-Ndemba, P. B., Owona Manga, L. J., Owoundi Ebolo, H., Ayina Ayina, C. N., Lobe Tanga, M.-Y., ... Mandengue, S. H. (2019). Burnout syndrome and associated factors among university teaching staff in Cameroon : Effect of the practice of sport and physical activities and leisures. *L'Encéphale*, 45(2), 101-106. doi: 10.1016/j.encep.2018.07.003.
- Naczanski, L. M., de Vries, J. D., van Hooff, M. L. M., Kompier, M. A. J. (2017). Systematic review of the association between physical activity and burnout. *Journal of Occupational Health*, 59(6), 477-494. doi: 10.1539/joh.17-0050-RA.
- Ndongo, J. M., Lélé, C. B., Manga, L. O., Ngalagou, P. M., Ayina, C. A., Tanga, M. L., ... Ndemba, P. A. (2020). Epidemiology of burnout syndrome in four occupational sectors in Cameroon-impact of the practice of physical activities and sport. *AIMS Public Health*, 7(2), 319-335. doi: 10.3934/publichealth.2020027.
- Ochoa, P. (2018). Impact of Burnout on Organizational Outcomes, the Influence of Legal Demands: The Case of Ecuadorian Physicians. *Frontiers in Psychology*, 9, 662. doi: 10.3389/fpsyg.2018.00662.
- Olié, J.-P., Légeron, P., Acker, A., Adolphe, M., Allilaire, J.-F., Chamoux, A., ... Tuitou, Y. (2016). Le burn-out. *Bulletin de l'Académie Nationale de Médecine*, 200(2), 349-365. doi: 10.1016/S0001-4079(19)30765-4.
- Pąchalska, M. (2019). Integrated self system: a microgenetic approach. *Acta neuropsychologica*, 17(4), 349-393. doi: 10.5604/01.3001.0013.6198.
- Popa, F., Arafat, R., Purcărea, V., Lală, A., Bobîrnac, G. (2010). Occupational Burnout levels in Emergency Medicine – a nationwide study and analysis. *Journal of Medicine and Life*, 3(3), 207-215.
- Purvanova, R., Muros, J. (2010). Gender differences in burnout : A meta-analysis. *Journal of Vocational Behavior*, 77, 168-185. doi: 10.1016/j.jvb.2010.04.006.
- Schaufeli, W. B., Bakker, A. B., Van Rhenen, W. (2009). How changes in job demands and resources predict burnout, work engagement, and sickness absenteeism. *Journal of Organizational Behavior*, 30(7), 893-917. doi: 10.1002/job.595.

- Schaufeli, W., Enzmann, D. (1998). *The Burnout Companion To Study And Practice : A Critical Analysis*. London, New York: CRC Press.
- Shanafelt, T. D., Balch, C. M., Bechamps, G. J., Russell, T., Dyrbye, L., Satele, D., ... Freischlag, J. A. (2009). Burnout and career satisfaction among American surgeons. *Annals of Surgery*, 250(3), 463-471. doi: 10.1097/SLA.0b013e3181ac4dfd.
- Shin, J., McCarthy, M., Schmidt, C., Zellner, J., Ellerman, K., Britton, M. (2022). Prevalence and Predictors of Burnout Among Occupational Therapy Practitioners in the United States. *The American Journal of Occupational Therapy*, 76(4), 7604205080. doi: 10.5014/ajot.2022.048108.
- Soemarmo, D. S., Basrowi, R. W., Chandra Khoe, L., Putra, M. I. (2022). Prevalence and Determinant Factors of Health Workers Burnout during COVID-19 Pandemic in Indonesia. *Safety and Health at Work*, 13, S211. doi: 10.1016/j.shaw.2021.12.1411.
- Suner-Soler, R., Grau-Marin, A., Font-Mayolas, S., Gras, M. E., Bertran, C., Sullman, M. J. M. (2013). Burnout and quality of life among Spanish healthcare personnel. *Journal of psychiatric and mental health nursing*, 20(4), 305-313. doi: 10.1111/j.1365-2850.2012.01897.x.
- Teixeira, C., Ribeiro, O., Fonseca, A. M., Carvalho, A. S. (2013). Burnout in intensive care units - a consideration of the possible prevalence and frequency of new risk factors : A descriptive correlational multicentre study. *BMC Anesthesiology*, 13(1), 38. doi: 10.1186/1471-2253-13-38.
- Tironi, M. O. S., Nascimento Sobrinho, C. L., Barros, D. de S., Reis, E. J. F. B., Marques Filho, E. S., Almeida, A., ... Souza, Y. G. de. (2009). [Professional Burnout Syndrome of intensive care physicians from Salvador, Bahia, Brazil]. *Revista Da Associacao Medica Brasileira*, 55(6), 656-662. doi: 10.1590/s0104-42302009000600009.
- Tshikala, M. K. P., Bitambile, B. N. F., Musasa, J. N. (2016). Burnout, un tueur silencieux dans quelques institutions publiques de Lubumbashi. *Revue la recherche Qualitative*, 20(2), 500-514.
- Van den Broeck, A., Elst, T. V., Baillien, E., Sercu, M., Schouteden, M., De Witte, H., Godderis, L. (2017). Job Demands, Job Resources, Burnout, Work Engagement, and Their Relationships : An Analysis Across Sectors. *Journal of Occupational and Environmental Medicine*, 59(4), 369-376.
- Wilczek-Rużyczka, E. (2023). Empathy and resilience in health care professionals. *Acta Neuropsychologica*, 21(4), 395-410. doi: 10.5604/01.3001.0053.9172.
- Wilczek-Rużyczka, E., Zaczyk, I. (2022). Determining the effect of stress and job burnout on the life satisfaction of nursing staff. *Acta Neuropsychologica*, 20(2), 139-158. doi: 10.5604/01.3001.0015.8545.
- Yilmaz, A. (2018). Burnout, job satisfaction, and anxiety-depression among family physicians: A cross-sectional study. *Journal of Family Medicine and Primary Care*, 7(5), 952-956. doi: 10.4103/jfmpc.jfmpc\_59\_18.
- Zawieja, P. (2017). Le burnout, mal du siècle. *Sciences Humaines*, 290(3), 17-17. doi: 10.3917/sh.290.0017.

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