A Study of Exhaustion and Work-Related Stress of a Group of Employees at the Faculty of Science of Kenitra, Morocco

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Abstract

Background: Exhaustion is a syndrome that is very important for professionals in all sectors. Objective: The purpose of the work is to quantify the state of stress in a group of employees at Faculty of Science in Kenitra and to search for determinants.

Methodology: The tests used to evaluate this psychic and organizational behavior, are the burnout test and perceived stress test. The study was conducted on 70 interviewers of whom 61.3% are male and 38.7% are female; the average age of respondents is 36.73 ± 1.14 years.

Results: The results of this analysis show that 32.85% of the respondents are in a high state of emotional exhaustion; 18.57% have a high level of depersonalization and 35.71% have a low achievement. For the state of stress of the respondents, 22 86% are in a state of perpetual threat and 14.28% are in a perpetual state. In addition, the results obtained do confirm that the occupational stress and burnout syndrome are strongly correlated (R2 = 0.791). The results of the multiple regression confirm that the nature of the occupation is a determining factor in the state of stress ($p < 0.037$).

Conclusion: This study helps to pave the way for important practical consequences for the consideration of risk factors in order to prevent burnout and guarantee the well-being of employees.

Keywords: *Burnout, Employee,, Kenitra, Perceived stress, Regression,Syndrome.*

Introduction

Mental health is defined as a state of cognitive, emotional, and behavioral equilibrium that enables a person to produce and maintain satisfying relationships, to participate in the activities of their workplace[1]. However, these requirements increase stress at work and may be the cause of psychological distress or burnout[2,3]. These behaviors usually result in anxiety and depressive disorders, addictions to drugs and alcohol, and adjustment disorders.

Exhaustion is well known as burn-out. According to the WHO, it is a feeling of intense fatigue, loss of control and inability to achieve concrete results at work. In times of crisis, pressure can increase on employees as well as on managers.

According to Pines (1982)[4], burnout is a crisis, a suffering that can progress to illness. This is a crisis response after prolonged exposure to stressful circumstances. Therefore, this syndrome is a mental health problem whose main source is the loss of balance due to work stress[5] .

A close understanding of stress and especially

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burnout, its signs, sources and symptoms will help improve the health and quality of life for ourselves and those around us[6].

In recent years, many researchers have been interested in studying this issue. According to Enzman (2005)[7] bout 6000 studies have been published. These behaviors have been classified as a major public health problem, research on stress is no longer the concern of a science associated with popular psychology, but a field of research on stress at work[8,9].

Our study consists in evaluating the degree of work-related stress and its association with the burnout syndrome, thus looking for the determinants of these two psycho-cognitive behaviors among employees in the public sector: The case of Faculty of Science in Kenitra.

Material and Method

1. **Context and Population of the Study:** The study was conducted on 75 employees from Kenitra Faculty of Science. The 75 participants answered a questionnaire dealing with several items (socio-cultural, work schedule, etc.) and neuro-cognitive-behavioral tests in order to obtain a completeand objective approach on the relationship between burnout and perceived stress.

2. **Psychometric Tests:**

1. The Maslach Burnout Inventory (MBI) consists of 22 questions related to the psychological feeling of work in order to assess the degree of burnout[10].

2. Perceived Stress Scale (PSS) is a scale that can be used for secondary assessment (perceived control). It assesses the frequency with which life (or work) situations are generally perceived as "threatening" [11].

3. **Statistical Analyses:** After filtration and coding, the data matrix is subjected to statistical analyzes of descriptive order (mean, standard deviation, etc.) and of multiple analytical order (chi-square independence test at 5% error, ANOVA I (one way), multiple regression). The results are expressed as absolute frequencies for the qualitative characters and on average for the quantitative characters.

Results and Discussion

1. **Socio-demographic characteristics of respondents:** The distribution of 70 respondents by sex shows that 61.3% are male and 38.7% are female. The sex ratio shows a dominance of male respondents. 66.7% of them are married and 33.3% are single. In addition, 68% (n = 51) of interviewees are in charge of administration (engineers, student affairs administrators, economic departments, etc.), while 32% are technicians.The average age of the respondents is 36, 73 ± 1.14 years, with a minimum age of 26 years and a maximum age of 62; the dispersion does not exceed 27% (coefficient of variation).

2. **MBI Scale (Maslach Burnout Inventory) based Study of Burnout among Respondents:** The validity of the questionnaire was verified by cronbach's alpha calculation. This value exceeds 0.7 for all three dimensions. This explains a better intra- and inter-dimensional compatibility. The factors were thus strongly correlated with each other. (Table 1).

Table 1: Repair of categories of burnout by sex in three dimensions

Dimension		Low	Moderate	High	Total	Chi-square	p value
Emotional Exhaustion	Male	16	6	20	42	10,44	0,002*
	Female	19	6	3	28		
	Total	35	12	23	70		
Depersonalization	Male	21	10	11	42	7,59	0,004**
	Female	23	3	2	28		
	Total	44	13	13	70		
Accomplishment	Male	17	11	14	42	1,42	0,14
	Female	13	4	11	28		
	Total	30	15	25	70		

*Highly significant difference 1%; **: very highly significant difference: 1 for a thousand; groups with the same letter do not differ significantly.

1. The chi-square independence test reveals a strong link between emotional exhaustion and sex (chi-squared = 10.44, p <0.002). In addition, the distribution of the respondents shows that 47.62% (n = 20) of males shows high levels of emotional exhaustion against 10.71% (n = 3) in the female group. However, 17.14% showed Moderate levels of emotional exhaustion including 6 males and 6 females. While 50% were emotionally or emotionally exhausted.
2. The analysis of the score of the dimension of depersonalization shows that sex has a direct effect on this pathology (chi-square = 7.59, p <0.004). Indeed, 26.19% (n = 11) of males are dehumanized people against 7.14% for females. However, 18.57% (n = 13) of the respondents showed moderate depersonalization, including 10 male and 3 female subjects. While 62.84% (n = 44) of respondents showed low depersonalization.
3. In the third dimension, 42.86% (n = 30) of respondents are characterized by a loss of self-actualization, self-deprecation, reflecting both the feeling of being ineffective in one's work and not to be up to the job. In addition, the chi-square test did not show a significant difference between achievement levels and sex (chi-square = 1.42, p <0.14). Finally, low personal achievement is reflected in feelings of professional incompetence and lack of personal fulfillment at work.

Table 2: Relationship between socio-demographic variables and the three dimensions (Chi-square; P value)

Variable	Modality	Emotional Exhaustion	Depersonalization	Accomplishment
Age	<25	15,34 ('p<0,05) **	16,44 ('p<0,037)**	10,85 ('p<0,21)
	25<>30			
	30<>35			
	35<>40			
	>40			
Marital status	Married	0,24 (p<0,88)	0,26 (p<0,88)	6,98 (p<0,03)*
	Single			
Profession	Administrators	16,85 (p<0,000) ***	16,32 (p<0,000)***	20,05 (p<0,000) ***
	Technician			
Number hours/days	<6	13,19 (p<0,01) **	7,15 (p<0,128)	8,12 (p<0,087)
	6<>8			
	>8			

*Highly significant difference 1%; **: very highly significant difference: 1 for a thousand; groups with the same letter do not differ significantly.

The table above presents the results of the chi-square independence test between the state of exhaustion and certain socio-demographic parameters.

The results of this test show that relationships between emotional state and age (chi-squared = 15.34, p <0.05), are highly significant between emotional state and number of working hours. (chi-square = 13.19, p <0.01) and very highly significant between emotional state and occupation (chi-square = 16.85, p <0.000). In addition, most pathological cases have an age range between 25 and 35 years and are usually technicians. However, the marital status has no direct effect on the emotional state (p> 0.88).

On the other hand, as far as depersonalization is concerned, the analysis carried out by the chi-square test shows that age and occupation are two risk factors, with values of 0.037 and 0.000, respectively. In fact, nine out of 13 pathological cases are aged 25 to 40 years old and 10 out of 13 are technicians. The marital status and the number of hours have no influence on the state of depersonalization (p> 0.05).

However, the results of the chi-square independence test presented in the table show that marital status and occupation are two major risk factors for achievement, with values of 0.03 and 0.000, respectively. However, 18 out of 50 supposedly pathological cases are married

and 26 out of 51 are administrators. The other variables show no significant difference.

5. **Perceived Stress:** This adapted scale of Cohen and Williamson is one of the most used method to assess the perception of stress. Its 10 items allow for a simple and a quick measuring of the importance with which life situations are perceived as threatening (unpredictable, uncontrollable and painful).By setting benchmarks, it allows to start a discussion about the work during health check-ups at work. Indeed, it is necessary to have benchmarks to discuss and communicate.

   - The first category where the score is less than 21: 34.28% concerns employees' ability to cope with stress and adapt and for which there are still solutions.
   - The second category where the score is between 21 and 26 concerns people who know how to manage the state of stress; still, there are a number of situations they cannot handle. They sometimes have a feeling of helplessness that causes emotional disturbances. They can get rid of this feeling of helplessness by learning method of change strategies. In our sample, this represents 28.57%.
   - The last category where the score exceeds 27: 22.86% concerns people who are perpetually threatened. These people feel that they are going through most of the situations and cannot do anything but accept them. This strong sense of helplessness that characterizes their view of life can cause illness. Research on their thought patterns and their way of reacting is desirable. The distribution showed that 14.28% are in a state of perpetual stress.

   The chi-square test of independence between the categories of the perceived test and certain supposed risk factors shows no significant relationship either with sex ($p < 0.11$), the profession ($p < 0.14$), marital status, age ($p < 0.077$) or with working hours per week ($p < 0.98$).

6. **Global Analysis:** To search for possible stressors in the Kenitra Faculty of Science, we have used multiple regressions, whose dependent variable is perceived stress score and explanatory variables (the three dimensions of burnout, age, sex and occupation). The results of this analysis show that these variables explain 79.1% of the total stress variation. The ANOVAI of the different regression coefficients shows a very highly significant difference (Fisher = 18.88, $p < 0.000$ and ddl = (6; 68). Table (3) presents the results of multiple regressions; it follows that the three dimensions of burnout and occupation significantly explain respondents' state of stress; however, combined with these variables, age and sex did not show a significant effect on occurrence of stress.

Table 3: Results of multiple regression (dependent variable = perceived stress)

Variable	Unstandardized coefficients		Standardized coefficients	T student	Sig.
	A	Erreur standard	Bêta		
(Constant)	,354	,167		2,443	,007**
Emotional exhaustion	1,030	,152	,679	6,795	,000***
Depersonalization	,438	,176	,251	2,494	,015*
Accomplishment	-,274	-,133	-,182	-2,052	,044*
Age	,012	,011	,091	1,122	,266
Sex	,040	,249	,015	,162	,872
Profession	,260	,186	,091	1,909	,037*

*** : Highly significant difference * : significant difference; sig : signification

Discussion

The work we did with permanent staff at the Kenitra Faculty of Science focused on the assessment of stress and burnout and its association. The results of our study on burnout show that age, sex and occupation are risk factors, especially among young people aged 25 to 35, a fact confirmed by French and American studies carried out by emergency doctors and which consider that age is

one of the risk factors for burnout [2, 3, 12]. Males would be at greater risk than females [13].

Moreover, According to our results, there is a significant and positive relationship between the number of working hours and the appearance of burnout. In fact, the burn-out rate related to the increase in working time reduces the time of rest and recuperation for employees. Burnout could certainly have a negative effect on the health of the individual[14]. This usually results in summarization disorder, anxiety and depression. On the other hand, the causes of stress vary from one subject to another as an accident, surgery, illness, difficult living conditions, low salary level[15]. Stress at work is usually the result of too great a pressure, a lack of control in the tasks to be performed, poor organization and communication and finally a working environment with no real help system[16-19].

The results show that there is a significant relationship between sex and stress and that women have higher scores than men. The results obtained in our study also show this significant relationship according to the chi-square statistical test, but the male sex is more exposed to stress than the female sex. Finally, the stress resistance trend was too age-related, which explains the increase in perceived stress in the elderly.Our study also showed the relationship between age, stress resistance and perceived stress using the chi-square statistical test ($p < 0.05$), in addition to the high percentage of participants.

Conclusion

The study that we have conducted on the permanent administrators and technicians of the Faculty of science makes it possible to draw a psychological profile of these respondents. This profile differs according to several parameters such as gender, the nature of the profession, age and the state of burnout. However, the 25- to 40-year-old age groups suffer from this stress-related burnout problem;therefore, technicians also have fairly high levels of stress. Faced with this situation, the authorities are called upon to review the established set of systems related to work schedules and to integrate people into training sessions in the presence of a specialist in the field of health.

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Ethical Approval: The procedures were carried out in accordance with the recommendations of the Internal Ethics Committee of the Ibn Tofail University Kenitra. This procedure were examined and approved by the Committee

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