

Received: 18.12.2022
Accepted: 24.02.2023

A – Study Design
B – Data Collection
C – Statistical Analysis
D – Data Interpretation
E – Manuscript Preparation
F – Literature Search
G – Funds Collection

DOI: 10.5604/01.3001.0016.3139

WORK STRESS AMONG WORKERS OF A MOROCCAN COMPANY

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SUMMARY

Background:

Work stress or job-strain and iso-strain are perceived when there is a conflict between the demands placed on a person and their resources to cope with them. They have negative effects on worker health, and organizational productivity and performance. Our study consists of evaluating work stress and its components.

Material/ Methods:

102 workers of different functions (senior managers, supervisors, technicians and executing workers) volunteered and were invited to complete anonymously the Karasek questionnaire (JCQ).

Results:

The analysis of the results showed a significant prevalence of iso-strain and job-strain. Thus, low decision latitude and high psychological demands are the most widespread stress factors.

Conclusions:

These results show the need to disseminate information and prevention programs against work stress to managers and staff to ensure the effective performance of a company.

Key words: work stress, iso-strain, job-strain, decision latitude, psychological demand, social support

INTRODUCTION

Work stress is a growing social problem, in particular because of its deleterious effects and its proven human, organizational and societal cost (Jaworski F, 2016). It affects the general and neuropsychological health of workers (Chandola et al, 2006; Landsbergis et al, 2013; Nyberg et al, 2013; Madsen et al, 2017). People under chronic stress are at a higher risk of chronic disease, mortality and accelerated biological aging (Epel et al., 2018 ; Holt-Lunstad et al., 2015). This plague manifests itself at the level of organizations by an increase in absenteeism, a high turnover rate and a decrease in performance and productivity (Giurgiu et al., 2015; Giurgiu et al., 2016). According to INRS, work stress is perceived by more than 50% of European workers, they announced that professional stress costs the French economy 2 to 3 billion Euro per year , while EU-OSHA (the European Agency for Safety and Occupational Health) put it at 617 billion annually (INRS, 2008; EU-OSHA, 2014). Thus, it is very interesting to fight against professional stress to ensure health and safety at work and to improve the performance and productivity of companies. Moroccan companies constitute a favorable environment for the evolution of psycho-social risks, especially professional stress, given the constraints and economic requirements generated by the economic situation, inducing workers to increasingly adhere to strict objectives and performance. Value conflicts (37.4%), degraded social relationships at work (21%), difficult working hours (14.4%) and the intensity and complexity of work (13.5%) are the most wide spread determinants of psycho-social risks in Moroccan companies (ESSERDI et al., 2019). The majority of studies carried out in Morocco on this subject concern the health sector. That is why we have chosen to work on the Moroccan private industrial sector. Two objectives are targeted by our study: the evaluation of job-strain, iso-strain and their components and the study of the links of these variables with the socio-demographic and professional characteristics of workers.

MATERIAL AND METHODS

This is a cross-sectional survey with a descriptive and analytical purpose, carried out in a Moroccan company in Kenitra that was created more than twenty years ago, one working in the industrial sector. The survey was carried out in the company's workplace by means of direct interview with respect for confidentiality. The worker was informed in advance about the purpose of the survey, the anonymity of the data and the possibility of accepting or refusing to participate. The population is made up of 102 workers who volunteered and who perform different company functions (senior managers, supervisors, technicians and executing workers). To perform the study, we employed the following tools:

A self-administered questionnaire for general information: allows you to obtain information such as age, sex, school finishing level, professional status, marital status, professional seniority, seniority in the position, number of children and any noticeable physical, emotional, and behavioral symptoms.

Job Content Questionnaire (JCQ) in its French version (Karazek, 1998). It assesses three dimensions: the psychological demand (PD) to which the worker is subjected, the social support (SS) he receives at work and the decision-making latitude (DL) he has. The JCQ is supplemented by six questions that explore recognition at work from the Seigrist questionnaire (Seigrist, 1991). The questionnaire was linguistically adapted. It has 32 questions: nine for PD, nine for DL, and eight for SS and six for recognition at work. Responses on a four-point Likert scale are “totally disagree”, “disagree”, “agree” and “totally agree”. For the calculation of the scores of the three dimensions, we based ourselves on the scores used by the authors in the reference population (Siegrist, 1991; Guiho-Bailly & Guillet, 2005): the decision latitude is low if its score is lower than 70. The psychological demand becomes strong if its score exceeds 21. Social support is weak if it is less than 24. A combination of low decision latitude and high psychological demand results in a tense work situation or “job-strain”. A job-strain situation in addition to weak social support places the subject in the context of stressed work or “iso-strain”. The subject is stressed due to work if he is in a job-strain or iso-strain situation. The internal consistency of the JCQ in addition to the six Seigrist questions is satisfactory for our population ($\alpha = 0.75$).

The statistical analysis was carried out with SPSS 25 software. The T-test for the independent samples was used to verify the link between the quantitative variable (recognition at work) and the job-strain or the iso-strain (variables at two modalities). The Khi2 test was used to verify the link between the categorical variables. A threshold of 5% was maintained to confirm the significance of the two tests.

RESULTS

Description of population

The study population consisted of 102 workers aged between 22 and 60 with an average of 37 ± 11 years. 76.5% were men and 23.5% were women. 31.4% were single, 66.7% of the subjects were married and 2% were divorced. 41.2% had one to two dependent children and 18.6% had more than two children. Regarding the school level, 50% of the subjects had a baccalaureate (bac) level to bac+2, 30.4% had a level higher than bac+2 and 19.6% had a level lower than baccalaureate. 48% of the participants were supervisors and technicians, 32.4% were executing workers and 19.6% were senior managers.

Two types of seniority were taken into consideration; professional seniority was between 32 years and one year with an average of $11.68 \text{ years} \pm 8.94$, and seniority in the position that varied between 30 years and a few months with an average of 7.31 ± 7.55 . 13.7% of the participants had blood pressure problems. 17.6% felt irritated and excited. 40.2% had anxiety. 34.3% had musculoskeletal pain and 10.8% reported consuming alcoholic beverages or cigarettes or both.

Table 1. Socio-demographic and professional characteristics of the workers

Demographic characteristics	Category	Frequency	percent
Age	20 to 40 years	n= 66	66%
	40 to 60 years	n = 36	34%
Gender	Female	n = 24	23.50%
	Male	n = 78	76.50%
School level	<Bac	n = 20	19.60%
	Bac to Bac + 2	n = 51	50%
	>Bac +2	n = 31	30.40%
Professional status	Executing workers	n = 33	32.40%
	Technicians, supervisors	n = 49	48%
	Senior managers	n = 20	19.60%
Seniority in the company	< 5 years	n = 44	43.10%
	5 years to 12 years	n = 30	29.40%
	12 years to 20 years	n = 8	7.80%
	> to 20 years	n = 20	19.60%
Professional seniority	Mean = 11,68 ± 8,94 (Max = 32years - Min = 1year)		
Seniority in the task	Mean = 7,31 ± 7,55 (Max = 30years - Min < 1year)		
Marital status	Single	n = 34	31.40%
	Married	n = 68	66.70%
	Divorce	n = 2	2%
Number of children in charge	Without children	n = 41	40.20%
	One to two children	n = 42	41.20%
	Two and more	n = 17	18.60%
Other symptoms	High blood pressure or low blood pressure	n = 14	13.7%
	Anguish	n = 41	40.2%
	Irritation and excitement	n = 18	17.6%
	Musculoskeletal pain	n = 35	34.3%
	Consumption of alcohol or cigarettes or both	n = 11	10.8%

Analytical results

32.4% of the subjects suffered from high psychological demands and low decision latitude, while 18.6% had low social support from supervisors or colleagues.

Job-strain as well as its components (low decision latitude and high psychological demand) are linked in a quasi-significant way with seniority in the position ($p = 0.053$). In fact, 16.7% of the subjects with a job tenure of less than 10 years were tense in their work, had a low DL and a high PD, compared to only 10% among those who had more than 20 years of job tenure.

Recognition at work is also significantly related to job-strain and its components ($p = 0.012$).

The job-strain and its components are high in the following cases but without significance: subjects under 40 years old more than those over 40 years old ($p = 0.106$). Men more than women ($p = 0.379$). The subjects who had a level of education higher than bac+2 when compared to those who had a level lower than bac+2 ($p = 0.257$). Senior managers more than supervisors, technicians, and executing workers ($p = 0.750$). Subjects with a professional seniority which varies between 10 and 20 years more than those who had less than 10 years or more than 20 years ($p = 0.463$). Single people more than married and divorced

Table 2. Iso-strain and job-strain and socio-demographic and professional characteristics

		DL (%)	P	PD (%)	P	SS (%)	P	Job strain (%)	P	Iso-strain (%)	P
Prevalence	Category	32.4		32.4		18.6		32.4		18.6	
Age	< 40 years	37.9	0.106	37.9	0.106	24.2	0.049	37.9	0.106	24.2	0.049
	> 40 years	22.2		22.2		8.3		22.2		8.3	
Gender	Female	25	0.379	25	0.379	16.7	0.778	25	0.379	16.7	0.778
	Male	34.6		34.6		19.2		34.6		19.2	
School level	< to bac	20	0.257	20	0.257	10	0.355	20	0.257	10	0.355
	Bac to bac+2	31.4		31.4		17.6		31.4		17.6	
	> bac+2	41.9		41.9		25.8		41.9		25.8	
Professional status	Executing workers	27.3	0.750	27.3	0.750	15.2	0.110	27.3	0.750	15.2	0.110
	Technicians, supervisors	34.7		34.7		14.3		34.7		14.3	
	Senior managers	35		35		35		35		35	
Professional seniority (years)	< to 10	35.1	0.463	35.1	0.463	22.8	0.474	35.1	0.463	22.8	0.474
	10 to 20	36.4		36.4		13.6		36.4		13.6	
	> to 20	21.7		21.7		13		21.7		13	
Seniority in the task (years)	<to 10	39.2	0.053	39.2	0.053	24.3	0.052	39.2	0.053	24.3	0.052
	10 to 20	16.7		16.7		5.6		16.7		5.6	
	>to 20	10		10		0		10		0	
Marital status	single	37.5	0.494	37.5	0.494	21.9	0.696	37.5	0.494	21.9	0.696
	Married	30.9		30.9		17.6		30.9		17.6	
	Divorced	0		0		0		0		0	
Number of children in charge	Without children	36.6	0.538	36.6	0.538	19.5	0.938	36.6	0.538	19.5	0.938
	One to two children	26.2		26.2		19		26.6		19	
	Two and more	36.8		36.8		15.8		36.8		15.8	
Recognition at work	–	–	0.012	–	0.012	–	0.002	–	0.012	–	0.002

people ($p = 0.494$). The subjects who had more than two dependent children compared to those with fewer than two children or without children at all ($p = 0.538$).

Iso-strain and low SS decrease significantly with age ($p = 0.049$); 24.2% of subjects under 40 years old were stressed at their work and had a low SS against 8.3% for those over 40 years old. Similarly, iso-strain and low SS are significantly related to seniority in positions held ($p = 0.052$) as well as recognition at work ($p = 0.002$).

Iso-strain and low SS are high in the following categories but without any statistical significance: men more than women ($p = 0.778$). Subjects with a level of school education higher than bac+2 more than others with a level lower than bac+2 ($p = 0.355$). Senior managers more than supervisors, technicians or executing workers ($p = 0.110$). Those having a professional seniority lower than 10 years more than those who had this seniority higher than 10 years ($p = 0.474$). Single people more than married and divorced people ($p = 0.696$). Subjects without children more than those who had children ($p = 0.938$).

So work stress is significantly influenced by age, seniority in position held and recognition at work.

DISCUSSION

Our study focused on the evaluation of professional stress and its components in 102 workers of a Moroccan private company working in the industrial sector. Work stress was assessed using the "Job content questionnaire" (JCQ) (Karasek et al., 1998), which includes 26 items from the Karasek questionnaire. Since the subjective process of evaluating the meaning that the subject specifically attributes to the situation is not taken into account (Sauvezon et al., 2019), the JCQ was supplemented with six items from the Seigrist questionnaire (Siegrist, 1991) to explore recognition at work. The JCQ is a global benchmark for measuring work stress (Wassenhove, 2014). It has been widely used in Canada, the United States, Europe and Japan (Brisson & Larocque, 2001; Guignon & al., 2008; Arnaudo et al., 2013). It is based on the evaluation of three dimensions: the decision-making latitude (DL) available to the worker, which covers two sub-dimensions: decision-making autonomy, i.e. the possibility of choosing how to do one's work, and the use of skills, i.e. say the possibility of using one's skills and developing new ones (Guignon et al., 2008). The psychological demands on the worker include two sub-dimensions: autonomy and the use of skills. The social support he receives at his work place, with two sub-dimensions: hierarchical support and support from colleagues.

The thresholds used to calculate the scores for these three dimensions are similar to those used in the SUMER surveys by INRS (Niedhammer et al., 2006; EU-OSHA, 2014).

In this study, 32.4% of subjects suffered from high psychological demands and low decision latitude, while 18.6% had low social support from supervisors or colleagues. Therefore, the most common components of work stress in our population are low decision latitude and high psychological demands.

The prevalence of low DL among participants is lower than that found among Tunisian workers which was equal to 49% (Magroun et al., 2016). Although most of our results are non-significant, they are consistent with those of several other studies. Indeed, the low DL decreases with age and professional seniority which is similar with other studies (Tripodi et al., 2012; Magroun et al., 2016; Bourbonnais & al., 1995). This finding is logical since the decision latitude improves with age and professional seniority. 34.6% of men have a low DL against 25% for women, these results are similar to some studies (Magroun et al., 2016; INRS, 2013; Marinaccio et al., 2013; Schutte et al., 2012), and contradictory with others (Guignon et al., 2008; Bourbonnais et al., 1995; DARES, 2010-2014); this difference between the two sexes can be explained by the competitive environment between men. It was also found that the low DL increases with the hierarchical height obtained and the level of education: 35% of the senior managers have a low DL against only 27.3% among the executing workers. Similarly, low DL is

present among workers with a high level of school education (41.9%) more than others with a level below that of baccalaureate (20%). However, this is not the case for other studies (Brisson & Larocque, 2001; Guignon et al., 2008). These results can be explained by the fact that these categories are more aware of the low DL they have.

High PD is found in 32.4% of this population when seen against 41% of Tunisian workers (Magroun et al, 2016) and 21% of French workers (DARES, 2008). It decreases with age, this result is in line with other studies (INRS, 2008; Brisson & Larocque, 2001). This is explained by the adaptation of the worker to the psychological demands of the work acquired through experience. Managers and subjects with a level of education higher than bac+2 are the most exposed to a high PD, in fact, 35% of senior managers have a high PD against only 27.3% among executing workers. And 41.9% of subjects with a level of education higher than bac+2 against only 20% among those with a level below bac. These results corroborate with those of other studies (INRS, 2008; Brisson & Larocque, 2001), the supposed explanation for this result remains the influence of the socio-cultural and economic level of the worker.

18.6% of our sample have low SS. Arnaudo reports that 15% of the population surveyed say they do not receive the respect they deserve from their colleagues and 31% from their superiors (INRS, 2013). In this population, the low SS improves significantly with age ($p = 0.049$), in fact the percentage of subjects with a low SS decreases by 24.2% in personnel aged less than 40 years, at 8.3% among those who are over 40 years old. This result is found in another study but without significance (Magroun et al, 2016). This is explained by the ability to form positive social relationships in the elderly through their life experiences and through their maturity. 19.2% of men have low social support against 16.7% of women, but this link is not significant. Nevertheless, other studies claim that low SS exists in women more than in men (Chatti et al., 2018; Boughattas et al., 2012).

Job-strain or tense work is a combination of low DL with high PD, it is a form of job stress. In this study, its rate is equal to 32.4%. This prevalence is high compared to international studies and surveys which have found that it varies from between 17% and 27% (Magroun & al., 2016; DARES, 2008; Chatti & al., 2018; Niedhammer et al., 2006; Lucas et al., 2018). These differences can be explained by the difference in countries, companies and work sectors. By comparing our results with other studies, it was found that the job-strain decreases with age ($p = 0.102$), this finding was also found by other authors (Brisson & Larocque, 2001; Magroun et al., 2016). Contrary to our study which shows that 34.6% of men are in job-strain against only 25% of women ($p = 0.379$), the subject literature has proven that women are more exposed to job-strain than men (Magroun et al., 2016; DARES, 2008), which they have justified by the extra-professional responsibilities of women. Our statistical analysis shows that job-strain exists among senior managers more than executing workers ($p = 0.750$), unlike other authors who found that job-strain decreases with hierarchical level (DARES, 2008; INRS, 2008). We also found that the job-strain is high in subjects

with professional seniority between 10 and 20 years compared to the other categories ($p = 0.463$). This result is similar to that found among Tunisian workers (Magroun et al., 2016).

The iso-strain is the combination of the job-strain with the low SS on the part of the hierarchy and colleagues; it also represents the work stress in its exaggerated form. Its prevalence in this population is 18.6%. It varies according to the work sectors of each company. 17.4% was found among housekeepers (Chatti et al., 2018), 14.5% among French workers (Niedhammer et al., 2006) and 10.6% among Tunisian workers (Magroun et al., 2016). We found that iso-strain depends significantly on age, 24.2% of workers aged under 40 are in iso-strain against 8.3% for those over 40 ($p = 0.049$). This was found in Tunisian workers but without significance (Magroun et al., 2016). We also found that the iso-strain decreases with professional seniority ($p = 0.474$), while a study has shown that it is high among workers with a seniority of between 10 and 20 years (Magroun et al., 2016). The iso-strain in our sample increases with hierarchical level, it exists in 35% of senior managers against 15.2% of executing workers ($p = 0.110$). However, other studies have asserted that the iso-strain decreases with hierarchy, and it is lower among managers compared to workers (Magroun et al., 2016; DARES, 2008).

In summary, work stress decreases significantly in the oldest and those most experienced in their task thanks to the protection provided by work and life experience. Similarly, the average recognition at work among people stressed at work decreased significantly ($p = 0.012$ for the job-strain and $p = 0.002$ for the iso-strain). As a result, it can be said that recognition at work is a moderating factor of work stress.

CONCLUSION

This work showed that professional stress is a reality in the Moroccan company studied. In fact, 32.4% of personnel are in job-strain in addition to 18.6% in a situation of iso-strain. This has negative repercussions on the health of workers and the productivity of the company. It has also been demonstrated that work stress is moderated by recognition at work. Raising awareness among managers of Moroccan companies as to job-strain and iso-strain as well as their effects on organization and performance is essential. The prevention and care of the victims of these phenomena requires imminent actions to be taken.

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