

## PSYCHOMETRIC PROPERTIES OF A GLOBAL MEASURE OF JOB BURNOUT\*

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*Abstract:* This original research presents a French adaptation and validation of the "Burnout Measure Short version" (BMS) (Malach-Pines, 2005). To do this, we assessed the psychometric properties of scores obtained by the French version. A confirmatory factor analysis led to a one factor solution: "the degree of exhaustion" (n = 206). This factor analysis is based on Pines and Aronson's framework (1988). This unidimensional scale was (positively) correlated with other burnout measures (subscale "emotional exhaustion", MBI) and with perceived stress. The future implications and methodological limitations were discussed.

*Key words:* burnout assessment, job burnout, Burnout Measure Short, French version, validity

### INTRODUCTION

The question of professional exhaustion, known under the name of "burnout", is relatively recent. It was introduced for the first time by Freudenberger (1974). There are many different definitions of what burnout is (Schaufeli, Enzmann, 1998). According to Maslach (1982), it appears that burnout finds its etiology in the fact that an individual does not adjust to the chronic emotional stress from work. To this day, the most commonly used definition seems to be that burnout is "a state of tiredness or frustration linked to involvement for a cause, lifestyle or a relationship that hasn't brought about the expected

gratification" (Freudenberger, 1974). It is the same thing for Pines and Aronson (1988) where burnout is "a state of physical, mental and emotional exhaustion caused by a long involvement in emotionally demanding situations". This is what the scale the "Burnout Measure" (BM) (op. cit., 1988) is based on.

In its original version, this scale is composed of 21 items and a scale of answers with 7 points (from 1: "never" to 7: "always"). Schaufeli et al. (1998) showed the psychometric qualities of the scale were satisfactory (Cronbach's alpha: .90). Test-retest coefficients go from .89 to .66 in 1 to 4 months time lapse (Pines, Aronson, 1988, p. 220). This scale is stable through time. There also exists a short version of BM in English. It is the "Burnout Measure Short version" (BMS) in 10 items which has been validated by Malach-Pines (2005). Studies have revealed very satis-

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factory psychometric properties (Cronbach's alpha: .86) (multimethod and multi-trait analysis).

Pines et al.'s scale (BM/BMS) gives a unique construct meant to assess the degree of exhaustion:

1) *Physical*: a set of complaints expressed by the subject, linked to his physical state (e.g., the feeling of physical weakness, fatigue or sleep-related problems).

2) *Mental*: a set of complaints linked to the feeling of physical weakening and mental fatigue expressed by the individual (e.g., the feeling of despair or abandonment).

3) *Emotional*: it corresponds to the person's feeling of not efficiently responding to the social environment's demands anymore (e.g., the feeling of "cracking up" or temporary depression).

With Maslach and Jackson's MBI ("Maslach Burnout Inventory") (1981, 1986), Pines's BM/BMS scale is one of the most used to evaluate an individual's degree of exposure to burnout (Schaufeli, Enzmann, 1998, p. 71). The MBI scale identifies three constructs measuring the following dimensions:

1) *Emotional exhaustion*: the individual's feeling of being emotionally "emptied" because of work and of being subjected to it.

2) *Depersonalisation*: that is the fact that an employee distances himself from beneficiaries placed under his responsibility.

3) *No personal achievement*: an employee's disengagement from work as well as a lack of vocational development.

Schaufeli and Van Dierendonck (1993) have shown that this scale is significantly correlated with the dimension which evaluates emotional exhaustion using the MBI. However, the link with the two other dimensions of the MBI scale (depersonalization and personal achievement) is, if not

absent, less clear. As Schaufeli and Enzmann (1998, p. 50) indicate, the construct given by MBI called "emotional exhaustion" is that which comes closest to the construct assessing the degree of exhaustion through the use of the scale BM or BMS.

Now, what about the factorial structure of the BM scale? For certain researchers, the BM scale gives 3 factorial dimensions (Schaufeli, Van Dierendonck, 1993; Enzmann, Schaufeli et al., 1998). Yet, recent investigations showed that the best factorial solution for BM (long or short) is unidimensional (Malach-Pines, 2005). According to the authors (Malach-Pines, 2005; Schaufeli, Enzmann, 1998, p. 57), the etiology of burnout, that which is its core, is in the individual's exhaustion as such, more than exhaustion linked to work. Such is the construct evaluated by Pines and Aronson's scale (1988). It seems that the degree of burnout measured with the BM scale is strongly correlated with work demands, professional dissatisfaction, the employee's intention to quit his job or psychosomatic complaints (Malach-Pines, Keinan, 2005). This goes in Truchot's direction (2004), for whom the BM tool is "correlated with a set of concepts with which it is theoretically associated: satisfaction at work, physical symptoms (headaches, lack of appetite, nervousness, muscular and bone aches), sleeping problems, desire to quit the job, lack of punctuality, despair" (op. cit., 2004, p. 208).

#### *Presentation of the BMS Scale*

The issue of burnout is a real problem that wears down the individual. This recent review of the literature has shown that a few burnout measuring tools exist but the links made between underlying constructs are not always clear. This is the case for

example of a meta-analysis which deals with MBI (Lourel, Guéguen, 2007), in which a heterogeneity is found in the results obtained in studies about the coherence of the "personal achievement" construct compared with the other 2 constructs of the scale itself (depersonalization and emotional exhaustion). It is therefore important at this stage to have a reliable, economical and unidimensional measure of exhaustion, which is the goal of this study in French. To this day, Malach-Pines's BMS scale (2005) has never been validated in French. This drawback as well as its excellent psychometric qualities have led us to test the French version. The scale consists of 10 items (7 points ranging from 1: "never" to 7: "always"). From the psychometric point of view, the choice of these 10 items was made by selecting those which best reflected the original scale (the "Burnout Measure" in 21 items of Pines et al., 1988). They are meant to assess a unique construct based on the physical, mental and emotional exhaustion of the individual. According to Pines et al.'s studies, the BMS scale is unidimensional. In other words, it has the advantage of giving a unique score of the burnout felt by the individual. Thus, a mean score of 4 points corresponds to the critical threshold at which burnout is felt as such by the individual.

For Malach-Pines (2005), the assessment of the degree of burnout with BMS functions as follows:

- A score lower than 2.4 points indicates a very low degree of burnout.
- A score between 2.5 and 3.4 points indicates a low degree of burnout.
- A score between 3.5 and 4.4 points reveals the presence of burnout.
- A score between 4.5 and 5.4 points indicates a high degree of exposure to burnout.

- A score above 5.5 points indicates a very high degree of exposure to burnout that requires the implementation of a plan to help the person.

This study aims at elaborating a French version of the scale BMS and at verifying certain psychometric characteristics such as internal coherence and structure validity.

Our final questionnaire integrates the burnout measure according to Malach-Pines, the measure of emotional exhaustion (a sub-scale of the MBI) and the measure of stress perceived. The methodological choice of the sub-scale of the MBI over the two others lies in the theoretical framework of Pines and Aronson (1988), Malach-Pines (2005, p. 4) and Schaufeli and Enzmann (1998, p. 50), in which it is stated that the construct aimed at ("emotional exhaustion" of the MBI) is undeniably the closest to that identified by the BMS scale.

The results were processed with the aid of the software Statistica (StatSoft, 1998). The scale is presented in Appendix 1.

## METHOD

### *Translation of the Scale*

The original English scale was translated into French by a fully bilingual academic. This so-called "traditional" method is commonly used to adapt international psychometric instruments (Besson, Haddadj, 2003). The translation has then been discussed by a committee.

### *Population and Procedure*

Our sample is composed of 206 adult participants (102 women); dental surgeons and all sorts of employees (in the business,

social, education, administration and transport sectors).

The participants' mean age is 34.66 (SD = 12.12).

As regards the socio-professional categories of the participants, 32% of them work as dental surgeons, 23% in marketing, 17% in the social, and 7% each in the educational, administrative, security and transport sectors.

Questionnaires were distributed individually in the workplace.

#### *Measuring Instruments*

Besides factual variables (age, gender, sector of activity), our questionnaire consists of the following measuring instruments:

1) *BSM-10 short version* ("*Burnout Measure Short Version*") by Malach-Pines (2005). This instrument has 10 items with a 7-point scale of answers each (1: "never" to 7: "always") (e.g., "...have you felt tired"; "...have you felt 'under pressure'"; "...have you felt abandoned"). This tool initially contained 21 items. The short version in English (alpha: .86) offers psychometric qualities relatively close to those of the original version in 21 items (.90).

In our study, the Cronbach alpha coefficient is .87. It is slightly higher than that obtained by Malach-Pines with a sample of all types of employees (alpha: .86). The mean score obtained by participants is 3.53 (SD = .99).

2) *The MBI (Maslach Burnout Inventory) sub-scale for the measure of emotional exhaustion* by Maslach and Jackson (1981, 1986). The tool has been validated by Dion and Tessier (1994). The instrument consists of 9 items (out of the MBI's 22 items) with a 5-point scale of answers each. According to Maslach et al. (1981, 1986), it is designed to isolate the dimension called

"emotional exhaustion" (e.g., "I feel 'emptied' by my work"). A high score on this sub-scale indicates emotional exhaustion. The mean score obtained by participants on this subscale is of 26.85 (SD = 8.12). The Cronbach alpha coefficient is .76.

3) *PSS-4 ("Perceived Stress Scale")* from Cohen et al. (1983, 1988). This scale, validated in French by Cerclé, Gadéa, Hartmann, Lourel (2007), consists of 4 items with a 5-point scale of answers (1: "never" to 5: "often") each. It enables the evaluation of the level of stress perceived by the individual in relation to a situation (e.g., "... Has it seemed difficult for you to control the important things in your life?"; "... Did you feel you dominated the situation?"). A high score reveals a high level of stress perceived over the last month. The mean score obtained by participants is of 8.52 (SD = 2.92). In our study, the Cronbach alpha coefficient is .69.

## RESULTS

### *Descriptive Statistics 1*

#### *Analysis of Scores Obtained on the Tools BMS, PSS-4 and on the "emotional Exhaustion" Subscale of the MBI According to Gender*

This first analysis will be conducted on the means and their differences regarding scores obtained with the tools BMS, PSS-4 and the sub-scale of MBI called "emotional exhaustion", according to the participants' gender.

A significant difference between men and women has been observed concerning the perceived stress score. We have indeed noticed that women (M = 7.46; SD = 2.46) score much higher than men (M = 6.41; SD = 2.90) on the perceived stress scale

( $t(113) = 2.08$ ;  $p < .05$ ). This result is consistent with Cohen and Williamson's (1988) findings. However, we will remain cautious as to the scope of these first results.

As regards Pines' BMS score, we have noticed a descriptive difference between men and women. Men ( $M = 3.51$ ;  $SD = 1.02$ ) seem to have a slightly higher score than women ( $M = 3.56$ ;  $SD = .95$ ). We cannot say, however, that this difference is significant.

Finally, it has been observed that on the scores given by respondents on the "emotional exhaustion" subscale of the BMI scale, men ( $M = 27.55$ ;  $SD = 6.85$ ) have a slightly higher score than women ( $M = 26.77$ ;  $SD = 5.84$ ). However, this difference is not significantly marked.

As an intermediate conclusion, we could say that a significant difference between men and women has been observed on the construct designed to measure the degree of perceived stress only. We will remain cautious as to the interpretation of these preliminary results.

The second analysis will deal with means and their differences according to the participants' Socio-Professional Category (i.e., SPC: dental surgeon, social sector, marketing, transport, education, health and administration).

#### *Descriptive Statistics 2*

Analysing the variance shows that there is a significant effect of the SPC on the score of perceived stress ( $F(6,200) = 14.64$ ;  $p < .001$ ) and on the score of psychological exhaustion measured by means of BMS ( $F(6, 200) = 6.59$ ;  $p < .001$ ). This effect is not clearly marked on the construct which isolates the "emotional exhaustion" dimension in the MBI subscale.

#### *Analysis of Mean Scores Obtained on PSS According to the Socio-Professional Categories (SPC)*

A significant difference in the perceived stress score can be observed between dental surgeons and all the socio-professional categories of this study. Indeed, it has been noticed that:

1) People working in the health sector ( $M = 8.89$ ;  $SD = 2.00$ ) score higher than people working as dental surgeons ( $M = 5.97$ ;  $SD = 3.37$ ) ( $t(100) = 4.69$ ;  $p < .001$ ).

2) People working in education ( $M = 10.20$ ;  $SD = 2.70$ ) give higher scores than dental surgeons ( $M = 5.97$ ;  $SD = 3.37$ ) ( $t(80) = 4.52$ ;  $p < .001$ ).

3) People working in security ( $M = 10.53$ ;  $SD = 1.72$ ) again score higher than dental surgeons ( $M = 5.97$ ;  $SD = 3.37$ ) ( $t(80) = 5.06$ ;  $p < .001$ ).

4) People working in administration ( $M = 9.60$ ;  $SD = 1.91$ ) seem to perceive more stress than dental surgeons ( $M = 5.97$ ;  $SD = 3.37$ ) ( $t(80) = 4$ ;  $p < .001$ ).

5) People working in marketing ( $M = 8.34$ ;  $SD = 1.57$ ) score higher than dental surgeons ( $M = 5.97$ ;  $SD = 3.37$ ) ( $t(110) = 5.97$ ;  $p < .001$ ).

6) People in transport ( $M = 9.26$ ;  $SD = 1.38$ ) seem to perceive more stress than dental surgeons ( $M = 5.97$ ;  $SD = 3.37$ ) ( $t(80) = 3.69$ ;  $p < .001$ ).

Besides, we will add that there is a significant difference between:

7) People working in health ( $M = 8.89$ ;  $SD = 2.00$ ) and people working in security ( $M = 10.53$ ;  $SD = 1.72$ ) ( $t(48) = -2.74$ ;  $p < .001$ ).

8) People working in education ( $M = 10.20$ ;  $SD = 2.70$ ) and people working in marketing ( $M = 8.34$ ;  $SD = 1.57$ ) ( $t(58) = 3.25$ ,  $p < .01$ ).

9) People working in security ( $M = 10.53$ ;  $SD = 1.72$ ) and people working in marketing ( $M = 8.34$ ;  $SD = 1.57$ ) ( $t(58) = 4.54$ ,  $p < .001$ ).

As regards other socio-professional categories (SPC), there are not any significant differences between them.

*Analysis of Mean Scores Obtained on BMS According to the Socio-Professional Categories (SPC)*

At this level, a significant difference can be observed between dental surgeons and other socio-professional categories on the construct which assesses the degree of exhaustion with BMS. Dental surgeons ( $M = 3.50$ ;  $SD = .90$ ) seem to score higher on the professional exhaustion scale than the following:

1) People working in health ( $M = 3.01$ ;  $SD = .74$ ) ( $t(100) = 2.74$ ;  $p < .01$ ).

2) People working in education ( $M = 2.82$ ;  $SD = .82$ ) ( $t(80) = 2.64$ ;  $p < .01$ ).

3) People working in security ( $M = 2.66$ ;  $SD = .86$ ) ( $t(80) = 3.24$ ;  $p < .01$ ).

4) People working in marketing ( $M = 2.86$ ;  $SD = .71$ ) ( $t(110) = 3.97$ ;  $p < .001$ ).

5) People working in transport ( $M = 2.23$ ;  $SD = .87$ ) ( $t(80) = 4.57$ ;  $p < .001$ ).

Moreover, there is a significant difference between people working in transport ( $M = 2.32$ ;  $SD = .87$ ) and the following:

1) People working in health ( $M = 3.01$ ;  $SD = .74$ ) ( $t(48) = 2.84$ ;  $p < .01$ ).

2) People working in administration ( $M = 3.20$ ;  $SD = .74$ ) ( $t(28) = 2.97$ ;  $p < .01$ ).

*Analysis of Mean Scores Obtained on the MBI Subscale Called "Emotional Exhaustion" According to the Socio-Professional Categories (SPC)*

The descriptive analysis of the degree of emotional exhaustion according to SPC

reveals only two significant differences between professionals working in health ( $M = 24.76$ ;  $SD = 4.06$ ) and the following:

1) People working in marketing ( $M = 26.59$ ;  $SD = 4.52$ ) ( $t(78) = -3.32$ ;  $p < .01$ ).

2) Dental surgeons ( $M = 26.59$ ;  $SD = 6.70$ ) ( $t(100) = -2.13$ ;  $p < .05$ ).

At this stage, it appears that dental surgeons and people from the business sector seem to be more exposed to emotional exhaustion than workers in the health sector.

Apart from these results, there is no significant difference in our sample between socio-professional categories (SPC) on the construct studied.

*Reliability of Scores Obtained on the French Version of the BMS*

First of all, we have tested the internal consistency of the BMS scale in French with the Cronbach alpha coefficient. The result shows that in our study it is .89 and .86 in that of Malach-Pines. It is therefore slightly higher than the original score, but it seems to support the reliability of scores obtained with the French version of the BMS instrument.

*Structural Validity of the BMS Scale*

In order to explore the structure of the BMS instrument, we proceeded to a confirmatory factorial analysis. In accordance with the theoretical framework of the BMS tool, the construct isolated is called "degree of exhaustion".

In this type of analysis, the low value of the  $\chi^2$  indicates a good adjustment of the model to empirical data. The proximity of the Jöreskog GFI and AGFI indexes to the value 1 reveals a perfect equivalence between the model and the raw data. Let it be recalled that the indexes vary between .00

(total inadequacy) and 1.00 (perfect adequacy). As regards the RMSEA value, it must be close to zero. Indeed, a RMSEA value  $< .05$  corresponds to a good adequacy, one between  $.05$  and  $.08$  is reasonable, one between  $.08$  and  $.10$  is mediocre, and anything above is totally unacceptable.

In the present case, the model was estimated based on the principle that there exists a construct which assesses a unique dimension. This model was evaluated using the method of least generalized squares. Results are presented in Table 1.

The results obtained yield a significant ( $\chi^2 = 56.61$ ,  $df = 35$ ) ( $n = 207$ ). The GFI (Goodness of Fit Index) and the AGFI (Adjusted Goodness of Fit Index) indexes are respectively  $.946$  and  $.915$ , while the RMSEA index is of  $.05$  (interval of trust at 90%). The GFI absolute adjustment index as well as that of the number of degrees of liberty (AGFI) concur to validate the model tested. The same thing goes for the RMSEA value judged as reasonable. Finally, all the estimated parameters are significant and their factorial saturations hover between  $.44$  (item 2) and  $.78$  (item 3).

### *Construct Validity of the French Version of the BMS*

At this stage, the adequacy of the French version of the BMS needs to be verified with a tool which measures a similar construct. In order to do so, we thought it useful to use the "emotional exhaustion" subscale of the MBI instrument. Similarly, we wanted to check the coherence of the BMS, but this time in relation to a measure of stress perceived. Results are presented in Table 2.

A correlational analysis was carried out with the PSS-4 scores on one hand and the emotional exhaustion and BMS scores on the other.

BMS scores are positively and significantly correlated with emotional exhaustion ( $r = .51$ ,  $p < .001$ ). Surprisingly, we also found a significant negative correlation between BMS scores and stress perceived ( $r = -.19$ ;  $p < .001$ ).

These results confirm our expectations and support the validity of the construct of the French version of the BMS scale.

Table 1. Standardized confirmatory factor analysis and Cronbach's Alpha coefficient

Items and labels Cronbach's Alpha coefficient: $.87$		Standardized coefficient Factor loadings
1	Tired	$.65$
2	Disappointed with people	$.44$
3	Hopeless	$.78$
4	Trapped	$.60$
5	Helpless	$.62$
6	Depressed	$.63$
7	Physically weak/Sickly	$.53$
8	Worthless/Like a failure	$.72$
9	Difficulties sleeping )	$.77$
10	"I've had it"	$.63$

Table 2. Means, standard deviations, correlations of subscales (BMS, MBI and PSS-4)

	Emotional exhaustion	Stress perceived
	M = 26.85 ; E.T = 8.12 alpha = .76	M = 8.52 ; E.T = 2.92 alpha = .69
Degree of exhaustion		
M = 3.53 ; E.T = .99 alpha = .87	.51*	- .19*

\*  $p < .001$ ;  $n = 206$

#### DISCUSSION AND LIMITS

This study was aimed at empirically testing the adaptation and validation of a French version of the measure of burnout. In that sense, we wanted to verify certain metrological qualities of the short version of the BM (BMS) validated by Malach-Pines (2005). This scale has the advantage of assessing burnout with a single score. Moreover, it can be used to compare the evaluation of the individual's degree of exposure to burnout on a standard grid. As well as being reliable, BMS is economical because it contains only 10 items, each with a 7-point scale answer. Thus, it can be easily used in in-depth investigations with a great number of measuring instruments. About the "Burnout Measure" scale, Schaufeli and Enzmann (1998, p. 50) write that "it indicates an individual level of exhaustion which is not necessarily linked to the relation to work". In other words, this scale is flexible enough to be adapted to non-professional situations. This is incidentally the case in the Pines study (1996) which deals with exhaustion in a couple (couple burnout).

In our sample, participants have a mean score of 3.53 on the BMS scale ( $SD = .99$ ). This score is relatively close to those from other studies using the same scale ( $M = 3.2$

for a sample of American employees; Pines, 2004) ( $M = 2.8$  for a sample of Israeli employees; Malach-Pines, 2005). Similarly, it seems that the BMS is coherent ( $r = .51$ ;  $p < .001$ ) when set against a scale measuring a similar construct which is "exhaustion" (MBI's "emotional exhaustion" subscale). The same goes for Schaufeli and Van Dierendonck (1993) who report that the BM scale is correlated with emotional exhaustion as Maslach and Jackson define it (1981, 1986). Surprisingly, it is again correlated with a measure of stress perceived ( $r = -.19$ ;  $p < .001$ ). We think that this result can be explained by the fact that the construct validity of the PSS (4 items) is not very high (.69). For future research, we recommended the use of PSS scale in 10 items (PSS-10). This version is stronger than a PSS-4 (view Cohen et al., 1983, 1988). All the same, these relations are relatively modest.

Consequently, our results seem to confirm the validity of the French version of BMS. The 10 item BMS is based on Pines and Aronson's definition of burnout (1988). This definition consists of a single construct measuring physical, mental and emotional exhaustion. Such a tool can be useful for researchers as well as practitioners concerned with the problem of prevention and of promotion of the employee's health. It can also affect the



management of stressed professionals in organizations. All things considered, the issue of burnout should remain a major preoccupation when dealing with health at work. We believe that our modest study may contribute to its advancement.

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### PSYCHOMETRICKÉ VLASTNOSTI GLOBÁLNEJ MIERY PRACOVNÉHO VYHORENIA

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*Súhrn:* Autori predkladajú francúzsku adaptáciu a validizáciu metodiky - "Miera vyhorenia - krátka verzia" (BMS) (Malach-Pines, 2005). Zhodnotili psychometrické vlastnosti skóre získaného pomocou tejto francúzskej verzie. Konfirmačná faktorová analýza priniesla jednofaktorové riešenie: "stupeň vyčerpania" (n = 206). Faktorová analýza vychádza z práce Pinesa a Aronsona (1988). Táto jednodimenzionálna škála pozitívne korelovala s inými mierami vyhorenia (podškálou "emočné vyčerpanie", MBI) a s vnímaným stresom. V práci autori uvažujú o budúcej využiteľnosti škály a jej metodologických obmedzeniach.

## APPENDIX 1

Final 10 items for the Burnout Measure Short version (BMS) (in only English version)

Please use the following scale to answer the question: When you think about your work overall, how often do you feel the following?

1	2	3	4	5	6	7
never	almost never	rarely	sometimes	often	very often	always

Tired \_\_\_

Disappointed with people \_\_\_

Hopeless \_\_\_

Trapped \_\_\_

Helpless \_\_\_

Depressed \_\_\_

Physically weak/Sickly \_\_\_

Worthless/Like a failure \_\_\_

Difficulties sleeping \_\_\_

"I've had it" \_\_\_

In order to calculate your burnout score add your responses to the 10 items and divide by 10 \_\_\_\_\_.