



reference lists of retrieved articles. It focused on identifying French language validation studies of questionnaires measuring burnout. Were included, questionnaires assessing burnout among health professionals, which have a valid French language version. For each questionnaire, we identified: the author and creation date, number of items, the measured concepts and psychometric properties: validity (factorial, convergent, discriminant, construct, hypothetical-deductive, predictive) reliability (internal consistency, temporal stability), when the information was available.

## RESULTS

We have found six questionnaires: the Staff Burnout Scale for Health Professionals (SBS-HP) [6], the Burnout Measure (BM) and its short version (BMSV) [2], the Maslach Burnout Inventory (MBI) [7] the Oldenburg Burnout Inventory (OLBI) [8- 10], the Copenhagen Burnout Inventory (CBI) [11, 12] and the Shirom Melamed Burnout Measure (SMBM) [13] Table 1.

**Table I: Characteristics of burnout questionnaires with valid French language versions**

Questionnaire	Authors and creation date	Concepts	Items and scales
SBS-HP [6]	Jones (1980)	Cognitive exhaustion Emotional exhaustion Psychophysiological exhaustion Behavioral exhaustion	30 items Likert scale: 6 pts
MBI [7]	Maslach - Jackson (1977-1986)	Emotional exhaustion Depersonalization Personal accomplishment	22 items Likert scale: 7 pts
BM [2]	Pines – Aronson (1988)	Physical exhaustion Mental exhaustion Emotional exhaustion	21 items Likert scale: 7 pts
BMSV [2]	Malach –Pines (2005)	Burnout	10 items Likert scale: 7 pts
OLBI [8-10]	Halbesleben – Demerouti (2001)	Emotional Exhaustion Disengagement	16 items Likert scale: 4 pts
CBI [11,12]	Kristensen (2005)	Personal burnout Work-related burnout Burnout related to patients	19 items Likert scale: 5 pts
SMBM [13]	Shirom-Melamed (2006)	Physical exhaustion Cognitive weariness Emotional exhaustion	22 items Likert scale: 7 pts

SBS-HP: Staff Burnout Scale for Health Professionals, BM: Burnout Measure, BMSV: Burnout Measure Short Version, MBI: Maslach Burnout Inventory, OLBI: Oldenburg Burnout Inventory, CBI: Copenhagen Burnout Inventory, SMBM: Shirom Melamed Burnout Measure.

Psychometric data of French versions are satisfactory with a Cronbach's alpha ranging from 0.64 (MBI, Personal accomplishment dimension) to 0.93 (SMBM, Cognitive weariness dimension) [2, 6-13], the OLBI, CBI

and SMBM have a good factorial validity, convergent and discriminant validity [6-13]. The MBI have also a good hypothetical-deductive validity and temporal stability [7]. Table II.

**Table II: psychometric properties of burnout questionnaires with valid French language versions**

Questionnaire	Reliability	Validity
SBS-HP [6]	CB $\alpha$ = 0,84	predictive validity
MBI [7]	CB $\alpha$ of: Emotional exhaustion dimension = 0,90 Depersonalization dimension=0,64 Personal accomplishment dimension= 0,74 Temporal stability	factorial validity hypothetical deductive validity convergent validity
OLBI [8-10]	CB $\alpha$ of: Exhaustion dimension= 0,81 Disengagement dimension= 0,68	factorial validity convergent validity discriminant validity
BM, BMSV [2]	CB $\alpha$ = 0,86 Temporal stability	construct validity
CBI [11,12]	CB $\alpha$ of: Personal burnout dimension =0,88 Burnout related to patients dimension= 0,85	factorial validity convergent validity discriminant validity
SMBM [13]	CB $\alpha$ of: Physical exhaustion dimension = 0,87 Cognitive weariness dimension =0,93 Emotional exhaustion dimension= 0,84	factorial validity convergent validity discriminant validity

SBS-HP: Staff Burnout Scale for Health Professionals, BM: Burnout Measure, BMSV: Burnout Measure Short Version, MB: Maslach Burnout Inventory, OLBI: Oldenburg Burnout Inventory, CBI: Copenhagen Burnout Inventory, SMBM: Shirom Melamed Burnout Measure

## DISCUSSION

This literature review provides a list of the most important measures that should be known by investigators assessing burnout among French speaking caregivers. The MBI is the instrument which is the most used in research on burnout (over 90% of the scientific corpus) [3, 14]. The MBI brought an emerging definition of burnout, which is, despite its psychometric robustness, making it vulnerable to concepts redundancies with other concepts, such as self-esteem, cynicism, or even coping, especially when it comes to depersonalization; it has also methodological limitations due to the Cronbach alphas obtained that are often low. Personal accomplishment has also some reserves for its low correlation with other MBI dimensions [7, 15, 16]. Of all, the Oldenburg Burnout Inventory (Halbesleben and Demerouti (2001)) is the closest measure to the MBI. On a set of 15 items, its double factorial structure includes emotional exhaustion and disengagement dimensions, existing in the MBI, and physical fatigue component [17, 18]. Despite this distinction, Halbesleben and Demerouti (2005) [10] highlighted the strong psychometric and conceptual near of this scale to the MBI. BM (Pines – Aronson (1988), is the most used instrument after the MBI [3], it is a one-dimensional measure of burnout, it consists of 21 items in its full version and 10 items in its short version (Malach and Pines, 2005) [19]. A fundamental critique of BM is the fact that it contains only a portion of the burnout

phenomenon; physical fatigue and emotional exhaustion. Thus, burnout would be reduced to a lack of a general sense of well-being [20], BMSV however, has the advantage of being economical and can be used in investigations with several measuring tools [2]. The Copenhagen Burnout Inventory (Kristensen, 2005) [9] is a recent alternative to MBI. It offers a multidimensional scale of 19 items, including personal burnout, work-related burnout and burnout related to the relationship with patients. Despite its international diffusion [21-23] and taking into consideration the main areas that contribute to the genesis of a state of exhaustion, CBI is the subject of reservations about including the three life areas. Indeed, the theory would rather dictate treating these areas separately. Personal burnout defined by the CBI is closer to the concept of depression than that of a work-related burnout [11]. Compared to all the available measures of burnout, the SMBM has the distinction of being the first theory instrument (Shirom and Melamed 2006). It is in direct extension of the theory of resources conservation, which is currently considered as one of the major theories of psychological health [24, 25]. According to this theory, the origin of human motivation is a need for constructive action to which the evolution of the species is intrinsically liable. Burnout corresponds to the actual loss, or the fear of losing one or more particular motivational value of resources [26]. The SMBM is organized around three dimensions: physical fatigue, emotional exhaustion and cognitive weariness. The

concept of physical fatigue takes a facet of burnout, identified clinically and integrated in some assessment tools, such as BM or the Staff Burnout Scale for Health Professionals (SBS-HP; Jones, 1980). The emotional exhaustion dimension corresponds to the strongest notion of MBI [27], which is common to most other measures of burnout, for example the BM. The third dimension, cognitive weariness, represents the difficulties experienced by the individual to focus and to use his intellectual capacity. Despite the observed relationship between burnout and cognitive disorders [28], it should be emphasized that no existing measure incorporates this aspect in the burnout evaluation. Thus, the SMBM revolves around the most important symptoms of professional stress and has the advantage of not incorporating any dimension which can be seen as an adaptive defense strategy, as it is the case for depersonalization dimension of the MBI [7,13]. We have limited ourselves in this review to the questionnaires that have a valid French language version because of their practical implications; they could be used separately or in association in our Moroccan context [29, 30]. However, it would be appropriate to have versions that are translated and validated in Arabic and are adapted to our Moroccan culture [31].

## CONCLUSION

Only a few questionnaires justified their validity and reliability. They can be used separately or in association, they can certainly be used in our Moroccan health care context but with socio-cultural limitations.

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