JOURNAL OF ORGANIZATIONAL BEHAVIOR, VOL 14, 631–647 (1993)

The construct validity of two burnout measures[1]

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Summary The present study was carried out among a sample of 667 Dutch nurses and assesses three aspects of the construct validity of the two most widely used self-report burnout questionnaires. The Maslach Burnout Inventory (MBI) and the Burnout Measure (BM). Although the *factorial validity* of the three-dimensional structure of the MBI was convincingly demonstrated by confirmatory factor analysis with LISREL, four weak and ambiguous items were identified. Regarding the BM, some doubts have arisen about its one-dimensionality The *congruent validity* of the questionnaires was well established: They both refer to the core element of the burnout syndrome (i.e. exhaustion). Moreover, linear structural analyses suggested that burnout is a two multi-dimensional construct consisting of an affective component (i.e. exhaustion) and an attitudinal component (i e a negative attitude towards recipients and towards one's job performance). However, the *discriminant validity* of the first component is rather poor since it considerably overlaps with self-reported somatic complaints and psychological strain. It is concluded that the MBI can be employed as a reliable and valid multi-dimensional indicator of burnout in professionals who work with people. The BM assesses the non-specific affective component of burnout (i.e exhaustion) and should therefore be supplemented by a scale that measures the attitudinal component of the syndrome.

Introduction

Since Herbert Freudenberger coined the term burnout in 1974, its measurement has been a controversial issue In view of the vagueness and over-inclusiveness of the burnout-concept this is not very surprising. For instance, Schaufeli (1990) listed more than 100 symptoms that have been associated with burnout. During the first years after the introduction of burnout, researchers were trapped in a vicious circle. Burnout was not properly defined and therefore its measurement could not be ascertained, but because of the absence of an adequate measurement instrument the phenomenon could not be properly empirically described. This circle was broken by the growing acceptance of the Maslach Burnout Inventory (MBI) (Maslach and Jackson, 1981). Within a few years the MBI became the most popular instrument to assess burnout. Accordingly, the definition of burnout provided by the test-authors was accepted by implication. From then on it appeared that the controversy about the nature of burnout was settled by a silent agreement among researchers, at least as it relates to the human service professions. Then, according to Maslach and Jackson (1981), burnout was restricted to individuals 'who

[1] The authors gratefully acknowledge the detailed comments of the editor and the three anonymous reviewers on earlier versions of this article

0894–3796/93/070631–17$13 50

Received 26 February 1991
Accepted 23 February 1993

do "people-work" of some kind' (p. 99). They defined burnout as a three-dimensional syndrome characterized by emotional exhaustion, depersonalization (i.e negative, cynical attitudes and feelings about one's recipients), and reduced personal accomplishment (i.e. the tendency to evaluate oneself negatively, particularly with regard to one's work with recipients). It is important to note that these three dimensions were *not* theoretically deduced before the proper test-construction of the MBI commenced (Maslach and Schaufeli, 1993). Instead, they were labelled *after* factor-analyzing empirical data from human services samples. Consequently, an inductive not a deductive approach was employed. Burisch (1984) argued that the former strategy of test-construction renders less optimal psychometric results than the latter.

It is therefore not surprising that the *factorial validity* of the MBI is not beyond question. Although the three-dimensional structure of the MBI has been confirmed in most samples (Belcastro, Gold and Hays, 1983, Gold, 1984; Huberty and Huebner, 1988; Fimian and Blanton, 1987; Green and Walkey, 1988; Fimian, Fastenau, Tashner and Cross 1989; Koeske and Koeske, 1989; Lahoz and Mason, 1989; Pierce and Molloy, 1989), four dimensions have also been reported. In the latter case either the emotional exhaustion (Firth, McIntee, McKeown and Britton, 1985), depersonalization (Iwanicki and Schwab, 1981) or personal accomplishment subscale (Powers and Gose, 1986) separates into two factors. In contrast, some studies suggest a two-dimensional structure of the MBI (Brookings, Bolton, Brown and McEvoy, 1985; Dignam, Barrera and West, 1986; Green, Walkey and Taylor, 1991). The findings of these studies are rather consistent. Emotional exhaustion and depersonalization merge into a single factor. This leads some authors to propose a composite exhaustion and depersonalization score: The 'Core of Burnout Scale' (Green *et al.*, 1991, p 463). It should be emphasized that in none of the above-mentioned studies an adequate attempt was made to *test* the factorial validity of the MBI, for instance by carrying out confirmatory factor analysis. Although Golembiewski and Munzenrider (1988, pp. 19–23) claim that the results of their factor comparison test support the three-factor structure of the MBI, they employed a strongly modified version of the MBI. Not only did they reword several items (i.e. substituting 'recipients' for 'coworkers') and changed the response format, but they also added an item. Additionally, a recent study failed to fully replicate the results of Golembiewski and Munzenrider It was concluded that several items from the modified MBI-version 'did not load as expected' (Scherer, Cox, Key, Stickney and Spangler, 1992, p 29) More interestingly, two recent studies examined the dimensionality through confirmatory factor analysis with LISREL and found the fit of the original three-factor model to be superior to several alternative models (Gold, Bachelor and Michael, 1989; Lee and Ashforth, 1990). Unfortunately, in both studies rather small and highly specific non-human services samples were used: 181 supervisors and managers, and 147 college students, respectively. Consequently, modified versions of the MBI were employed. For instance, in the latter study seven new items were added. As far as we know, only Byrne (1991) used the original MBI-version for confirmatory factor-analysis in a sample of 543 teachers. She concluded that the postulated three-factor structure 'was only modestly well-defined' (p. 591). Additional exploratory work suggested that the fit of the three-factor model would substantially improve with the deletion of four items. However, Byrne (1991) is cautious about her recommendation of deleting particular items since the size of her sample is 'modestly adequate' (p. 591)

Taken together, the evidence from explorative factorial validity studies is not conclusive, whereas confirmative approaches, with one notable exception, used modified versions of the MBI

The factorial validity of the MBI is not only questioned on empirical grounds in psychometric studies, but also on a conceptual level doubts have arisen about the three-dimensional structure of the burnout syndrome. For example, Shirom (1989, p. 33) proposed the following 'core

definition' of burnout in which only exhaustion plays a prominent role: 'Burnout refers to a combination of physical fatigue, emotional exhaustion and cognitive weariness'. According to Shirom, the additional burnout-components are confounded with antecedent coping behaviors (i.e. depersonalization) and with the consequences of burnout (i.e. reduced personal accomplishment). In a similar vein, Koeske and Koeske (1989) consider exhaustion as the essence of burnout, and regard depersonalization and accomplishment as different, albeit theoretically related variables.

The second most widely employed burnout self-report questionnaire is the Burnout Measure (BM) (Pines and Aronson, 1988), originally denoted Tedium Measure (Pines, Aronson and Kafry, 1981). The burnout concept that underlies this instrument is closely related to Shirom's core definition. According to the test-authors, burnout is, '... a state of physical, emotional and mental exhaustion caused by long-term involvement in situations that are emotionally demanding' (Pines and Aronson, 1988, p. 9). Although three types of exhaustion are distinguished, the BM is conceived as a one-dimensional questionnaire of burnout. In contrast to the MBI, the BM is also appropriate to measure burnout outside the human services professions. In their definition, Pines and Aronson (1988) do *not* restrict burnout to certain occupational groups Most researchers who employ the BM take the one-dimensionality of the instrument for granted. Two factorial validity studies failed to distinguish more than one burnout-dimension in the BM (Corcoran, 1986; Justice, Gold and Klein, 1981). In contrast, Enzmann and Kleiber (1989) found some indications for a three-factor structure in their German version. They labelled their factors Demoralization, Exhaustion, and Loss of Motive ('Antriebsverlust'), respectively To date, confirmatory factor-analytic studies of the BM are lacking.

It is remarkable that so few studies have been carried out on the *congruent validity* of both of these most widely used burnout instruments. The results of these few studies are quite comparable, however Burnout as measured with the BM is strongly positively associated with MBI–emotional exhaustion and MBI–depersonalization ($0.50 < r < 0.70$), and is somewhat less strongly but negatively associated with MBI–personal accomplishment ($-0.25 < r < -0.30$) (Corcoran, 1986, Stout and Williams, 1983). The correlations found in the German study of Enzmann and Kleiber (1989) differ slightly from this pattern as far as depersonalization ($r = 0.19$) and personal accomplishment ($r = -0.41$) are concerned.

Discriminant validity studies that assess the specificity of burnout, as measured by the questionnaires, are also rare. A notable exception is Meier (1984), who showed that a considerable overlap exists between burnout and depression, by employing a multitrait–multimethod methodology. However, he has been criticized, amongst others by Maslach and Jackson (1986), for ignoring the multidimensional nature of burnout. In his study, Meier employed a rather questionable unitary measure of burnout by adding scores of the three MBI-dimensions to form one composite burnout-score. In the same vein, Firth, McIntee, McKeown and Britton (1986) report a considerable relationship between burnout and depression in nurses. They differentiated between the three MBI-dimensions and found that emotional exhaustion was significantly stronger correlated with depression ($r = 0.50$) than with depersonalization ($r = 0.32$) and personal accomplishment ($r = -0.17$). Unfortunately, no discriminant validity studies of the BM have been carried out thus far.

Despite the almost universal acceptance of the MBI and the BM as measurement instruments of burnout, a careful evaluation of their construct validity is still lacking. Such analyses are particularly important when translated burnout inventories are applied to other national or cultural settings Recently, Arabic (Abu-Hilal and Salameh, 1992); Italian (Sirigatti, Stefanile and Menoni, 1988), French (Girault, 1989), German (Enzmann and Kleiber, 1989), Spanish (Gil-Monte and Schaufeli, 1992), and Polish (Schaufeli and Janczur, in press) versions of the

MBI have been analyzed. Unfortunately, the number of subjects included in these studies is too small for extensive psychometric evaluations, such as confirmatory factor analysis (Marsh, Balla and McDonald, 1988).

The purpose of this article is to report on the construct validity of the MBI and the BM. More specifically, four questions will be answered:

(1) Can the original three-factor structure of the MBI be confirmed?
(2) Should the BM be considered as a one-dimensional or as a three-dimensional questionnaire?
(3) Do the BM and the subscales of the MBI assess a similar construct?
(4) To what extent do the MBI and the BM measure specific symptoms of burnout that can be distinguished from somatic symptoms and psychological strain?

The first two questions pertain to the factorial validity, whereas the last two questions refer to the congruent and discriminant validity of the MBI and the BM, respectively. Based on our previous brief review of the literature, we expected to confirm the three-dimensional structure of the MBI (for a more extensive review see: Schaufeli, Enzmann & Girault, 1993). We were however less confident about the one-dimensionality of the BM, mainly because of the lack of factorial validity studies. As far as the construct validity of the two burnout measures is concerned, we hypothesize that burnout consists of two dimensions: A non-specific exhaustion component that is associated with somatic complaints and psychological strain, and a component that is characterized by a negative attitude towards one's patients (depersonalization) and towards one's performance on the job (reduced personal accomplishment) (*cf.* Maslach and Schaufeli, 1993). This implies that the BM and the MBI only partly assess the same construct. Our reasoning partially agrees with Shirom (1989) and Koeske and Koeske (1989), who consider exhaustion as the core element of burnout that is accompanied by two related but conceptually distinct aspects.

Method

Subjects

The sample was combined from four studies and included 667 Dutch nurses from different work settings: General hospital nurses (15 per cent), psychiatric nurses (25 per cent), community nurses (31 per cent), hospice nurses (17 per cent), nurses working with the mentally retarded (10 per cent), and nurses employed in other health institutions (2 per cent). Forty-one per cent were male and 59 per cent female. Ages ranged from 18 to 59 years ($M = 33.1$, $S.D. = 7.7$). Response rates varied from 68 per cent to 89 per cent in the four subsamples that are included in the composite sample.

Measures

The Maslach Burnout Inventory (Maslach and Jackson, 1986) and the Burnout Measure (Pines *et al.*, 1981) were employed in order to assess the nurses' level of burnout. Both questionnaires were translated into Dutch by the first author and the semantic and syntactic equivalence of the Dutch and English versions was judged independently by two Dutch scholars with degrees in English language study. Additionally, a bilingual psychologist checked the adequacy of the Dutch translation. Using the MBI, nurses recorded how often they experienced reactions described in each of the 22 items The scoring-dimension ranged from *never* (0 points) to *every*

day (6 points). Similar to a study among British nursing staff (Firth *et al.*, 1985), the term *patients* was substituted for *recipients*. The internal consistency of the three MBI-subscales was considered satisfactory, since Cronbach's coefficients α exceed 0.70 (Table 1). That value has been proposed as a criterion for a satisfactory internal consistency by Nunnaly (1978).

Table 1. Descriptive statistics and alpha coefficients for the MBI, BM and VOS-D subscales ($N = 667$)

(Sub)scale	Number of Items	*M*	*S.D.*	α
MBI				
Emotional exhaustion	9	16.68	8.45	0.88
Depersonalization	5	5.94	3.89	0.71
Personal accomplishment	8	32.41	4.91	0.77
BM				
BM-total	21	2.96	0.75	0.93
Demoralization	10	2.67	0.84	0.90
Exhaustion	6	3.20	1.05	0.90
Loss of motive	5	3.23	0.83	0.85
VOS-D				
Somatic complaints	14	18.71	4.09	0.83
Psychological strain	11	20.54	3.97	0.82

The 21 items of the BM were scored on a 7-point scale ranging from *never* (1 point) to *always* (7 points). The composite burnout-score was the mean response to the 21 items, with the four positive items reversed. Question 15 of the BM (i.e. 'feeling disillusioned and resentful about others') was split into two questions that refer to each feeling separately (i.e. 'feeling disillusioned about other people' and 'feeling resentful about other people'). Enzmann and Kleiber (1989) reported that in their study, item 15 showed the weakest item–rest correlation, which they attributed to its ambiguity. Unfortunately, the Dutch translation of resentful was not well understood by many nurses, which can be inferred from the relative large number of missing values. Therefore, this item is excluded from further analyses, leaving 21 BM-items. As can be seen from Table 1, internal consistency coefficients were very satisfactory for the three BM-subscales and the composite BM-score.

Finally, two of the 12 subscales were employed from the Dutch adaptation of the work stress questionnaire developed by Caplan, Cobb, French, van Harrison and Pinneau (1975); the 'Vragenlijst Oganisatie Stress-Doetinchem' (VOS-D) (Bergers, Marcelissen and de Wolff, 1986). the VOS-D is one of the most widely used self-report questionnaires to assess an employees' level of perceived job stress (e.g work overload, role conflict, role ambiguity), social support (of coworkers and superiors), and stress-reactions (e.g. psychological strain, somatic complaints) (Kompier and Marcelissen, 1990). Normative data are available from a large representative sample of Dutch workers ($N = 2800$). *Psychological strain* includes anxiety (e.g. feeling nervous, jittery), depression (e.g feeling sad, blue, cheerful) and irritation (e.g. feeling angry, annoyed). *Somatic complaints* include a variety of psychosomatic symptoms like sweating palms, upset stomach, trouble sleeping and heart beating faster than usual Both VOS-D subscales are scored similarly on 4-point scales, ranging from *never* (1 point) to *very often* (4 points). Their internal consistencies of both scales are sufficient (see Table 1)

Results

Factorial validity

First, a confirmatory factor-analytic approach was used to test the dimensionality of burnout as assessed by the MBI and the BM, respectively. Using the LISREL VII computer program (Jöreskog and Sörbom, 1989) the fit of several plausible factor analytic models were compared for both instruments. Unfortunately, the *absolute* chi-square goodness-of-fit index provided by LISREL strongly depends on sample size. In large samples, the chi-square statistic is very powerful and even quite good model-fits will produce significant differences (Bentler and Bonett, 1980). Since the other LISREL fit-indices (i.e. Adjusted-Goodness-of-Fit-Index — AGFI, and Root Mean Square Residual — RMSR) are also substantially affected by sample size they cannot be employed for statistical testing of the absolute fit of a particular model either. Instead, Marsh *et al.* (1988) propose so-called Type 2 incremental fit indices that are barely affected by sample size. For reasons of comparability with other studies, two such indices were computed: Chi^2-$I2$[2] and the Tucker-Lewis Index[3] (TLI). These indices do not provide information about the absolute fit of a particular model, rather they assess the fit *relative* to another (nested) factorial model in that particular sample. Moreover, these indices can be used to compare the fit of a particular model with that of a similar model in other samples of different sizes. Unfortunately, the distributions of both incremental fit indices are unknown, so that they cannot be employed for statistical testing. Bentler and Bonett (1980) suggested that incremental fit indices should at least be 0.90. Models with a lower fit can usually be improved substantially.

A three-step approach was used to investigate the factorial validity of the MBI and the BM simultaneously in two independent subsamples Cudeck and Browne (1983) recommend such a double cross-validation procedure in order to minimize the effects of possible chance capitalization. Recently, Byrne (1991) followed a similar approach to test the factorial validity of the MBI. Before performing the analysis, the sample was randomly split into two equally sized subsamples ($n_1 = 334$; $n_2 = 333$). In the first step, the relative fit of several factor analytic models was assessed in both subsamples simultaneously. This was done by comparing each of the specified models with the most restrictive model: The so-called null-model (m_0). In the present case M_0 corresponds to the hypothesis that there are just as many uncorrelated factors as there are items, i.e a model without a factor structure. Each comparison of an alternative factor analytic model with M_0 results in an incremental fit, assessed by two indices: Chi^2-$I2$ and TLI. The values of the indices were compared across models in both subsamples in order to determine the best fitting model. In the second step, moving from confirmatory to exploratory factor analysis, an attempt was made to further improve this best fitting model by examining the patterning of standardized residuals and the modification indices.[4]. Based on the outcome of this inspection, the model was re-specified and re-estimated in both subsamples along two lines successively: (1) Particular items were allowed to load on a second factor; (2) these items were removed from the model. The former strategy explores the best fitting factor analytic model that includes the whole set of items, whereas the latter strategy is recommended by

[2] Chi^2-$I2 = (n-t)/(n-df_t)$ with Chi^2-$I2$ incremental (Type 2) chi-square, n chi-square of null model, t chi-square of target model, df_t degree of freedom of target model

[3] $TLI = (n/df_n - t/df_t)/(n/df_n - 1)$ with TLI Tucker-Lewis Index, n chi-square of null model, df_n degree of freedom of null model, t chi-square of target model, df_t, degree of freedom of target model

[4] LISREL provides standardized residuals that indicate to what extent a discrepancy exists between corresponding elements of the empirical and the estimated covariance matrix Moreover, modification indices provide information whether or not the fit could be improved if a single constraint is relaxed (i e an item is allowed to load on another factor as well)

Anderson and Gerbing (1988) for scale development. In their view, a core set of items should be identified that most validly measures each dimension in a factor analytic model. After an acceptable fit was achieved in both subsamples with one or more re-specifications, the factorial invariance of the modified model was tested in the third and concluding step by a simultaneous analysis of the data across both subsamples (*cf.* Byrne, Shavelson and Muthén, 1989). To test the hypothesis of an invariant pattern of factor loadings, the absolute fit of two models was compared: (1) The model in which the factor loadings were constrained to be equal across both subsamples; (2) the model in which the number of factors *and* the pattern of loadings were held invariant across subsamples, but the loadings were not constrained to be equal. When the difference in Chi^2 was *not* significant, the hypothesis of an invariant pattern of factor loadings was tenable.

Three factor analytic models for the MBI were specified: (1) The one-factor model which assumes that all MBI-items load on a general composite burnout factor (M_1); (2) the two-factor model in which the emotional exhaustion and depersonalization items cluster into one dimension (i.e. Green *et al.*'s (1991) Core of Burnout Scale) and the personal accomplishment items constitute another separate dimension (M_4); (3) the original three-factor orthogonal model as described by Maslach and Jackson (1981, 1986)[5] (M_3); (4) the three-factor oblique model in which the three factors of M_3 are allowed to be correlated (M_4). The fit of the four initially specified models in shown in Table 2[6].

The probability levels of all chi-square statistics are less than 0.001, indicating a rather poor absolute fit. Most probably this is caused by the large sample sizes. In both samples, the best relative fit of the three models is found for M_4. This fit is better than that of the similar three-factor oblique model in the sample of Gold *et al.* (1989) (Chi^2-$I2$ = 0.81; TLI = 0.78) and quite comparable to the fit reported by Byrne (1991) in her three samples (Chi^2-$I2$ between 0.78 and 0.83; TLI between 0.75 and 0.81)[7].

In the second step, the fit of M_4 is further improved by allowing item 12 ('I feel very energetic' — personal accomplishment) and item 16 ('Working with people directly puts too much stress on me' — emotional exhaustion) to load as well on the emotional exhaustion and personal accomplishment factor, respectively. The fit of this re-specified oblique model ($M_{4\ re\text{-}specified}$) improves significantly in both samples ($\delta Chi^2_{(2)}$ = 87.18 and 132.19; $p < 0.001$). An additional factor-loading of item 12 on emotional exhaustion clearly makes sense from a psychological point of view since 'not feeling energetic' can be considered as just another symptom of exhaustion. In a similar vein, experiencing stress that results from working with people directly (item 16) can be interpreted as a sign of diminished personal accomplishment. Following the more restrictive suggestions of Anderson and Gerbing (1988) for scale development, M_5 was specified with items 12 and 16 deleted. Since this 20-item model is not nested in M_0, a new null-model ($m_{0,20\ items}$) had to be evaluated. According to the incremental fit indices the relative fit of M_5 is slightly better than that of $M_{4\ re\text{-}specified}$ in both subsamples. Since the relative fit indices still did not reach the criterion of 0.90, attempts were continued to further improve the model. Accordingly, item 13 ('I feel frustrated by my job' — emotional exhaustion) and item 18 ('I feel exhilarated after working closely with my patients' — personal accomplishment), were allowed to load on depersonalization factor as well ($M_{5\ re\text{-}specified}$). The fit of the model improved

[5] The test-authors do not explicitly claim that the MBI-dimensions are uncorrelated Nevertheless, in constructing the MBI subscales they used an orthogonal factor model instead of an oblique model (Maslach and Jackson, 1981, 1986) The latter would probably have resulted in slightly different subscales

[6] The correlation matrices are available at request from the authors

[7] The values of the lacking incremental fit indexes have been computed by the authors using the data presented by Gold *et al* (1989) and Byrne (1991)

Table 2. Comparison of MBI factorial models

Model	Chi^2	*df*	AGFI	RMSR	Chi^2-*df*	TLI
Subsample 1 ($n = 334$)						
Initial models						
M_0	2807.28	231	0.31	0 27		
M_1	1134.56	209	0.64	0.11	0.64	0.60
M_2	862.51	209	0.75	0.14	0.75	0.72
M_3	875.10	209	0.76	0.18	0.74	0.71
M_4	694 84	206	0.79	0.08	0.81	0.79
$M_{4,\ re\text{-}specified}$	607 66	204	0.81	0.08	0.84	0.82
20-item model						
$M_{0,\ 20\ items}$	2373 64	190	0 35	0.26		
M_5	507.18	167	0.83	0 08	0.85	0 82
$M_{5\ re\text{-}specified}$	462.65	165	0 84	0.07	0 87	0.84
18-item model						
$M_{0,\ 18\ items}$	2009 59	153	0.39	0.25		
M_6	375 22	132	0 85	0.07	0.87	0 85
Subsample 2 ($n = 333$)						
Initial models						
M_0	3122.92	231	0 25	0 30		
M_1	1012.54	209	0.67	0.10	0.72	0.69
M_2	899 49	209	0 76	0 16	0 76	0.74
M_3	924 60	209	0 76	0.21	0 75	0.73
M_4	691 80	206	0 80	0.09	0.83	0.81
$M_{4,\ re\text{-}specified}$	559 61	204	0 84	0.07	0.86	0.85
20-item model						
$M_{0\ 20\ items}$	2666 97	190	0 29	0.29		
M_5	468 88	167	0 84	0.07	0.88	0.86
$M_{5\ re\text{-}specified}$	418.23	165	0.86	0.06	0.90	0.88
18-item model						
$M_{0\ 18\ items}$	2154 95	153	0.34	0.28		
M_6	319 61	132	0 87	0 06	0 91	0 89

For all Chi^2, $p < 0\ 001$. For M_0–M_6 see text

significantly in both subsamples ($\delta Chi^2_{(2)} = 44.53$ and 50.65, $p < 0.001$). Again, both items were dropped from the model subsequently (M_6), which resulted in a slightly improved relative fit in both subsamples. Although the fit of subsample 1 was still somewhat below 0.90, inspection of the standardized residuals and the modification indices revealed that no further improvements could be made

The last step was to test the hypothesis of an invariant pattern of factor loadings across the subsamples. As outlined above, the factor structure of the final model (M_6) was tested twice across subsamples. First, the factor loadings were constrained to be equal ($Chi^2_{(279)} = 712\ 19$, $p < 0.001$). Next, the number of factors and the pattern of loadings were held invariant, whereas the loadings were unconstrained ($Chi^2_{(264)} = 688.86$; $p < 0.001$). The hypothesis of an invariant pattern of factor loadings was confirmed since the difference in fit was non-significant ($\delta Chi^2_{(15)} = 23\ 33$, $p = 0.10$).

In order to assess the factorial validity of the BM, three alternative models were tested against M_0 in the first step: (1) The one-factor model (M_1); (2) the three-factor oblique model according

to Pines and Aronson (1981)[8] (M_2); (3) the three-factor oblique model suggested by Enzmann and Kleiber (1989)[9] (M_3). Table 3 clearly shows that M_3 has a better relative fit compared to M_1 and M_2 in both subsamples.

Table 3. Comparison of BM factorial models

Model	Chi²	*df*	AGFI	RMSR	Chi²-*I*2	TLI
Subsample 1 ($n = 334$)						
M_0	4726.45	210	0 15	0.39		
M_1	1836 97	189	0.63	0.13	0 64	0.59
M_2	1806.82	186	0 54	0 23	0.64	0.60
M_3	726.46	186	0.80	0.14	0.88	0.86
$M_{3\ \text{re-specified 1}}$	483 47	185	0.85	0.05	0 93	0 92
$M_{3\ \text{re-specified 2}}$	483.50	186	0 85	0.05	0.93	0 93
Subsample 2 ($n = 333$)						
M_0	4778 80	210	0.13	0 41		
M_1	1700.17	189	0.52	0.12	0.67	0.63
M_2	1743.00	186	0.52	0.20	0.66	0.62
M_3	694.22	186	0.81	0.13	0 89	0.87
$M_{3,\ \text{re-specified 1}}$	473.18	185	0 85	0.05	0.94	0.93
$M_{3,\ \text{re-specified 2}}$	476.75	186	0 85	0.05	0.94	0 93

For all Chi², $p < 0\ 001$, For M_0–M_3 see text

In the second step, the fit of M_3 was improved by allowing item 2 ('feeling depressed' — loss of motive) to load on the demoralization factor as well ($M_{3\ \text{re-specified 1}}$). This adjustment is defended on psychological grounds: Depressed mood can be considered an affective component of demoralization. Re-estimation of $M_{3\ \text{re-specified 1}}$ resulted in a significant improvement of the model fit in both subsamples ($\delta Chi^2_{(1)} = 242.99$ and 221.04, $p < 0.001$). Since in $M_{3\ \text{re-specified 1}}$ the estimated factor loading of item 2 on the loss of motive factor was non-significant, an alternative model was re-estimated with item 2 loading on the demoralization factor *instead* of loss of motive factor ($M_{3\ \text{re-specified 2}}$). Although the relative fit of both re-specified models is similar, $M_{3\ \text{re-specified 2}}$ is preferred as the final model, because of its superior simple structure (*cf.* Anderson and Gerbing, 1988).

Finally, the invariance of the pattern of factor loadings of $M_{3\ \text{re-specified 2}}$ across both subsamples was examined. The model that assumed the factor loadings to be equal in both subsamples resulted in a $Chi^2_{(390)}$ of 948.32 ($p < 0.001$). When the loadings were allowed to load independently across the subsamples, given the number of factors and the pattern of the loadings, a comparable fit was obtained ($Chi^2_{(372)} = 936.70$; $p < 0.001$). Therefore, the hypothesis of an invariant pattern of factor loadings of $M_{3\ \text{re-specified 2}}$ across both subsamples was tenable ($\delta Chi^2_{(18)} = 11.62$, $p = 0.86$).

In conclusion: The three-dimensional structure of the MBI is confirmed. However, the oblique model with three correlated factors fits better to the data than the original orthogonal model postulated in the test-manual. Besides, four items are found to be more complex since they load on two burnout dimensions simultaneously. Re-specifying the model without these items resulted in a significantly better fit. The BM seems to have a three-dimensional rather than

[8] Physical exhaustion (7 items 1, 4, 7, 10, 13, 16, 20), emotional exhaustion (7 items 2, 5, 8, 11, 14, 17, 21), mental exhaustion (7 items 3, 6, 9, 12, 15, 18, 19)

[9] Demoralization (10 items 9, 11, 12, 13, 14, 15, 16, 17, 18, 21); exhaustion (6 items 1, 4, 5, 7, 8, 10), loss of motive (5 items· 2, 3, 6, 19, 20)

a one-dimensional structure. That is, our results confirm the three-dimensional oblique model that has been suggested by Enzmann and Kleiber (1989). However, in our subsamples one particular item loads on a different factor.

Congruent and discriminant validity

In order to study the congruent and discriminant validity of both burnout-measures, a second-order factor analytic model of the scale-scores has been developed with LISREL. Congruent validity is demonstrated when different measures of the same construct load on one factor. Discriminant validity is shown when different measures load on different factors. Six burnout dimensions (i.e. MBI–emotional exhaustion, MBI–depersonalization, MBI–personal accomplishment, BM–demoralization, BM–exhaustion, and BM–loss of motive) as well as somatic complaints and psychological strain were included in the analyses. For reasons of comparability with other studies, the original MBI- and BM-subscales were used. Furthermore, the VOS-D scales were not included in all four studies that are incorporated in the present composite sample, so the sizes of the subsamples were somewhat smaller than in the previous analyses ($n_1 = 222$ and $n_2 = 214$).

Table 4 shows the correlations between the subscales.

Table 4 Correlation matrix of the burnout and VOS-D subscales

	1	2	3	4	5	6	7	8
(1) BM–demoralization		0 68	0 68	0 66	0.37	−0.25	0.56	0.68
(2) BM–exhaustion	0.64		0.67	0.76	0.37	−0.31	0.59	0.66
(3) BM–loss of motive	0 70	0.66		0 70	0.38	−0.51	0.50	0.75
(4) MBI–emotional exhaust.	0.60	0.76	0.64		0.60	−0.44	0.53	0.68
(5) MBI–depersonalization	0 51	0 38	0.48	0 56		−0.45	0.24	0.39
(6) MBI–personal accomplish.	−0 25	−0.25	−0.53	−0 37	−0.40		−0.17	0 43
(7) VOS–somatic complaints	0 49	0.50	0 42	0.51	0.31	−0 18		0.51
(8) VOS–psychological strain	0.69	0 65	0 73	0 67	0.46	−0 36	0.48	

Above diagonal subsample 1 ($n = 222$), beneath diagonal subsample 2 ($n = 214$)

In examining the congruent and discriminant validity of both burnout measures, the previously outlined three-step approach was applied.

In the first step, two models were tested in both subsamples against M_0: (1) The one-factor model, assuming maximum convergency; i.e. all burnout-subscales and VOS-D subscales were supposed to load on one general distress factor (M_1); (2) a two-factor model with depersonalization and personal accomplishment as a separate second factor (M_2).

As can be seen from Table 5, M_2 fits slightly but significantly better than M_1 in both subsamples ($\delta Chi^2_{(1)} = 16.47$, $p < 0.001$ and $\delta Chi^2_{(1)} = 9.03$, $p < 0.01$). Apparently, the eight measures do *not* refer to one general dimension of distress. Rather, burnout seems to be a two-dimensional construct Additionally, an alternative three-factor model was explored with separate MBI, BM and VOS-D factors, in order to assess the effect of possible method variance. Unfortunately, this model was not identified (i.e. the PSI-matrix was not positive definite). This was most probably caused by the high intercorrelations of the MBI and BM subscales (see Table 4).

In the second step, M_2 was re-specified, allowing emotional exhaustion to load on both factors simultaneously ($M_{2\,re\text{-}specified}$). In both subsamples, this re-specified model fits significantly better than M_2 ($\delta Chi_{(1)}^2 = 33.18$, $p < 0\ 001$ and $\delta Chi_{(1)}^2 = 7.40$, $p < 0.01$). Obviously, emotional exhaus-

Table 5. Second-order factor models of burnout measures

	Chi^2	*df*	AGFI	RMSR	Chi^2-*I2*	TLI
Subsample 1 ($n = 222$)						
M_0	1095.92	28	0.13	0.48		
M_1	131.66	20	0.76	0.07	0.90	0 85
M_2	115.19	19	0.78	0.06	0.91	0.87
$M_{2,\ re\text{-}specified}$	82.01	18	0.82	0.05	0.94	0.91
Subsample 2 ($n = 214$)						
M_0	994.63	28	0.15	0.47		
M_1	119 71	20	0.80	0.06	0.90	0 86
M_2	110.68	19	0.80	0.05	0.91	0.86
$M_{2,\ re\text{-}specified}$	103 28	18	0.79	0.05	0.91	0.86

All $p < 0\ 001$. For M_0–M_2 see text

tion is not only related to burnout as measured by the BM and to somatic and mental symptoms, but also to both other MBI-dimensions. However, it should be noted that despite the slightly superior fit of the two-factor model, both factors are modestly to highly correlated[10]. Further inspection of the standardized residuals and the modification indices of $M_{2\ re\text{-}specified}$ did not suggest any improvement of the fit of the model.

In the third and concluding step, the invariance of the pattern of factor loadings of $M_{2\ re\text{-}specified}$ was investigated (see Table 6). As in the previous analyses, first the model was fitted in which the factor loadings were constrained to be equal in both subsamples ($Chi_{(43)}^2 = 187.57$, $p < 0.001$). Next, the number of factors as well as the pattern of loadings were held invariant, whereas the loadings were freely estimated by the model ($Chi_{(36)}^2 = 184.97$, $p < 0.001$). Since the fit of both models did not differ significantly ($\delta Chi_{(7)}^2 = 2.60$, $p = 0.95$), the pattern of factor loadings is considered to be invariant across both subsamples.

Table 6. Estimated factor-loadings of subscales on best fitting model ($M_{2,\ re\text{-}specified}$) (LISREL, standardized solution)

	Subsample 1		Subsample 2	
Subscale	I	II	I	II
BM–demoralization	0.85		0.81	
BM–exhaustion	0.81		0.81	
BM–loss of motive	0 83		0.84	
MBI–emotional exhaustion	0 61	0 39	0 60	0.28*
MBI–depersonalization		0.80		0.76
MBI–personal accomplishment		−0.56		−0 53
VOS–somatic complaints	0.65		0.58	
VOS–psychological strain	0 82		0.84	
Intercorrelation factors	0 61		0.75	

All $p < 0\ 001$ except, * $p < 0\ 05$

Since two of the BM-subscales and MBI–emotional exhaustion load strongly on one common

[10] In evaluating the strength of relationships we followed the classification of Cohen and Holliday (1982). A correlation below 0 19 is very low, 0 20–0 39 is low, 0 40–0 69 is modest, 0 70–0 89 is high; and 0.90–1 00 is very high These guidelines for interpretation are rules of thumb, rather than definitive indicators

factor (factor I), the convergent validity of these measures is demonstrated (see Table 6). Moreover, 54 per cent of the variance of the BM-total score is shared with MBI–emotional exhaustion (r = 0 73). Obviously, these scales refer to one underlying core element of burnout (i.e. exhaustion). However, in contrast to the attitudinal component of the burnout syndrome that is constituted by depersonalization and reduced personal accomplishment (factor II), this core element cannot be validly discriminated from self-reported somatic complaints and psychological strain.

In sum· Burnout appears to be a two-dimensional construct consisting of feelings of exhaustion that are related to other physical and psychological symptoms, and of negative attitudes towards recipients (depersonalization) and towards one's job (reduced personal accomplishment).

Discussion

The present study investigates the construct validity in the two most widely employed measures of burnout The three-factor structure of the MBI was clearly confirmed in our sample of Dutch nurses. Although most explorative factor analytic studies yielded similar results, the three-factor structure is by no means self-evident, particularly when *specific* occupational samples are investigated For instance, Iwanicki and Schwab (1981) found strong evidence for the existence of *two* depersonalization subscales in American teachers: Depersonalization as it relates to the job, and to students, respectively. In the same vein, Firth *et al.* (1985) found that among British nurses, the emotional exhaustion subscale includes two separate constructs, which they labelled, 'frustration and discouragement about work' and 'emotional draining'. In the present study no such splitting of MBI-factors occurred. The results of our LISREL analyses indicate that the MBI consists of three different and modestly correlated dimensions ($0.37 < r < 0.60$). Our findings agree with the results of the only two comparable studies that employed a similar confirmatory factor-analytic approach. Gold *et al.* (1989) and Byrne (1991) also found that the three-factor oblique model fitted significantly better to their data than a single-factor model or a three-factor orthogonal model. Furthermore, our results suggest that four MBI-items (i.e. items 12, 13, 16, 18) are more complex since they load on two factors instead of one. Many other factor-analytic studies confirmed the weakness and ambiguity of item 12 ('I feel very energetic'). Generally these studies report that this personal accomplishment item loads between −0 30 and −0 45 on the emotional exhaustion dimension as well (Maslach and Jackson, 1981, 1986, Iwanicki and Schwab, 1981; Belcastro *et al.*, 1983; Firth *et al.*, 1985; Powers and Gose, 1986, Green and Walkey, 1988; Lahoz and Mason, 1989; Byrne 1991). Accordingly, from a factorial validity point of view, item 12 should be removed from the MBI. The same is true — to a somewhat lesser degree — for item 16 ('Working with people directly puts too much stress on me' — emotional exhaustion) that also loads significantly on the personal accomplishment dimension (Byrne, 1991, Sirigatti *et al.*, 1988). The problems with the remaining two items are probably either sample- or country-specific. This issue has to be clarified in future research that compares samples from different occupations and/or nations.

The factorial validity of the BM is somewhat more equivocal. On the one hand, in our sample a similar three-factor structure was identified as in the recent German study of Enzmann and Kleiber (1989). On the other hand, all BM-subscales load highly on the exhaustion component of the second-order factor model (see Table 6), which suggests that they refer to a similar underlying construct Thus, the three-factor structure of the BM is supported only to a limited degree by our results. It appears that more research is needed, particularly to establish whether or not the three BM-dimensions show different patterns of correlations with other (personality and organizational) variables that can be meaningfully interpreted within a specific theoretical

framework. Until such validation efforts have been successful, the BM should, conceptually speaking, be considered a one-dimensional measure of exhaustion, despite some psychometric evidence of three BM-components.

Three conclusions can be drawn from our study on the congruent and discriminant validity of the burnout measures. First, the BM and the MBI assess a similar underlying construct that is central to burnout: Exhaustion. From the time that the concept was introduced, the unique content of burnout was conceived in terms of the depletion of an individual's energy resources (Maslach and Schaufeli, 1993). Also more recently, the core meaning of exhaustion has been emphasized in the light of the empirical burnout research of the past decade. (Koeske and Koeske, 1989; Shirom, 1989). Our findings agree with this view, since in our validity analyses, exhaustion appears to be the most dominant and robust dimension. For instance, the emotional exhaustion is by far the strongest factor in the MBI. Also, the best fitting second-order factor analytic model confirms the domination of the exhaustion dimension (see Table 6).

Secondly, exhaustion can be conceptually differentiated from, but is modestly positively correlated with a second burnout dimension that comprises depersonalization and reduced personal accomplishment. In the present study indications have been found for the two-dimensionality of burnout with exhaustion as a core element that is accompanied by negative attitudes towards one's patients (depersonalization) and towards one's performance on the job (reduced personal accomplishment). In the best fitting second-order factor analytic model, MBI–emotional exhaustion, loads on the exhaustion as well as on the attitudinal factor. This illustrates the conceptual relatedness of exhaustion and negative attitudes that together constitute the burnout syndrome, as measured with the MBI. Other studies suggested a different pattern of burnout-dimensions, however. For instance, Williams (1989) argued that exhaustion and depersonalization are the most central burnout-dimensions, whereas personal accomplishment is strongly related to personality characteristics (i.e. empathy). In a similar vein, Green *et al.* (1991) proposed the Core of Burnout Scale which is the composite score of the MBI–emotional exhaustion and MBI–depersonalization subscales.

The nature of the burnout-construct cannot be determined exclusively in psychometric investigations such as the present one. In order to study the construct validity of burnout in greater detail, additional theory-driven research is needed in which *a priori* formulated models are tested. For instance, Koeske and Koeske (1989) content that the MBI subscales function in different ways within a complex demand→stress→strain→outcome model. Indeed, they found strong evidence that emotional exhaustion (strain) mediates the relationship between job stress (case load) and outcome (intention to quit), whereas accomplishment was found to moderate the exhaustion–outcome relationship. Leiter (In press) proposed a model in which burnout is conceived as a cognitive-emotional reaction to stress in human service settings. He considers emotional exhaustion as the central factor, and depersonalization and diminished personal accomplishment as secondary cognitive aspects of burnout. The results of his study indicate that particular coping patterns and sources of social support are associated with particular aspects of burnout, as predicted by the model.

Thirdly, exhaustion is particularly strong related with somatic complaints and psychological strain. Accordingly, this study raises serious doubts about the specificity of this core element of burnout. Our study suggests that emotional exhaustion overlaps with non-specific physical and mental symptoms. This is illustrated by the modest correlations between the corresponding subscales (Table 4) and by the high factor-loadings of the VOS-D scales on the first factor (Table 6). These findings agree with other validity studies that showed a considerable overlap, particularly between emotional exhaustion and depression (Meier, 1984; Firth *et al.*, 1986).

The construct validity analyses leave us with a rather paradoxal conclusion: Exhaustion is

conceptually and psychometrically speaking, the *most* prominent and robust feature of burnout, but at the same time it appears to be the *least* specific element of the syndrome. This is not very surprising since mental exhaustion can be considered the affective component of burnout, whereas depersonalization and reduced personal accomplishment constitute the attitudinal or cognitive component of the syndrome. Watson and Pennebaker (1989) argued that negative affect, which they described as a general dimension of subjective distress, strongly influences the individual's perception of health complaints. In their view, subjective health measures (like the VOS-D scales in the present study) reflect to a large extent the perceptions of and the interpretations about the individual's internal sensations. This might be considered an explanation for the relatively poor discriminant validity of the burnout measures.

Unfortunately, our study has some obvious weaknesses. First of all, we exclusively relied on self-report measures. Future attempts to investigate the construct validity should also include more objective measures, so that method bias can be ruled out. Only very recently have researchers begun to study burnout in relation to objective physiological (Melamed, Kushnir and Shirom, 1992) and performance data (Schaufeli, Keijsers and Reis-Miranda, 1992). Secondly, we analyzed translated versions of burnout measures in a non-English speaking country, whereas most validity studies were carried out in Anglo-Saxon countries. Although positive indications have been found for the cross-national validity of the MBI (for a review: Golembiewski, Scherb and Boudreau, 1993), it must still be confirmed by a vigorous study. Accordingly, we cannot rule out the possibility that our results were influenced by cross-national factors. Finally, and probably related to the previous issue, the variances of the MBI-subscales in our study are significantly lower than the values reported in the American test-manual (Maslach and Jackson, 1986). Accordingly, this somewhat restricted range might have influenced our results; for instance, the relatively low internal consistencies of two MBI subscales. It is also possible that the factor-structure is affected by the somewhat restricted variances of the MBI. In contrast, the variances of BM and the VOS-D scales are quite comparable with the values obtained by the test-authors (*cf.* Pines *et al.*, 1981; Bergers *et al.*, 1986).

Despite these critical remarks we would like to conclude from the current validity study that the specificity of the burnout-syndrome lies in the *combination* of a negative affective state (i e exhaustion), and particular negative attitudes towards others for whom one is responsible (depersonalization) and towards one's job performance (reduced personal accomplishment). According to this conceptualization of burnout, the syndrome can only occur in professionals who predominantly work with recipients for whom they are responsible (e.g. nurses, teachers, managers, prison guards). This does not mean that burnout is restricted to these particular occupational groups *per se*. Of course, individuals in other occupational groups can feel exhausted and they may also develop negative attitudes towards their job performance. However, their negative attitudes cannot be described in terms of depersonalization or dehumanization since they are not dealing with recipients. This means that if one would like to study burnout in other occupational groups a thorough analysis is needed of the core elements of these particular jobs. This would allow researchers to specifically adapt the 'depersonalization', and 'personal accomplishment' dimensions to these occupations. Such a re-analysis might involve a change in these labels. For example, the core element of an executive job is responsibility for the continuity of the organization. Hence, executive burnout might be characterized by a negative attitude toward this responsibility (e.g. 'the profit I make just flows into the pockets of the shareholders'). Such negative attitudes should be described differently, for instance in terms of becoming more cynical towards the organizational goals one is pursuing.

Our validity study shows that the MBI is an adequate self-report measure that can be employed to assess the level of burnout in professionals that do 'people work' of some kind. Based on

the previous reasoning we would strongly discourage researchers to employ the MBI outside the occupational context it has been designed for. The BM only taps a crucial, but unfortunately rather unspecific, dimension of the burnout syndrome. Basically, this questionnaire indicates the individual's level of subjective distress. Therefore, the BM should be supplemented by an additional scale that assesses the attitudinal component of burnout that is specific for the occupational group under study.

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