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The Copenhagen Burnout Inventory: A new tool for the assessment of burnout

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Abstract
So far, the large majority of studies on burnout in the international literature have employed the Maslach Burnout Inventory (MBI). In this paper we criticize the MBI on a number of points and present a new tool for the measurement of burnout: the Copenhagen Burnout Inventory (CBI). The CBI consists of three scales measuring *personal burnout, work-related burnout, and client-related burnout*, for use in different domains. On the basis of an ongoing prospective study of burnout in employees in the human service sector, the PUMA study (Project on Burnout, Motivation and Job Satisfaction; $N = 1914$ at baseline), we analysed the validity and reliability of the CBI. All three scales were found to have very high internal reliability, and non-response rates were small. The scales differentiated well between occupational groups in the human service sector, and the expected pattern with regard to correlations with other measures of fatigue and psychological well-being was found. Furthermore, the three scales predicted future sickness absence, sleep problems, use of pain-killers, and intention to quit. Analyses of changes over time showed that substantial proportions of the employees changed with regard to burnout levels. It is concluded that the analyses indicate very satisfactory reliability and validity for the CBI instrument. The CBI is being used in a number of countries and translations into eight languages are available.

Keywords: *Burnout, CBI, Copenhagen Burnout Inventory, exhaustion, fatigue, human service work, psychosocial work environment, PUMA study, questionnaire validity*

Introduction

Why burnout?

The concept of burnout was introduced in the psychosocial literature in the middle of the 1970s by Freudenberger (1974) and Maslach (1976). Freudenberger and Maslach "invented" the concept independently after having studied the same kind of reactions among volunteers who worked with social problems among underprivileged citizens. While burnout started as a non-theoretical "grass-root" concept it soon became a metaphor for a number of important psychosocial problems among persons who do "people work". In the 1970s most of the research in occupational health psychology was still focusing on industrial workers and little attention was paid to social workers, nurses, teachers and other white collar groups in the human service sector.

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Today the concept of burnout is not only well established in psychosocial research (Maslach & Leiter, 1997; Schaufeli & Enzmann, 1998; Schaufeli, Maslach, & Marek, 1993) but also an extremely well known and popular metaphor among human service workers in a large number of countries. When the Danish longitudinal study PUMA (Danish acronym for Project on Burnout, Motivation and Job Satisfaction) was initiated in 1997 the driving force behind the study was the union representing the human service workers. This union had noticed a sharp increase in long-term sickness leave and early retirement among the members, and wanted an independent and scientific study performed by researchers from NIOH (National Institute of Occupational Health, Copenhagen). PUMA was established as a longitudinal intervention study over 5 years, and the aim was to study the prevalence and distribution of burnout, the causes and consequences of burnout, and possible interventions to reduce burnout if necessary (Borritz et al., in press, a).

In connection with the PUMA study we reviewed a number of questionnaires for the assessment of burnout. We did not find any of the available instruments to be satisfactory and decided to develop a new questionnaire, the Copenhagen Burnout Inventory. The purpose of this paper is to present, analyse and discuss this new questionnaire. The full validation of a questionnaire is a long process, and the present paper merely presents preliminary analyses.

Why we chose not to use the Maslach Burnout Inventory

According to Schaufeli and Enzmann (1998, p. 71) the Maslach Burnout Inventory (MBI) has been applied in more than 90% of all empirical burnout studies in the world, which almost gives the MBI monopoly status in the field (Maslach & Jackson, 1981, 1986). As a consequence of the dominant position of the MBI, this questionnaire and the Maslach definition of burnout have become two sides of the same coin: Burnout is what the MBI measures, and the MBI measures what burnout is. When we started our preparations for the PUMA study it was therefore a natural choice for us to translate the MBI into Danish in order to test the questionnaire (together with the Burnout Measure (BM) questionnaire (Pines, Aronson, & Kafry, 1981; Pines & Aronson, 1988) in a pilot study. During the period of pilot testing we also studied the burnout literature in order to learn more about burnout theories and empirical research results. When the pilot study was over we realized that we could not use the MBI (or the BM) and that we had to create our own burnout measure. There were six reasons for this choice. Since the MBI is such a popular and widely used questionnaire we find it necessary to explain in some detail what these reasons were before we proceed to the presentation of our own burnout questionnaire.

A circular argument? According to the classic definition of Maslach and Jackson (1986, p. 1) "burnout is a syndrome of emotional exhaustion, depersonalisation, and reduced personal accomplishment that can occur among individuals who do 'people work' of some kind". Here, burnout is *by definition* restricted to employees in the human service sector. According to Maslach and Jackson (1986), burnout is not only restricted to human service work, but also *caused by* factors associated with human service work, in particular the high emotional load. Furthermore, many of the questions in the (1986) version of the MBI (which was especially designed for measuring burnout in professions in which contact with others – clients and patients – constituted a major part of the tasks) are phrased in a way so that they can only be answered by individuals who do "people work". ("I feel the recipients blame me . . .", "I can easily understand how my recipients feel . . .", etc.). Thus, the 1986 version of the MBI can only be applied in human service work. This means that we end up in a circular argument: The basic assumption (the restriction of burnout to individuals who

do people work) cannot be challenged, and the basic hypothesis (that the emotional demands inherent in "people work" increases the risk of burnout) cannot be tested, since the questionnaire cannot be used in an "unexposed" group. From a scientific point of view such a situation is clearly unacceptable. Since then, Maslach et al. have developed a similar questionnaire – the MBI General Survey (MBI-GS) – which can be applied in all occupational sectors. We will return to this questionnaire below.

Unclear relationship between the MBI and the concept of burnout? At first glance the MBI and the Maslach definition of burnout seem to match each other perfectly. The definition (above) includes three dimensions – emotional exhaustion, depersonalisation, and reduced personal accomplishment – and so does the MBI. The operationalisation of burnout is, however, still unclear to us. According to the definition, burnout is characterized by the simultaneous occurrence of *all three dimensions,* but according to the MBI manual the three dimensions should be measured independently, and they have been confirmed by factor analyses as three *distinct and different* dimensions. In the manual it is explicitly stated that "the scores for each subscale are considered separately and are *not* combined into a single, total score" (p. 2, italics by the authors). This means that we have *one* concept but *three* independent measures. In the empirical literature this results in analyses where the *same individual* is analysed as having three different levels of burnout, one for each of the three dimensions. Furthermore, each of the dimensions has its own precursors and consequences. Thus, the apparent fine correspondence between concept and measure is not really present. Finally, it should be noticed that recent studies have suggested that the dimension of "Personal Accomplishment" may not be part of the total concept of burnout: "it becomes increasingly clear from studies with the original MBI that personal accomplishment develops largely independent from the other two burnout dimensions" (Schutte, Toppinen, Kalimo, & Schaufeli, 2000, p. 55).

Mixture of an individual state, a coping strategy, and an effect? To us, the burnout syndrome as defined by Maslach and Jackson consists of three different components that should not be combined but studied in their own right. With regard to depersonalisation Maslach has herself described the process: "Our findings to date show that these professional groups tend to cope with stress by a form of distancing that not only hurts themselves but is damaging to all of us as their human clients" (Maslach, 1979, p. 138). Thus, depersonalisation is a *coping strategy* developed in a specific situation and should in our opinion be analysed as such together with other coping strategies and in the light of the whole literature on coping and stress. With regard to the (feeling of) reduced personal accomplishment we think that the same logic applies: Reduced accomplishment should be seen as one of many *consequences* of long-term stress. We do not gain any insight by reducing this consequence to being a part of a syndrome. We are not saying that coping strategies and long-term consequences are not important to study. We are only saying that these important phenomena should not be hidden as parts of a syndrome.

Unacceptable questions? During our pilot study we tested the MBI and the BM on about 70 human service workers. These respondents first filled in the questionnaires on their own. They were asked to make a note by all questions that they found difficult to answer or on which they had other types of comments. During the ensuing interviews the respondents explained why they had reacted to some of the questions. Almost all negative comments were directed to the MBI questions. In particular, the questions on depersonalisation (such as "I feel I treat some recipients as if they were impersonal objects" and "I don't really care what happens to some recipients") caused very negative reactions – sometimes, even anger – from the respondents. Also some of the personal accomplishment questions caused

criticism. A number of these were found to be "*very* American". ("I feel I'm positively influencing other people's lives through my work" and "I have accomplished many worthwhile things in this job"). We were told that this questionnaire "would never function in Denmark". The translation of questionnaires from one culture (usually the U.S.) to another is a complicated issue. Very often the main emphasis is put on technical problems and precise back translations while the issues of cultural, gender, and socio-economic differences tend to be ignored. For us, the reactions from a group of potential users was an important reason for not choosing the MBI.

What does MBI-GS measure? In the middle of the 1990s a general questionnaire for measuring burnout was introduced (Schaufeli, Leiter, Maslach, & Jackson, 1996; Leiter & Schaufeli, 1996). The MBI-GS was based on the original MBI but the term "recipients" was removed from all questions and a few new questions were added. According to some authors (e.g. Taris, Schreurs, & Schaufeli, 1999), the MBI-GS exhaustion scale is *generic* since the word "recipients" was deleted. It should, however, be noted that the MBI-GS is not generic in the true sense of the term since all respondents have to do (paid) work in order to answer the questionnaire. Interestingly enough this applies to *all* the questions in the MBI-GS (see Table I). In the MBI-GS the three dimensions have been slightly renamed. (From emotional exhaustion to exhaustion, from personal accomplishment to professional efficacy, and from cynicism to depersonalisation). The core question, however, is: What does the MBI-GS measure? We have not been able to find any (new) definition of burnout in connection with the presentation of the new questionnaire. In most papers the authors simply write that it was made because there was a "demand" for it. For example, Maslach, Schaufeli, and Leiter (2001, p. 402) write that they developed the new version of the MBI because of "the increasing interest in burnout within occupations that are not so clearly people-oriented". And: "The MBI assesses the same three dimensions as the original measure, using slightly revised items, and maintains a consistent factor structure across a variety of occupations". It is difficult to understand how a questionnaire with 16 questions related to the domain of paid work (MBI-GS) can measure "the same" as a questionnaire with 9 questions related to "recipients", 9 to work, and 4 to individual symptoms (MBI) (see Table I). Another disturbing issue is the theoretical: In most of the literature relating to 20 years of research on burnout, Maslach and many others have maintained the central message: That burnout is specific to the human service sector

Table I. The distribution of questions from the MBI, the MBI-GS, and the BM on the three domains: All persons, persons who do paid work, and persons who work with clients.

	Domain and number of questions		
Questionnaire:	Personal	Work	Clients
MBI (EE)	1	6	2
MBI-GS (E)		5	
MBI (PA)	2	2	4
MBI-GS (PE)		6	
MBI (DP)	1	1	3
MBI-GS (CY)		5	
BM	21		

MBI: Maslach Burnout Inventory. MBI-GS: MBI-General Survey. BM: Burnout Measure. EE: Emotional Exhaustion. E: Exhaustion. PA: Personal Accomplishment. PE: Professional Efficacy. DP: Depersonalisation. CY: Cynicism.

("people work"). This basic theoretical position has, to our knowledge, not been withdrawn or reformulated. In one paper Schutte, Toppinen, Kalimo, and Schaufeli (2000, p. 54) comment briefly on the issue. They write that the MBI-GS measures "'burnout' – a mental condition that is similar but not identical to the classical definition of the syndrome". This seems to be as close as we can get to a definition of the new concept of burnout.

Public domain? The three MBI questionnaires (including the MBI-ES, for teachers) are not in the public domain but distributed by a commercial company. This means that the full questionnaires with response options are not available in normal scientific journal articles. At the NIOH in Copenhagen we have the policy of exchanging questionnaires and other pieces of information to all interested persons free of charge since these instruments have been developed with public money. For this reason we would not have been able to use the MBI questionnaires – even if we had wanted to do so.

The MBI and various issues concerned with the concept and measurement of burnout are discussed further in commentaries by Schaufeli and Taris (2005), Shirom (2005) and Sonnentag (2005).

The Copenhagen Burnout Inventory

The basic structure of the CBI. We fully acknowledge the importance of studying the possible psychological and health consequences of human service work and of the international literature on burnout, but we found it necessary to develop a new burnout questionnaire as a logical consequence of the considerations above. Our main ambition was to remain within the general frame of reference of the burnout research, but at the same time to avoid the described pitfalls. The result was the Copenhagen Burnout Inventory (CBI), a questionnaire with three sub-dimensions: Personal burnout, work-related burnout, and client-related burnout. The three separate parts of the questionnaire were designed to be applied in different domains. The questions on personal burnout were formulated in a way so that all human beings can answer them (a truly generic scale). The work-related burnout questions assume that the respondent has paid work of some kind. Finally, the client-related burnout questions include the term "client" (or a similar term when appropriate such as patient, student, inmate, etc.). In our theoretical work we distinguish between working with clients, customers, and colleagues. We have not developed specific questionnaires for work with customers or colleagues yet but may do so in the future.

Theoretical considerations. In the CBI the core of burnout is *fatigue and exhaustion*. This is in accordance with the historical development of the burnout concept, and also with a recent definition by one of the leading researchers in the field, Schaufeli. In 2001, Schaufeli and Greenglass defined burnout as "a state of physical, emotional and mental exhaustion that results from long-term involvement in work situations that are emotionally demanding" (Schaufeli & Greenglass, 2001, p. 501). Interestingly, this definition is almost identical to the definition by Pines and Aronson from 1988: "A state of physical and emotional exhaustion caused by long-term involvement in situations that are emotionally demanding" (Pines & Aronson, 1988, p. 9). Also Shirom, another central figure in burnout research, emphasized that fatigue and exhaustion should be considered to be the central features of the concept: "Specifically, burnout refers to a combination of physical fatigue, emotional exhaustion, and cognitive weariness" (Shirom, 1989, p. 33). While "the flat battery" remains the main metaphor for burnout, it is important to emphasize that burnout is not just fatigue or exhaustion. If this were the case we would not need the concept at all. In our

understanding of the concept the additional key feature is the *attribution* of fatigue and exhaustion to specific *domains* or spheres in the person's life. One such domain is *work* and a more specific domain is *client work*. In the following we elaborate further on the three parts of the CBI.

The generic part: Personal burnout. By creating a scale on personal burnout we wanted to make sure that we were able to compare individuals regardless of occupational status (e.g. also young people, unemployed, early retired, pensioners, etc.). This scale is intended to answer the simple question: How tired or exhausted are you? It was our intention to create a scale that is sensitive at "the negative end", e.g. among persons with a relatively high level of fatigue or exhaustion. This generic part of the CBI might as well be called fatigue, exhaustion or any other similar term. We have kept the term "burnout" in order to signal that the scale is part of CBI. The personal burnout dimension is defined in the following way: "*Personal burnout is the degree of physical and psychological fatigue and exhaustion experienced by the person"*. Thus, we make no attempt to distinguish between physical and psychological fatigue or exhaustion.

Work-related burnout. We define work-related burnout as "*The degree of physical and psychological fatigue and exhaustion that is perceived by the person as related to his/her work*". In this definition we stress the fact that we want to focus on the person's own attribution of symptoms to her/his work. Thus, we are *not* intending to assess causality in the scientific sense of the term. It is well known that people can attribute symptoms to their work without good "scientific" reason and vice versa. By comparing the scale for personal burnout with the scale for work-related burnout we will be able to identify persons who are tired but who attribute the fatigue to non-work factors such as, e.g. health problems or family demands.

Client-related burnout is defined as follows: *The degree of physical and psychological fatigue and exhaustion that is perceived by the person as related to his/her work with clients*". Again: people can attribute their fatigue to factors other than their work with clients. What we are interested in here is the degree to which people see a connection between their fatigue and their "people work". "Clients" is a broad concept covering terms such as patients, inmates, children, students, residents, etc. When the CBI is used in practice, the term appropriate for the specific group of respondents is used.

Schemata, causal attribution, and situational models of disease. In our development of the two dimensions, work-related burnout and client-related burnout, we have built on a number of theories about the ways in which people perceive, understand, and interpret their own psychological and somatic symptoms. These theories deal with schemata, causal attributions and the situational aspects of illness. We will briefly explain why we used these theories.

Schemata and causal attributions. When people experience symptoms such as, e.g. headache, nausea, coughs, pain in the chest, or prolonged fatigue, they usually do not just notice the symptoms without giving them further attention. People try to *explain and understand* their symptoms in the light of already existing *schemata* (Bishop, 1991; Eysenck & Keane, 1990). A schemata is a frame of reference for understanding symptoms, which is typical for the person but influenced by the person's social role and position and by the whole culture of society.

A central feature in connection with schemata for symptoms is *causal attribution.* People engage in attributional analyses because they need to understand, predict, and control what goes on in their lives (Weary & Reich, 2000). When it comes to symptoms and diseases that may be difficult or impossible to control, people will try to understand *why* they got the

symptom or disease. Attributions may identify *internal* or *external* factors. Other important dimensions are *stable* vs. *unstable* factors, *global* vs. *specific* factors, and *controllable* vs. *uncontrollable* factors. The "same" symptom can be interpreted in several different ways depending on the circumstances. An example: If a person wakes up with a serious headache, the person may interpret the symptom in the light of the party the previous night with too many drinks combined with too few hours of sleep. In that case a couple of pills might be seen as the solution. If, however, the person wakes up with headache several mornings in a row without having enjoyed alcohol, the person might become worried. According to the schemata of this person, a cancer in the brain could be one of the explanations. A third person with repetitive headache might interpret the headache as "tension headache" and relate the symptom to the monotonous fast paced work at the assembly line. Schemata and causal attributions are important because they not only shape what people think but also their emotions, attitudes and actions.

In connection with the issues of schemata and causal attributions it is important to acknowledge that burnout research is in itself influencing the very phenomenon being studied. The more the results of burnout research are communicated to the human service workers, the more they will tend to see burnout as a perhaps unavoidable consequence of their work. When we started the PUMA study we made an interesting observation relating to this question. Many participants in the study asked us why we were doing another burnout study since it was already well established that working with clients results in burnout. Everyone was very surprised to learn that Denmark probably was the only Western country where no burnout studies had ever been performed. It was an "established fact" among Danish human service workers that burnout is a very great problem causing early retirement as well as serious recruitment problems for several occupational sectors (nurses, school teachers, home helpers).

A situational model of illness. Alonzo has suggested a situational model of illness, describing how people attempt to interpret, evaluate and cope with symptoms in their daily lives (Alonzo, 1979). Examples of such symptoms and illnesses could be musculoskeletal disorders, allergies, chronic fatigue, and diabetes. Such everyday illnesses are, with the expression of Alonzo, "containable" within everyday social situations. These illnesses will typically not be of the type we die from, but of the type we live with. The person with the illness will often become an "expert" on his or her own symptoms. They will learn how the symptoms are influenced by climate, food, drinking alcohol or coffee, stress, too little sleep, or too much/too little exercise. In this way the person learns how to influence the illness and how to avoid being unnecessarily limited in their daily activities. The illness shifts from being a random case of a disease (the biomedical model) to being a unique phenomenon: the very illness of Mr. Smith or Mrs. Jensen.

According to Alonzo, "there is a need to ask how individuals actually manage health status deviations in everyday typical social situations, not how they *think* they would manage them. By using this approach we may begin to understand the lower part of the illness iceberg" (Alonzo, 1979, p. 403). Applying this way of thinking to the burnout phenomenon we need to study how people live with their different degrees of burnout in their daily lives. Do they experience very tight limits with regards to performance, productivity and absence at their workplaces? If so, what are the consequences in the long run for the person themselves, for the family, and for the worksite? How do people with high degrees of burnout cope with their symptoms? Do they take more medicine, do they talk with others about their problems, or do they try to cope in more passive and defensive ways? The situational model emphasizes that an illness is not a static phenomenon. Often

the severity and consequences for the person will change over time, *and the course of the illness can be influenced by the person.* In connection with burnout this is a very important point since a number of studies indicate that although the degree of burnout is relatively stable over time, many respondents do report changes, and many report change to the better. Hence, burnout is not an unavoidable and negative process going from bad to worse. In this respect the term "burnout" is rather misleading since it signals a one-way process.

Population and methods

In this paper we present the CBI by analyzing baseline and follow-up data from the ongoing PUMA study. PUMA is a five-year prospective intervention study of employees working in the human service sector. The study design is presented in detail elsewhere (Borritz et al., in press, a). Briefly, the baseline study comprised 1914 participants from seven different types of workplaces (number of respondents at baseline in parentheses):

1. A state psychiatric prison (196);
2. Social welfare offices of a large town (379);
3. Wards in a county somatic hospital (413);
4. A psychiatric ward in the same county (43);
5. Institutions for severely disabled in a county (307);
6. Homecare service in the capital (284);
7. Home care service in a provincial town (292).

The response rate was 80%, and 83% were women. At the first follow-up after 3 years there were 1759 respondents (response rate 75%). Of these respondents 1024 persons filled in the questionnaire at both points in time. The second follow-up has not taken place yet.

The PUMA questionnaire contained questions on psychosocial factors at work, family–work interface, absence from work, use of medicine, health and well-being, specific job titles, sociodemographic factors, and life style. Most of the questions on psychosocial factors at work were taken from the Copenhagen Psychosocial Questionnaire (COPSOQ) (Kristensen, Borg, & Hannerz, 2002; Kristensen, Bjorner, Christensen, & Borg, 2004). These questions measure the following dimensions: Quantitative demands, emotional demands, demands for hiding emotions, cognitive demands, influence at work, possibilities for development, meaning of work, commitment to the workplace, quality of leadership, feedback, predictability, role clarity, role conflicts, social support, social relations, sense of community, job satisfaction, and job insecurity. Also, a number of scales on health and well-being were included: the General health, Mental health, and Vitality scales from the Short Form 36 (SF-36) questionnaire (Ware, Snow, Kosinski, & Gandek, 1993). In the follow-up study we included the Karolinska Sleep Questionnaire (Åkerstedt, Knutsson, Westerholm, Theorell, & Alfredsson, 2002) and a question on intention to quit.

Results

The questions and the basic characteristics of the three CBI scales are shown in Table II. The questions on personal burnout are inspired by the BM questionnaire, but in the CBI the wording and the response options are different. The questions in the scale for work-related burnout are inspired by the subscale on emotional exhaustion of the MBI/MBI-GS questionnaires, with the exception of the item on energy for family and friends. The questions on client-related burnout were formulated by us (TSK and MB). The Cronbach's

Table II. Copenhagen Burnout Inventory (CBI). Scales, items and response frequencies.

	Response category and scoring:						
	Always[a] or To a very high degree[b] (Scoring 100) %	Often[a] or To a high degree[b] (Scoring 75) %	Sometimes[a] or somewhat[b] (Scoring 50) %	Seldom[a] or To a low degree[b] (Scoring 25) %	Never/ almost never[a] or To a very low degree[b] (Scoring 0) %	Missing *n*	Score Mean (SD)
Personal burnout (α 0.87) (*N* = 1898)							
How often do you feel tired?[a]	2.6	27.6	49.4	17.9	2.5	24	52.5 (20.2)
How often are you physically exhausted?[a]	0.5	15.0	40.6	37.3	6.5	19	41.5 (20.7)
How often are you emotionally exhausted?[a]	0.5	11.7	37.3	38.9	11.6	17	37.7 (21.6)
How often do you think: "I can't take it anymore"?[a]	0.3	5.4	18.6	39.3	36.4	19	23.5 (22.2)
How often do you feel worn out?[a]	0.5	12.4	35.7	38.4	13.0	19	37.3 (22.2)
How often do you feel weak and susceptible to illness?[a]	0.5	3.6	16.8	44.7	34.4	19	22.8 (20.8)
Total average score							**35.9** (16.5)
Work-related burnout (α 0.87) (*N* = 1910)							
Do you feel worn out at the end of the working day?[a]	4.7	23.1	40.5	22.1	9.6	14	47.8 (25.2)
Are you exhausted in the morning at the thought of another day at work?[a]	0.8	5.6	24.1	34.2	35.3	12	25.6 (23.6)
Do you feel that every working hour is tiring for you?[a]	0.3	2.1	12.1	36.9	48.7	17	17.1 (19.6)
Do you have enough energy for family and friends during leisure time?[a] (inverse scoring)	26.5	40.6	27.5	4.9	0.4	15	28.0 (21.8)
Is your work emotionally exhausting?[b]	4.9	13.3	43.1	29.5	9.1	15	43.9 (24.1)
Does your work frustrate you?[b]	3.8	10.5	36.9	33.9	14.9	24	38.6 (24.8)
Do you feel burnt out because of your work?[b]	3.5	7.3	27.5	36.4	25.2	19	31.9 (25.8)
Total average score							**33.0** (17.7)
Client-related burnout (α 0.85) (*N* = 1752)							
Do you find it hard to work with clients?[b]	1.7	8.5	35.8	35.6	18.5	22	34.9 (23.5)
Does it drain your energy to work with clients?[b]	3.3	8.4	35.5	37.3	15.5	19	36.7 (24.1)
Do you find it frustrating to work with clients?[b]	0.7	3.0	20.7	43.5	31.9	18	24.3 (21.1)
Do you feel that you give more than you get back when you work with clients?[b]	4.7	3.9	32.8	32.7	15.9		39.8 (26.5)
Are you tired of working with clients?[a]	0.3	2.2	22.3	40.7	34.4	16	23.4 (20.7)
Do you sometimes wonder how long you will be able to continue working with clients?[a]	0.6	5.8	26.0	35.4	32.1	18	26.9 (23.3)
Total average score							**30.9** (17.6)

Possible score range for all scales is 0–100. a. Response categories for items denoted with[a]. b. Response categories for items denoted with[b].

alphas for internal reliability are very high (.85–.87). All the scales are positively skewed, indicating that most of the respondents used the response categories corresponding to low burnout levels. The proportion of non-responders on the individual items was below 2% for all items. Please note that the scale on client burnout is only defined for those respondents who worked with clients. (We excluded 146 respondents who answered "Never or almost never" to the question: "How much direct contact do you have with clients during a normal working week?" In the specific questionnaires we used the words "patients", "inmates", "citizens", or "clients" depending on the specific sector.) We used two formats for response options, one for intensity (from "a very high degree" to "a very low degree") and the other for frequency (from "always" to "never/almost never"). We used the response options with the best fit to the content of the respective question. In all cases we used five response options.

We chose to key all the items (except one) in the same direction instead of having some "positive" and some "negative" items. We did this for a number of reasons: First, we wanted to avoid the problem of wrong answers from respondents with stereotyped response patterns. Second, a "positive" and a "negative" scale may measure two different underlying dimensions. Third, we wanted the items to focus on the phenomenon being measured, burnout. Fourth, we preferred a response situation without double negations (answering "no" or "never" to a negative question).

Table III shows the average scores of the three CBI scales for the 15 main jobs in the PUMA database. The table shows considerable variation between jobs, with the highest overall burnout levels being among midwives and home helpers in the capital and low levels among chief doctors and head nurses. As a general rule of thumb, differences of 5 points or more are significant for the individuals in question. This means that the differences we see in this table of 15–20 points from the top level to the bottom are substantial, and they are also substantial for the individual employee.

Also, the table shows that some jobs had similar levels (ranks) on all three scales. For example, midwives and home helpers in the capital had high scores on all three scales, while

Table III. The average scores on the CBI burnout scales for the 15 main jobs in the PUMA baseline study.

	Personal burnout		Work-related burnout		Client-related burnout	
	Job	Score	Job	Score	Job	Score
1.	Midwives	44.7	Midwives	43.5	Prison wards	41.2
2.	Home helps (Cap.)	43.1	Home helps (Cap.)	41.8	Midwives	38.4
3.	Hosp. secretaries	39.4	Hospital doctors	39.8	Home helps (Cap.)	35.9
4.	Social workers	38.8	Hospital secretaries	37.8	Social care workers	34.1
5.	Social care workers	38.7	Ass. nurses	36.1	Social workers	33.1
6.	District nurses	38.4	Social workers	35.8	Ass. nurses	31.4
7.	Ass. nurses	37.9	Nurses	35.0	Nurses	29.7
8.	Nurses	36.9	Social care workers	34.6	Supervisors	26.8
9.	Hospital doctors	36.6	Prison wards	32.6	Hospital doctors	26.7
10.	Adm. Staff	35.0	District nurses	31.4	Adm. Staff	26.3
11.	Prison wards	33.0	Adm. staff	29.8	Home helps (Pr.)	26.2
12.	Home helps (Pr.)	32.6	Chief doctors	29.2	Chief doctors	25.8
13.	Chief doctors	31.3	Head nurses	28.8	District nurses	25.3
14.	Supervisors	30.8	Supervisors	27.9	Hospital secretaries	21.4
15.	Head nurses	29.5	Home helps (Pr.)	26.4	Head nurses	19.7
	Average	35.9	Average	33.0	Average	30.9

$N = 20–264$ for the individual jobs. Possible score range for all scales is 0–100.
Cap. = Capital. Pr. = Province.

nurses and assistant nurses consistently had middle positions. On the other hand, some jobs had high values on one or two scales and low values on one or two scales. This applies to hospital doctors (high on work-related burnout), hospital secretaries (low on client-related burnout), and prison warders (high on client-related burnout). There was an overall tendency for the jobs in the hospital sector to have relatively higher values on work-related burnout than on client-related burnout.

The correlations between the three CBI scales and the three measures of health status from the SF-36 instrument are shown in Table IV. A priori, we expected a clear pattern, with the highest correlations being with personal burnout and the lowest with client-related burnout, since the scale on personal burnout is the most generic and the scale on client-related burnout the most specific. Also, we expected the highest correlations to be with the vitality scale and the lowest with the general health scale. This expectation is based on the fact that the vitality scale is an "inverted fatigue scale" while the scale on general health includes not only fatigue and psychological health but also somatic and other general symptoms and complaints. The table shows that all of these expectations were met in the PUMA study. The highest correlation was between personal burnout and vitality ($-.75$) while the lowest was between client burnout and general health ($-.34$). At baseline the correlations between the three CBI scales were .72, .46, and .61. These correlations varied considerably between the types of workplaces. For instance, the correlations between work-related and client-related burnout varied from .36 (social welfare offices) to .55 (prison officers).

Table IV also shows the correlations between the burnout measures at baseline and at follow-up after 3 years. These correlations show a very consistent pattern. The three scales have correlations above .50 between time 1 and time 2, while the remaining correlations over time are in the interval .30–.50. These correlations suggest that many employees *change* burnout levels over time. Among the 1024 employees who took part in the baseline as well as the follow-up survey 35% reported higher personal burnout levels at time 2 (at least 5 points' increase), 38% about the same level, and 27% lower burnout level (at least 5 points' decrease). For work-related burnout the corresponding proportions were

Table IV. Correlations between the three-burnout scales and the three SF-36 scales at baseline, and between the three burnout scales at baseline and at 3 years of follow-up in the PUMA study.

	CBI burnout scales at baseline		
	Personal burnout	Work-related burnout	Client-related burnout
SF-36 scales:			
Vitality	−.75	−.72	−.46
Mental health	−.67	−.64	−.39
General health	−.49	−.43	−.34
CBI burnout scales at baseline:			
Work-related burnout	.72	–	–
Client-related burnout	.46	.61	–
CBI burnout scales at follow-up:			
Personal burnout	**.54**	.47	.35
Work-related burnout	.43	**.51**	.39
Client-related burnout	.34	.39	**.59**

Spearman rank correlations. All correlations: $p < .001$. Correlations in bold are correlations between the same scale at two points in time.
$N = 1725–1891$ for the SF-36 scales, 1738–1896 for the CBI scales at baseline, and 887–1018 for CBI at follow-up.

46%, 28%, and 27%, and for client-related burnout 34%, 35%, and 31%. Thus, there was a marked deterioration with regard to work-related burnout during the three years of follow-up.

We also studied the correlations between burnout at time 1 and 2 at the level of the jobs described in Table III. This analysis revealed an interesting picture. Correlations between job average burnout levels at time 1 and 2 were .71 for personal burnout, .48 for work-related burnout, and .71 for client-related burnout. The substantial difference between work-related and client-related burnout may reflect the fact that large changes in work organisation took place at many worksites while the constant feature was the degree and type of client-contact.

Table V shows the clear associations between client-related burnout at baseline and two other variables: Job satisfaction, and the percentage who would choose the same job again if they had the choice. In both cases the associations are clear and strong. Among the quartile with the highest burnout level only 40% would choose the same job again. Similar pictures were found for the other two burnout measures (not shown).

In Table VI we show results related to the predictive validity of the CBI scales. The table shows the associations between work-related burnout at baseline and a number of variables at follow-up: Sickness days, sickness spells, sleep problems, use of pain-killers, and intention to quit the workplace. All associations are strong and in the expected direction. Again, similar pictures were found for the other burnout measures.

We also analysed the associations between *changes* in burnout and absence days. For the whole population, absence days went up by 23% from time 1 to time 2. In the group with increasing work-related burnout, absence days increased by 54%, while the group with decreasing burnout level experienced a decrease in absence days of 22%. The two constant groups had increases close to the average for the whole group (19–28%). These results indicate not only that burnout levels were associated with absence levels but also that *changes* in burnout over time were associated with corresponding changes in absence. The associations between burnout and (changes in) absence are further analysed in another article based on the PUMA study (Borritz, Rugulies, Christensen, Villadsen, & Kristensen, in press, b).

Discussion

In this paper we have presented the CBI and analysed the methodological qualities of the CBI scales in using the PUMA data material. The PUMA study has a number of advantages of relevance in this connection:

Table V. Associations between client-related burnout and other variables at baseline.

	Client-related burnout (quartiles)					
	Lowest			Highest		
	1	2	3	4	Total	*P*-value
Job satisfaction (score)	68.4	64.0	61.2	55.1	62.5	***[a]
Percentage who would choose the same job again	81%	78%	63%	40%	66%	***[b]

$N = 1735$ and 1712. *** $p < .001$.
[a]Regression analysis test for trend.
[b]Cochran-Armitage's test for trend.

Table VI. Associations between work-related burnout at baseline and a number of variables at three years' follow-up.

	Work-related burnout (quartiles)					
	Lowest			Highest		
Variable at follow-up:	1	2	3	4	Total	*P*-value
Sickness days per year (average)	6.9	8.2	13.0	13.0	10.3	***[a]
Sickness spells per year (average)	1.5	1.4	2.1	2.4	1.8	***[a]
Sleep problems (average score)	25.1	32.6	34.4	44.6	34.1	***[a]
Use of pain-killers every week	18%	22%	27%	38%	26%	***[b]
Intention to quit work (definitely or perhaps)	45%	46%	57%	65%	53%	***[b]

$N = 982 - 985$ for sickness days/spells, and 1012–1015 for the remaining three variables.
*** $p < .001$.
[a]Regression analysis test for trend.
[b]Cochran-Armitage's test for trend.

1. It is a comprehensive study including a large number of psychosocial work environment factors measured with the COPSOQ scales.
2. The study includes a number of different jobs with varying degrees and types of client-work.
3. It is a prospective study with a satisfactory response rate.

The validation and evaluation of a new questionnaire is a long process, including not only statistical analyses but also the use of the questionnaire in surveys, intervention studies, and collaboration with workplaces. All these activities are ongoing at NIOH in Copenhagen. At present we restrict ourselves to the statistical analyses presented above.

Table II shows that the CBI scales have high internal reliability and that the non-response rates on the individual items are low. Our feedback from the respondents supports this picture: The questions are easy to understand and to answer, and the scales have high face validity. The criterion validity is demonstrated in Table IV, showing the highest correlation (convergent validity) between personal burnout and the vitality scale from the SF-36 questionnaire and the lowest (divergent validity) between general health and client-related burnout. From a strictly theoretical point of view the vitality scale and the personal burnout scale measure the "same" phenomenon, which is supported by the very high correlation between the two scales.

The ability of the CBI scales to discriminate between jobs is demonstrated in Table III. Employees in different jobs in the PUMA study have very different burnout levels. As mentioned, we consider a difference of five points on the burnout scales as "significant" for the individual person. Thus, the tables show very different levels from the highest to the lowest groups. The table also demonstrates the differential picture painted by the three different scales. The fact that some jobs have high scores on one scale and relatively low scores on another gives further information about the conditions of the job. An example is prison warders, who had a high score on client-related burnout but lower scores on work-related burnout. The hospital-based jobs tend to display the opposite picture. Results from the PUMA study, published elsewhere, on the prospective predictors of burnout (Borritz, et al., in press) support the *differential picture* with regard to the three CBI scales. While some psychosocial factors such as emotional demands at work and role conflicts, predicted all three CBI scales, other factors only predicted one or two of the CBI scales. Examples

were demands for hiding emotions (client-related burnout), high work pace (work-related burnout), and role clarity (personal and client-related burnout).

The concurrent and predictive validity of the burnout scales are elucidated in Tables V and VI. These analyses show substantial associations with job satisfaction at baseline and with sickness absence, sleep problems, use of medicine, and intention to quit three years later. The strong association between burnout and sleep problems is particularly noteworthy since fatigue/burnout and poor sleep have been shown to predict cardiovascular diseases and mortality (Prescott, et al., 2003; van Amelsvoort, Kant, Bültmann, & Swaen, 2003).

Our results also show that the burnout levels of individuals *change* substantially over time. This indicates that the CBI scales do not measure stable traits of the individuals but degrees of burnout that may change over time. Even at job level we were able to demonstrate substantial changes with regard to work-related burnout (but not for the other two scales), which may be an indicator of the substantial organisational changes taking place at the participating workplaces.

All in all, we find the results of these analyses encouraging. We have not tried to validate the three CBI scales through factor analyses, and we do not think that this would have been meaningful. Such analyses would presumably not identify the three scales in the present data set of human service workers. The rationale for having three distinct scales is not statistical but theoretical and methodological. Most importantly, the three scales can be used in different domains (all persons, persons who work, and persons who do client-work). This means that the three scales can be used independently in accordance with the populations being studied and the theoretical questions being elucidated. In many concrete studies it would be meaningful to use only one or two of the scales.

Another reason for using three scales with different domains is that the *content of the items* differ. Researchers often focus on the scale values and tend to forget the items behind them. But in the feedback to the workplaces and in the interpretation of the results the actual answers to the questions carry much more meaning and information. While a scale value of, e.g. 25 is without much meaning in itself, it is relevant to know the proportion of employees who are "tired of working with clients" or who are "exhausted by the end of the working day". In connection with our collaboration with the workplaces in the PUMA study we have experienced an overwhelming interest in the response patterns to the individual questions in all three scales.

We find that the CBI has solved most of the important problems, discussed in the introduction to this paper, in connection with the widely used MBI. Many users of the MBI probably will feel that we have "lost something", since the CBI does not include depersonalisation/cynicism and reduced personal accomplishment. It should, however, be emphasized that the use of the CBI does not preclude the use of scales measuring these phenomena. Our point is that depersonalisation and personal accomplishment should be measured, analyzed and understood as *distinct* phenomena, which are important in themselves, and not part of a "syndrome".

The CBI has been translated into a number of languages (English, Japanese, Mandarin, Cantonese, Swedish, Finnish, French, Slovenian) and is currently being used in many countries. The acceptability and validity of the CBI in different cultures remains to be elucidated in further research. So far, some of the CBI-users have compared the CBI with the MBI with very encouraging results. In Japan, Odagiri found significant associations between burnout measured with the CBI and high efforts and overcommitment (Odagiri, Shimomitsu, Ohya, & Kristensen, 2004). In an Australian study on burnout among dentists Winwood and Winefield compared the CBI with the MBI and concluded that "the CBI

possesses excellent psychometric properties and seems to be an appropriate measure of burnout in populations of health professionals" (Winnwood & Winefield, 2004, p. 282). Hopefully, future international collaboration will further elucidate the potential of the CBI in research on burnout.

Note

The names of contact persons for information on the use of the CBI in Japan, Hong Kong, Taiwan, Sweden, Finland, UK, Slovenia and Canada can be provided by the first author.

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