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We cannot have a successful science if we let our data lie to us. To attain cumulative knowledge, we must detect and correct those lies. If we do this, we can successfully apply Occam's razor and uphold the important principle of scientific parsimony. We can discover the simplicity at the deep structure level that underlies the apparent and confusing complexity at the surface structure level.—Schmidt (2010, p. 240).

14.1 Introduction

The burnout syndrome has elicited growing interest among the psychology and the psychiatry community since it was first described in the mid-1970s (Freudenberger 1974, 1975; Maslach 1976; Maslach and Pines 1977). Generally viewed as a job-induced affliction (Maslach et al. 2001; Schaufeli and Taris 2005), burnout has

become a hotspot of occupational health research (Schaufeli et al. 2009b; Schonfeld and Chang 2017; Weber and Jaekel-Reinhard 2000). The syndrome has been associated with a variety of negative occupational consequences—including impaired work performance, absenteeism, and job turnover (e.g., Schaufeli et al. 2009a; Swider and Zimmerman 2010)—and adverse health outcomes (e.g., Ahola et al. 2010; Toker et al. 2012). Relatedly, burnout research has resulted, in recent years, in various recommendations and calls for action regarding the management of job stress (e.g., Epstein and Privitera 2016; Shanafelt et al. 2017).

In this chapter, we provide an overview of the burnout syndrome. We start by depicting the pioneering phase of burnout research that led to the introduction of the burnout construct in the scientific literature. We then describe the shift from initial exploratory and mainly qualitative research on burnout to more systematic, quantitative research on the syndrome. Finally, we summarize the most recent findings pertaining to the characterization of the burnout syndrome. These findings compellingly suggest that the syndrome referred to as burnout is a depressive condition and not a distinct entity. The findings call for more conceptual parsimony and theoretical integration in psychology and psychiatry, in the interest of more effective treatment and prevention strategies and enhanced transdisciplinary communication.

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14.2 The Dawn of Burnout Research

The burnout syndrome was first described by Freudenberger (1974) as he was working as an unpaid clinical psychologist in an alternative healthcare agency based in New York City.¹ Freudenberger (1974) observed that some of the volunteer staff, which included the author himself, developed a constellation of symptoms in response to their daily struggle to look after their patients—mostly drug addicts. Based on his field observations, Freudenberger (1974, 1975) characterized burnout as a slowly installing syndrome involving, among other signs and symptoms, fatigue, physical weakness and susceptibility to illness, sleep disturbance, weight alteration, irritability and frustration, crying spells, cynical and suspicious attitudes, psycho-rigidity, and professional inefficacy. Freudenberger (1974) indicated that the burned-out individual “looks, acts and seems depressed” (p. 161). Freudenberger (1975) further noted: “In their negativism the burn-out seems to be expressing his own depressed state of mind” (p. 79). Etiologically speaking, the burnout syndrome has been viewed, from the outset, as the product of a long-term discrepancy between the expectations and resources of the individual on the one hand and the actual outcomes and demands of his/her activity on the other (Freudenberger 1974, 1975). Freudenberger and Richelson (1980) thus considered the burnout syndrome to be “brought about by devotion to a cause, way of life, or relationship that failed to produce the expected reward” (p. 13).

The emergence of the burnout construct was also stimulated by social psychological research conducted in California. Maslach (1976) came to use the term “burnout” as she was studying emotions and coping strategies among human services workers. In so doing, she observed that some workers experiencing unresolvable job stress (i.e., work overload) developed symptoms of exhaustion and counterproductive detach-

ment—irritability, depersonalization, neglect, withdrawal from work, and derogatory and callous attitudes toward recipients—that undermined their professional efficacy. “Burnout” was used as an umbrella label for these symptoms (see also Maslach and Pines 1977; Pines and Maslach 1978).

The dawn of burnout research was thus marked by an empiricist (i.e., atheoretical and data-driven) approach to (occupational) health, relying on methods such as exploratory interviews, on-site observations, case-studies, and personal experiences (Leiter and Maslach 2016; Maslach et al. 2001). Importantly, the initial publications dedicated to the burnout syndrome did not include any review of already-described stress-related conditions (Bianchi et al. 2017d). Moreover, the burnout construct was elaborated independently of the research carried out in psychiatry and, more globally, in medicine. Controlled clinical investigations were not conducted. The symptom picture associated with burnout was not compared with the symptom pictures of stress-related conditions identified in the past.

In the next section of this chapter, we continue our examination of the history of the burnout construct by focusing on the development, from the 1980s, of methods designed to study the burnout syndrome more systematically.

14.3 Shifting from Exploratory to Systematic Research on Burnout

14.3.1 The Definition and Assessment of Burnout Symptoms

The first standardized measure of burnout symptoms, the Maslach Burnout Inventory, was designed in the early 1980s (Maslach and Jackson 1981; Maslach et al. 2016). On the basis of the data collected during the exploratory phase of burnout research, Maslach and Jackson (1981) created a pool of 47 items. The items were administered to a sample of workers from various

¹Fifteen years earlier in France, Veil (1959) described states of job-related exhaustion within a psychiatric framework.

health and service occupations (e.g., teachers, nurses, social workers) and then subjected to a factor analysis. Ten factors emerged from this initial analysis, of which four accounted for over three-fourths of the variance. The application of diverse item selection criteria (e.g., a factor loading exceeding 0.40 on only one of the four factors, a “high” item-total correlation) and the conducting of additional factor analyses eventually resulted in a 22-item questionnaire involving three dimensions: emotional exhaustion (e.g., “Working with people all day is really a strain for me”), depersonalization (e.g., “I feel I treat some recipients as if they were impersonal ‘objects’”), and a sense of (reduced) personal accomplishment (e.g., “I deal very effectively with the problems of my recipients”). Emotional exhaustion refers to feelings of being emotionally drained and exhausted by one’s work. Depersonalization involves a cynical attitude toward one’s job and an unfeeling and impersonal way of responding to people one is working with (e.g., clients or colleagues). Reduced personal accomplishment defines a tendency to evaluate oneself negatively and to feel incompetent and dissatisfied with one’s achievement on the job. The MBI assesses burnout symptoms within a 1-year time window, based on a 7-point scale (from 0 for “never” to 6 for “everyday”).

Importantly, while the developers of the MBI conceptualized burnout as a three-component syndrome *combining* emotional exhaustion, depersonalization, and a sense of reduced personal accomplishment, they formally recommended, in contravention of this conceptualization, that the three components of burnout be examined *separately*, “given our limited knowledge about the relationships between the three aspects of burnout” (Maslach et al. 1996, p. 5). This recommendation has been criticized because it implies that individuals who suffer *only* from emotional exhaustion, *only* from depersonalization, or *only* from reduced personal accomplishment will be considered as suffering from the same condition, “burnout,” although they present with symptom profiles that are, by definition, different and potentially call for different management strategies (Bianchi et al. 2017b; Brisson and Bianchi 2017a,

b; Kristensen et al. 2005; Shirom 2005; Shirom and Melamed 2006).

Five versions of the MBI are currently available: the MBI-Human Services Survey (MBI-HSS), the MBI-Educators Survey, the MBI-General Survey (MBI-GS), the MBI for Medical Personnel, and the MBI-GS for Students (Maslach et al. 2016). The MBI-GS has been designed to allow virtually any occupational group to be assessed for burnout (Maslach et al. 1996). The MBI-GS contains 16 items phrased in generic ways. In the MBI-GS, the three dimensions of burnout have been relabeled exhaustion (e.g., “Working all day is really a strain for me”), cynicism (e.g., “I doubt the significance of my work”),² and (loss of) professional efficacy (e.g., “I can effectively solve the problems that arise in my work”). The three dimensions of the MBI-GS have been assumed to be equivalent to those of previous versions of the MBI. However, the validity of this assumption remains open to question (Larsen et al. 2017; Shirom 2003). For example, in a factor analytic study of the three subscales of the MBI-GS and the depersonalization subscale of the MBI-HSS, Salanova et al. (2005) found that a four-factor model of burnout with separate depersonalization and cynicism dimensions fit their data better than a three-factor model with depersonalization and cynicism collapsed into one factor.

The MBI has been the most widely used measure of burnout to date (Schaufeli et al. 2009b). The hegemonic status of the MBI in burnout research led some researchers to conclude that “*burnout is what the MBI measures*” (Schaufeli and Enzmann 1998, p. 188; Schaufeli 2003, p. 3). However, alternative measures, associated with slightly different conceptualizations of the burnout

²While cynicism has generally been characterized in burnout research as a negative, to-be-treated symptom (cynicism without caring, indifference), it is worth underlining that cynicism is multifaceted and can also be considered a “strategic virtue” (healthy cynicism) reflecting the enactment of a “realistic” and pragmatic, rather than “idealistic” and romanticized, view of one’s work (e.g., in terms of personal expectations and aspirations). As noted by Rose et al. (2017), “tempered cynicism can protect the inner core of care and good practice” (p. 693).

construct, have been developed over time. For instance, the Burnout Measure (Pines and Aronson 1988; Pines et al. 1981) is intended to assess burnout as a combination of physical, emotional, and mental exhaustion. The Shirom-Melamed Burnout Measure (SMBM) operationalizes burnout as a syndrome combining physical fatigue, cognitive weariness, and emotional exhaustion (Shirom 2003; Shirom and Melamed 2006). The Oldenburg Burnout Inventory features only two subscales, exhaustion and disengagement (Demerouti et al. 2001; Halbesleben and Demerouti 2005). The Copenhagen Burnout Inventory distinguishes between personal, work-related, and client-related burnout (Kristensen et al. 2005). Despite their differences, the main conceptualizations of burnout share the assumption that exhaustion is the core of the syndrome (Cox et al. 2005; Schaufeli and Enzmann 1998; Seidler et al. 2014). As put by Maslach et al. (2001), “exhaustion is the central quality of burnout and the most obvious manifestation of this complex syndrome” (p. 402).³ “Exhaustion-only” conceptualizations of burnout (e.g., Kristensen et al. 2005; Shirom and Melamed 2006) reflect the view that depersonalization/cynicism and loss of personal accomplishment/professional efficacy do not need to be included in the syndrome because such constructs respectively refer to possible strategies to cope with (emotional) exhaustion and possible long-term consequences of (emotional) exhaustion (Kristensen et al. 2005, p. 194; Shirom and Melamed 2006, pp. 179–180).

³Maslach and Leiter (2016) recently seemed to change their mind regarding the centrality of exhaustion in the burnout syndrome, indicating that “the experience of cynicism may be more of a core part of burnout than exhaustion” (p. 109). This turnaround is intriguing given (a) the inconsistent findings on which it is based (Leiter and Maslach 2016, p. 97), (b) the fact that “exhaustion is... more predictive of stress-related health outcomes than the other two components [of burnout]” (Maslach and Leiter 2010, p. 726), and (c) the conclusions of meta-analytic reviews suggesting that exhaustion is the dimension of burnout that is “the most responsive to the nature and intensity of work-related stress” (Shirom 2003, p. 249). Moreover, in a meta-analytic review of 16 studies (Taris 2006), only emotional exhaustion (not depersonalization or reduced personal accomplishment) was found to be associated with decreased job performance.

14.3.2 The Unresolved Problem of Burnout Diagnosis

Although standardized measures of burnout symptoms are available, it is worth noting that no binding or consensual criteria for (differentially) diagnosing burnout have been established in more than 40 years of research (Bianchi et al. 2017d; Doulougeri et al. 2016; Weber and Jaekel-Reinhard 2000). As an illustration, burnout is not recognized as a nosological category in the latest versions of the *Diagnostic and Statistical Manual of Mental Disorders* [DSM-5; American Psychiatric Association (APA) 2013] and *International Classification of Diseases* (ICD-10; World Health Organization 2016).⁴ The absence of a diagnosis for burnout is fundamentally problematic in that it undermines the ability of occupational health specialists to treat and prevent burnout. A key, yet overlooked, corollary of the impossibility of identifying “cases” of burnout is that the prevalence of the syndrome cannot be estimated (Bianchi et al. 2015a, 2016a, b, 2017c; Brisson and Bianchi 2017b). This state of affairs questions the validity of dozens of studies dedicated to estimating the prevalence of burnout and drains the recurrent claims about the “burnout epidemic” of their substance (Bianchi et al. 2017b, d; West et al. 2016).

Among other authors (e.g., Bianchi et al. 2015a, 2016a, b), Brisson and Bianchi (2017b) lamented “the widespread tendency among burnout researchers to put the cart before the horse by trying to estimate the prevalence of a syndrome that cannot be formally diagnosed” and pointed

⁴In the ICD-10, burnout is only briefly mentioned among the factors influencing health status and contact with health services. Interestingly, in The Netherlands, burnout has sometimes been equated with (job-related) neurasthenia (e.g., Schaufeli et al. 2001). Neurasthenia is indexed as a disorder in the ICD-10. Long considered to be part of *melancholia* (see Gamma et al. 2007), neurasthenia was first viewed as a distinct entity in the nineteenth century (Beard 1869; van Deussen 1869). Within the “neurasthenic approach” to burnout, burnout thus overlaps with a disorder isolated about 150 years ago. Other Dutch researchers (e.g., Kleijweg et al. 2013) have equated burnout with undifferentiated somatoform disorder, a derivative of neurasthenia that has been removed from the DSM-5 because of its lack of distinctiveness (APA 2013, p. 812).

out the worrying use of clinically and theoretically arbitrary identification criteria in burnout research (e.g., cutoff scores reflecting mere tercile-based splits).⁵ It should be noted that the criteria used for identifying “cases” of burnout have not only been arbitrary. They have also shown considerable heterogeneity from one study to another (Bianchi 2015; Doulougeri et al. 2016), thereby jeopardizing between-study comparability. All in all, it must be acknowledged that the research dedicated to estimating the prevalence of burnout has been conspicuous by its vacuity. As a consequence, the findings derived from that research have been confusing for occupational health researchers and practitioners and have not offered public health decision-makers valid grounds on which to base their policies.

14.4 The Realization that Burnout Is a Depressive Condition

14.4.1 Early Clues

From the outset, burnout has been described in ways that were strongly evocative of depression. The overlap of burnout with depression is explicit in the initial descriptions of burnout proposed by Freudenberger (1974, 1975). Indeed, symptoms such as fatigue, sleep disturbance, weight alteration, or dysphoric mood constitute diagnostic criteria for major depression (APA 2013). Symptoms such as irritability and frustration, although not diagnostic criteria for major depression, are frequently observed in depressed individuals, especially in male and/or young patients (APA 2013; Judd et al. 2013). Judd et al. (2013) found that irritability/anger during major depressive episodes was a clinical marker of a more severe, chronic, and complex depressive illness. The overlap of

burnout with depression is also detectable in the very dimensions of the MBI (emotional exhaustion, depersonalization, and reduced personal accomplishment; Maslach et al. 1996, 2016), as highlighted by Schonfeld (1991) and Bianchi et al. (2017a). To take but one example, emotional exhaustion has been shown to overlap with fatigue and loss of energy on the one hand and depressed mood on the other hand (Bianchi et al. 2017a), two diagnostic criteria for major depression (APA 2013). After having examined each dimension of the MBI in relation to depression, Bianchi et al. (2017a) concluded that emotional exhaustion, depersonalization, and reduced personal accomplishment refer to depressive signs and symptoms under nonpsychiatric terms.

More recent descriptions of burnout have been similarly suggestive of depression. For example, Maslach and Leiter (1997) wrote that burnout is not only about the “presence of negative emotions” but also about the “absence of positive ones” (p. 28), a picture that is reminiscent of depressed mood and anhedonia—the two core symptoms of depression (APA 2013). Maslach et al. (2001) asserted that there is “a predominance of dysphoric symptoms” in burnout (p. 404). Schaufeli and Buunk (2004) indicated that “first and foremost, burnt-out individuals feel helpless, hopeless and powerless” (p. 399), three feelings that are hallmarks of depression (Abramson et al. 1989; APA 2013; Laborit 1986; Peterson et al. 1993; Pryce et al. 2011).

Another source of concern regarding the distinctiveness of burnout has lain in the (presumed) etiology of the syndrome. In effect, unresolvable stress, which is thought to play a causative role in the development of burnout (Maslach et al. 2001; Shirom 2003), has been shown to be at the center of the etiology of depression (Laborit 1993; McEwen 2004; Pizzagalli 2014; Willner et al. 2013).⁶ There is robust evidence, from research conducted in psychiatry, behavioral psychology,

⁵Diagnostic criteria for burnout would have required a clear specification of (a) the symptoms to be considered in clinical assessments, (b) the minimal duration and frequency of the exhibited symptoms, (c) the expected impact of the exhibited symptoms on the patient’s (work) life, and (d) differential diagnosis procedures. The identification of distinctive biological correlates would have also been helpful.

⁶As emphasized by Sapolsky (2004), “it is impossible to understand either the biology or psychology of major depressions without recognizing the critical role played in the disease by stress” (p. 271) and “genes that predispose to depression only do so in a stressful environment” (p. 345).

and neurobiology, that depressive symptoms constitute basic responses to unresolvable stress in *Homo sapiens*, as in many other species (see Bianchi et al. 2017d). It is worth noting that the depressive feelings of helplessness and powerlessness can be viewed as direct consequences of the experience of unresolvable stress. From this perspective, the individual feels helpless and powerless precisely because he/she cannot neutralize the encountered stressors through effective action. Put differently, the individual does not feel in control vis-à-vis the encountered stressors. Hopelessness can be viewed as the expectation that this absence of control will last, that is, that helplessness and powerlessness will be experienced again and again in the presence of the stressors. The individual anticipates that he/she will not be able to manage in the future what he/she could not manage thus far. Because, in the individual's eye, action has proven to be ineffective in neutralizing stressors, passivity (i.e., inaction) and resignation become the predominant responses in the face of adversity. From an evolutionary standpoint, passivity can be considered preferable when stressors cannot be neutralized because passivity at least prevents the waste of energy associated with the production of ineffective action (Klinger 1975; Laborit 1986, 1993; Nesse 2000).

Freudenberger and Richelson's (1980) early claim that burnout results from an investment (cost) that is devoid of the expected return on investment (benefit) is also relevant to burnout-depression overlap.⁷ Indeed, depression has long

⁷The view that burnout is etiologically related to an imbalance between investments and outcomes has been recurrently expressed in the literature. As an illustration, Heifetz and Bersani (1983) wrote: "It is not the heavy emotional investment per se that drains the provider; rather it is an investment that has insufficient dividends" (p. 61). More recently, this mismatch has been described in terms of (lack of) reciprocity between what the job gives and what it takes (see Schaufeli 2006). The same logics is at the heart of several current models of occupational strain such as Siegrist's (1996) effort-reward imbalance model. Freudenberger and Richelson's (1980) early view that burnout results from an imbalance between investments and outcomes thus remains very lively among burnout researchers.

been viewed as a pathology of loss of gratification (i.e., loss of pleasure, happiness, or satisfaction in life). As reported by Beck and Alford (2009), loss of gratification is the most frequent complaint among depressed patients (p. 19). Importantly, under stress, a gratifying action is an action that allows the individual to neutralize the stressor. Unresolvable stress is thus synonymous with a long-term impossibility of acting in a manner that is gratifying—neurobiologically, of activating one's reward system and shutting down one's punishment system. All in all, depression can be conceived of as the product of a deficit of positive, rewarding experiences (i.e., experiences that activate the brain reward system), and an excess of negative, punitive experiences (i.e., experiences that activate the brain punishment system), with depressed mood and anhedonia two key symptoms of this disequilibrium (e.g., Bogdan and Pizzagalli 2006; Dombrowski et al. 2013; Pryce et al. 2011; Rolls, 2016; Wu et al. 2017).⁸ In view of the above, the putative etiology of burnout could thus be considered to mirror the etiology of depression.

14.4.2 Attempts to Distinguish Burnout from Depression

In spite of the aforementioned similarities between burnout and depression, many burnout researchers have hypothesized that their entity of

⁸The well-established link between depression and suicide (Chesney et al. 2014) suggests that survival is not an objective under any condition in human beings. Everything happens as if human beings struggled for survival only as long as they consider their life worth living (i.e., sufficiently gratifying). The specific relationship between anhedonia and suicide supports this view (Winer et al. 2014), as does the finding that (a) the brain reward system is hypoactive in depressed patient (Dombrowski et al. 2013) and (b) individuals with major depressive disorder report blunted levels of both anticipatory and consummatory pleasure and elevated levels of both anticipatory and consummatory displeasure for daily activities (Wu et al. 2017). As summarized by Dombrowski et al. (2013), "suicide can be viewed as an escape from unendurable punishment at the cost of any future rewards" (p. 1020). Following a similar line of reasoning, it can be suggested that suicide occurs when the perspective of dying has become definitely more rewarding than the perspective of going on living.

interest was a distinct entity (Iacovides et al. 2003; Maslach et al. 2001). Three arguments have been frequently advanced in support of the view that burnout is not merely “old wine in new bottles” (Schaufeli and Enzmann 1998).

Proponents of the burnout/depression distinction claimed that, in contrast to depression, burnout was a job-related and work-specific syndrome (e.g., Maslach et al. 2001, p. 404). This claim, however, has been shown to be problematic because (a) depression can also be job-related,⁹ (b) the job-related character of a syndrome is not nosologically discriminant per se—a job-related depression remains a depression—and (c) the postulate that the burnout phenomenon is restricted to work is logically specious (Bianchi et al. 2015d; Kahn 2008; Niedhammer et al. 2015; Wang 2005). Taking the problem the other way round, the extent to which burnout can be considered a job-induced syndrome has remained unclear (Bianchi et al. 2017b; Weber and Jaekel-Reinhard 2000). While burnout has been found to be predicted by occupational factors (Schaufeli et al. 2009a), research on the variance in burnout explained by non-occupational factors has been scarce (Hakanen and Bakker 2017). Interestingly, in a recent study involving 468 Swiss health professionals, only 44% of the participants reporting burnout symptoms considered their job to be the main cause of these symptoms (Bianchi and Brisson 2017).

Another argument employed to distinguish burnout from depression has consisted in contrasting the so-called social focus of burnout research with a supposedly “individual focus” of depression research (e.g., Pines and Aronson 1988, p. 53). This argument has been found to be invalid, for at least two reasons. First, the argument is grounded in a false presupposition, namely, that depression would not have been studied from a social perspective. An explicitly social perspective was taken, for instance, by Brown and Harris (1978) in their classic study of “the social origins of depression” in women. Over

the last decades, a large body of research has in fact been dedicated to the social determinants of depression (e.g., socioeconomic status and social network; Gilman et al. 2002; Lorant et al. 2007; Ritsher et al. 2001; Rosenquist et al. 2011; Sapolsky 2005).¹⁰ Moreover, the stress-depression relationship evidently implicates the social environment, given that the social environment is a key contributor to stress (Gilbert 2006; Pizzagalli 2014). In a recent study that included 3021 medical interns, Fried et al. (2015) found that all nine symptoms of major depression (APA 2013) increased—on average by 173%—in response to the stress of medical internship over a 1-year period. Second, and more fundamentally, the “social focus argument” advanced by some burnout researchers is epistemologically spurious. Indeed, *a difference in the perspectives adopted on given syndromes (e.g., individual versus social) should not be confused with a difference between the syndromes themselves*. Burnout and depression can both be examined from an individual or a social perspective. Incidentally, we note that moving back and forth from an individual to a social level of observation is likely to be fruitful in the study of any (psycho)pathology.¹¹

Finally, it has been asserted that burnout differs from depression because the symptoms of burnout are, in the early stages of the burnout process, rather circumscribed to work—they do not contaminate the whole life of the individual—whereas the symptoms of clinical depression are pervasive (see Pines and Aronson 1988, p. 53; Schaufeli and Enzmann 1998, p. 39). Such a comparison, unfortunately, is inconsistent (Bianchi et al. 2015b). In effect, when comparing the *early stages* of the burnout process with *clinical* depression, burnout researchers contrast the early stages of the burnout process with the *late stages* of the depressive process, while remaining

⁹Methods allowing the specific link between job stress and depression to be investigated are available, both in research and medical settings (Bianchi et al. 2017).

¹⁰In a meta-analysis, Lorant et al. (2003) found compelling evidence for socioeconomic inequality in depression (see also Adler and Stewart 2010).

¹¹Even psychosis (including schizophrenia), the variance of which is thought to be strongly explained by the genetic makeup of the individual, has been fruitfully studied from a social-environmental standpoint (Shah et al. 2011; Wicks et al. 2010).

silent regarding what is supposed to distinguish “clinical burnout”¹² from clinical depression. The comparison thus appears to be underlain by a defective articulation of dimensional (i.e., continua-based, process-focused) and categorical (i.e., taxa-based, state-focused) approaches to burnout and depression (Bianchi et al. 2017d). The difficulty coordinating dimensional and categorical approaches to psychopathology has long been encountered in burnout research, as illustrated by the view that burnout could be a phase in the development of a depressive disorder (e.g., Ahola et al. 2005). This problem is well-summarized in the following excerpt:

...there is the question of whether burnout is a continuous condition or a dichotomized state. Are there degrees of burnout that can be experienced or is one either burned out or not?—Cox et al. (2005, p. 190).

Because dimensions and categories constitute two ways of *describing* the properties of psychological phenomena (Pickles and Angold 2003), the question is not to determine whether burnout *is* a continuous condition or a dichotomized state. The description of burnout within a dimensional or a categorical approach depends on the perspective that the investigator chooses to adopt on burnout, as a function of his/her objectives. Burnout, just as depression, can be studied as a process or an end-state (Bianchi et al. 2017d). There can be degrees of severity in burnout as in depression; qualitative leaps can be considered in burnout as in depression. Assuming that burnout is per se a process and depression is per se an end-state would be confusing, once again, the phenomena of interest with the approaches adopted to study those phenomena. Such epistemological confusion leads the investigator to make superfluous, and misleading, distinctions. Such distinctions result in a counterproductive fragmentation of knowledge that threatens conceptual parsimony and impedes theory building (Cole et al. 2012; Le et al. 2010; Schmidt 2010).

All in all, the arguments invoked in support of the burnout-depression distinction have not stood up to scrutiny. We now review recent empirical findings pertaining to the characterization of the burnout syndrome in relation to depression.

14.4.3 Recent Research on Burnout-Depression Overlap

14.4.3.1 Associations Between Burnout and Depressive Symptoms

Burnout and depressive symptoms have long been found to be positively correlated (e.g., Meier 1984), with moderate to high correlations generally reported. It has often been suggested, however, that burnout and depressive symptoms should be distinguished because, although substantial, their correlation was not perfect. A new light has been shed on this assumption over the last years.

The assumption that burnout and depression cannot be viewed as a single entity because the two constructs share significant, but limited, variance (e.g., Schaufeli and Enzmann 1998) has been tested as such in a recent study. Bianchi et al. (2016c) examined the extent to which the correlation between burnout and depressive symptoms (respectively assessed with the SMBM and the PHQ-9) differed in strength from the correlation between the affective-cognitive and somatic symptoms of depression. The results of the study indicated that the correlation between burnout and depressive symptoms ($r = 0.73$) was similar in strength to the correlation between the affective-cognitive and somatic symptoms of depression ($r = 0.68$). Because the affective-cognitive and somatic symptoms of depression are considered to form a unified entity with a correlation of 0.68, the authors concluded that there was no apparent obstacle to viewing burnout and depression as one entity with a correlation of 0.73.

Furthermore, emotional exhaustion—the core of burnout—has been found to be more strongly associated with “classical” depressive symptoms than with the other two dimensions of burnout—depersonalization and reduced personal accom-

¹²We use inverted commas here because there are no binding or consensual diagnostic criteria for “clinical burnout”; “clinical burnout” has remained uncharacterized. We follow the same rule in the rest of the chapter.

plishment—in many studies (see Bianchi et al. 2015b). In view of these findings, the claim that depersonalization and reduced personal accomplishment constitute more cardinal features of burnout than “classical” depressive symptoms appeared to proceed from an incoherent reasoning (Bianchi et al. 2015d). By definition, a syndrome refers to a group of *concomitant* signs and symptoms (Shirom 2005). If emotional exhaustion more often co-occurs with “classical” depressive symptoms than with depersonalization and reduced personal accomplishment, excluding “classical” depressive symptoms from the burnout syndrome while including depersonalization and reduced personal accomplishment in the burnout syndrome is unwarranted.

Recent research has additionally suggested that the magnitude of the association between burnout and depressive symptoms had been distorted downward in the past due to measurement artifacts. Indeed, burnout is most frequently assessed within a 1-year (with the MBI) or a 1-month (with the SMBM) time window, whereas depression is most frequently assessed over a 1- or a 2-week period (e.g., with the Center for Epidemiologic Studies Depression Scale [CES-D] and the PHQ-9). Such differences in response frames can reduce the magnitude of the obtained correlations in the absence of actual differences between the examined phenomena. In a study that standardized the time window of the assessment of burnout and depressive symptoms, Bianchi et al. (2016d) found a correlation of 0.83 between the two variables. When corrected for attenuation, the correlation reached 0.91, a magnitude that is suggestive of empirical redundancy between the constructs under scrutiny—as recalled by Le et al. (2010), “two supposedly distinct constructs should not correlate 1.00 or near 1.00” (p. 113). In support of this hypothesis, associations of such magnitudes (r s around 0.80 or 0.90) have been found when correlating two measures of depression (Kung et al. 2013; Luteijn and Bouman 1988) or two measures of burnout (Shirom and Melamed 2006) with one another (see also Wojciechowski et al. 2000).

The overlap of burnout with depression has also been examined categorically, with the aim of

specifically focusing on workers scoring at the upper end of the burnout continuum. Bianchi et al. (2013) found evidence that individuals with relatively high frequencies of burnout symptoms (based on the MBI) reported as many depressive symptoms (based on the Beck Depression Inventory-II) as patients diagnosed in psychiatry for a major depressive episode. In a study of 5575 French schoolteachers (Bianchi et al. 2014), in which burnout was assessed with the MBI, about 90% of the individuals experiencing burnout symptoms at least *a few times a week* met criteria for a provisional diagnosis of depression, as established by the PHQ-9 (Kroenke and Spitzer 2002). Similar results were obtained in the USA (Schonfeld and Bianchi 2016) and New Zealand (Bianchi et al. 2016c) based on teacher samples and in Switzerland (Bianchi and Brisson 2017) based on health professional samples, in studies that used the SMBM to assess burnout. A strength of the abovementioned studies is that they relied on conservative cutoff scores for categorizing burnout. Because such cutoff scores correspond to relatively high frequencies of burnout symptoms, they show close adherence to the theoretical characterization of so-called clinical burnout. Schaufeli and Buunk (2004) signalled that full-blown burnout reflects “a final stage in a breakdown in adaptation that results from the long-term imbalance of demands and resources” (p. 389). According to Leiter and Maslach (2005), a “burned out” worker feels “constantly overwhelmed, stressed and exhausted” (p. 2). These descriptions imply that the use of liberal cutoff scores, associated with relatively low symptom frequencies, is unwarranted when burnout is examined as an end-state (see also Schaufeli and Enzmann 1998, p. 58).¹³ Although suboptimal in a context where burnout remains nosologically undefined, the strategy that consisted in relying on conservative cutoff scores to categorize burnout at least had the advantage of being sustained by a clear rationale. Available descriptions have

¹³The use of liberal cutoff scores in some earlier studies (e.g., Ahola et al. 2005) is likely to account for the weaker evidence of burnout-depression overlap observed in those studies.

suggested that an individual with full-blown burnout experiences burnout symptoms on a daily basis, consistent with the fact that burnout symptoms, once they have fully developed, are stable over time—for instance, exhaustion is typically unrelieved by ordinary rest or sleep, and cynicism involves a deeply ingrained negative attitude toward one's work.

Other categorical investigations of burnout and depression have been conducted. In a three-wave, 7-year study, Ahola et al. (2014) examined both within- and between-individual variations in burnout and depressive symptoms (assessed with the MBI and the short form of the Beck Depression Inventory, respectively) based on a sample of 3255 Finnish dentists. The study showed that burnout and depressive symptoms clustered together and increased or decreased commensurately over time, with low, intermediate, and high levels of burnout symptoms being respectively accompanied by low, intermediate, and high levels of depressive symptoms. Similar results were found in another cluster-analytic study, involving a sample of French teachers and two waves of data collection (Bianchi et al. 2015c).

Consistent with these findings, in a study of 5897 Austrian physicians, Wurm et al. (2016) observed that the likelihood of meeting the criteria for a provisional diagnosis of depression (as established by the Major Depression Inventory) gradually increased with the severity of burnout symptoms (assessed with the Hamburg Burnout Inventory). Compared to participants with no noticeable symptoms of burnout, participants with the most elevated levels of burnout symptoms had a *93-fold* higher risk of being identified as clinically depressed.

Finally, we note that the research dedicated to the nomological network of burnout and depression has not resulted in fully consistent findings (Bianchi et al. 2015b). Most probably, this state of affairs is due to (a) the heterogeneity of the conceptualizations and operationalizations of burnout used in past research and (b) the previously mentioned methodological problems that affected research on burnout-depression overlap. This being underlined, burnout and depression

have been found to be similarly associated with a number of variables such as depressive cognitive style (including ruminative responses and pessimistic attributions), self-rated health, physical activity, neuroticism, extraversion, job satisfaction, job adversity, workplace social support, stressful life events, and antecedents of anxiety or depressive disorders (Bianchi and Schonfeld 2016; Bianchi et al. 2016d; Faragher et al. 2005; Rössler et al. 2015; Schonfeld and Bianchi 2016; Toker and Biron 2012).

In sum, recent empirical research has consistently shown that burnout and depressive symptoms are inextricably linked (Bianchi et al. 2017d). This conclusion has been supported by both dimensional and categorical analyses of burnout and depression, conducted in the framework of both cross-sectional and longitudinal studies. The conclusion appeared to be viable not only when the MBI was used but also when alternative measures of burnout, such as the SMBM, were employed.

14.4.3.2 Factor Analyses of Burnout and Depression Measures

The view that burnout is distinct from depression has strongly relied on the finding that burnout and depression loaded on different factors when self-reported measures of burnout and depression were submitted to factor analyses (Maslach et al. 2001). Thus, in one of the most influential studies linked to this research area, Leiter and Durup (1994) concluded that burnout and depression were best modeled as two second-order factors—while acknowledging the strong correlation (0.72) between these factors. The study, however, had a number of limitations, such as (a) the poor fit of the constructed models, (b) the exclusion of nearly half the depression items from the confirmatory factor analysis for reasons of skewness, and (c) the non-consideration of the different time windows attached to the measures of burnout and depressive symptoms.

More recent studies offered investigators a different view of the relationships between the factors underlying the measures of burnout and depressive symptoms. Bianchi et al. (2016d) used the SMBM and the PHQ-9 to assess burnout and

depression, respectively. As a reminder, the SMBM includes three subscales, physical fatigue, cognitive weariness, and emotional exhaustion. The factor analyses carried out by the authors revealed that the depression latent variable correlated more strongly with the physical fatigue, cognitive weariness, and emotional exhaustion latent variables than the latter three latent variables correlated with each other. Such results confirmed that depressive symptoms lie at the heart of the burnout syndrome.

In a study that aimed at overcoming the limitations of past factor analytic studies by using more sophisticated modeling techniques, Schonfeld et al. (2017) assessed burnout with the MBI and depression with both the 10-item version of the CES-D (CES-D-10) and the PHQ-9. The study sample comprised 734 US teachers. The results of an exploratory factor analysis indicated that the items of (a) the emotional exhaustion and depersonalization subscales of the MBI, (b) the CES-D-10, and (c) the PHQ-9 substantially loaded on one single factor. The items of the (reduced) personal accomplishment subscale of the MBI were found to load only partly on that factor. A confirmatory factor analysis that controlled for potential item overlap in the measures of depressive symptoms and emotional exhaustion established that there was a high correlation (0.85) between depressive symptoms and emotional exhaustion, suggestive of a unique underlying construct.

The results of the latest factor analytic studies of burnout and depression measures have consolidated the view that burnout and depressive symptoms form a unified structure. Put differently, these results have suggested that it would be misguided to isolate burnout from the spectrum of depression.

14.4.3.3 Biological Research on Burnout and Depression

Over the last years, the overlap of burnout with depression has been increasingly investigated from a biological standpoint. Heterogeneous findings have emerged from this line of research. For instance, Toker et al. (2005) found that in women, burnout, but not depression, was positively associated with microinflammation

(expressed by heightened concentrations of high-sensitivity C-reactive protein [hs-CRP] and fibrinogen) whereas in men, depression, but not burnout, was positively associated with hs-CRP and fibrinogen concentrations. By contrast, examining the question of whether burnout could be distinguished from depression based on heart rate variability, brain-derived neurotrophic factor, and hippocampal volume, Orosz et al. (2017) did not find conclusive evidence for burnout's distinctiveness. Beyond the specific limitations attached to one study or another, biological research on burnout and depression has been rendered fundamentally inconclusive by the non-consideration of depression subtypes in the conducted studies (Bianchi et al. 2015b).

Considering depression subtypes is central in biological research on burnout and depression because different depression subtypes have been associated with opposite neurovegetative, immune, and endocrine profiles. For instance, depression with melancholic features has been associated with insomnia, aphagia, sympathetic hyperactivity, decreased immune function, and hypercortisolism, whereas depression with atypical features¹⁴ has been associated with hypersomnia, hyperphagia, sympathetic hypoactivity, increased immune function, and hypocortisolism (Gold and Chrousos 2002; Lamers et al. 2013). These differences directly bear on the status of variables such as microinflammation, heart rate variability, brain-derived neurotrophic factor, or hippocampal volume. Thus, the neglect of depression subtypes can result in misleading conclusions regarding burnout-depression overlap. Emblematically, the argument that burnout is distinct from depression because burnout involves hypocortisolism whereas depression involves hypercortisolism caves in as soon as atypical depression is taken into consideration (Bianchi et al. 2015b).

Because subtypes of depression have been ignored in biological research on burnout and

¹⁴The term atypical “does not connote an uncommon or unusual clinical presentation” (APA 2013, p. 186). Depression with atypical features is a frequently encountered form of depression.

depression, the studies conducted in this area could not inform us about burnout-depression overlap. Researchers should be more aware of, and careful about, the heterogeneity of depression in the future.

Conclusion

In this chapter, we proposed an overview of burnout, from the introduction of the construct in the mid-1970s to the growing realization that the syndrome was better conceived of as a depressive condition. Long questioned, the distinction between burnout and depression has eventually been shown to be problematic, both logically and empirically. Recent studies helped clarify the issue of burnout-depression overlap at theoretical and epistemological levels and provided us with compelling evidence that the pathogenesis of burnout is depressive in nature.

The history of burnout research suggests that transdisciplinary communication and methodological standards should be strengthened to avoid the proliferation of constructs that, in fact, refer to the same phenomena. Construct proliferation—a transgression of the scientific canon of parsimony—is considered a major problem today (Cole et al. 2012; Le et al. 2010; Schmidt 2010). Construct proliferation undermines theory building and, consequently, slows research advance. As can be seen from the initial articles on the burnout syndrome, pioneers of burnout research, who were coming from the fields of clinical and social psychology, paid little attention to the work accomplished by their colleagues in other areas of psychology (e.g., behavioral psychology; see Peterson et al. 1993) and other disciplines such as psychiatry and (neuro)biology—(neuro)biology has constituted a highly productive discipline regarding stress-related syndromes (Goldstein and Kopin 2007). Because a new construct should not be introduced in the scientific literature without careful consideration of its added value vis-à-vis related, already-available constructs, such neglectfulness has been highly problematic.

Instead of multiplying “depression-like” constructs, we recommend that investigators concentrate their present and future efforts on (a) more harmoniously coordinating dimensional and categorical approaches to depression (Cuthbert and Insel 2013; Kotov et al. 2017), (b) further developing a flexible, multiscale (e.g., sub-individual, individual, interpersonal, social) framework for the study of depressive conditions, and (c) better understanding how the forms taken by depression can vary as a function of the duration and intensity of the unresolvable stress experienced by the individual and the developmental stage(s) at which the individual experiences unresolvable stress (Bale and Epperson 2015; Koenig et al. 2011). Such an agenda is in our estimation promising in terms of knowledge production and integration. The relationship between stress and depression, through the impossibility of effective/gratifying action, offers a privileged access to the general principles of human adaptation.

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