Burnout Research

Research Article

Life stress as potential risk factor for depression and burnout

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ABSTRACT

Objective: Depression and burnout are two psychopathological labels that have been subject to an extensive discussion over the last decades. The crucial question is whether they can be seen as conceptually equal or as two distinct syndromes. One argument for the distinction is that depression impacts on the whole life of a suffering person whereas burnout is restricted to the job context. Depression has been shown to be affected by life stress. The more stressful life events a person experiences, the more he or she is susceptible for developing a depression. As there is the widespread but controversial opinion that burnout is a prodromal syndrome of depression, the present study examined whether the number of stressful life events is also associated with an increased risk for burnout.

Methods: $N = 755$ healthy participants and $N = 397$ depressed patients completed the Maslach Burnout Inventory (MBI), the Beck Depression Inventory (BDI II) and reported the extent of experienced life stress.

Results: A significantly closer relation between depression and life stress than between burnout and life stress was found in the healthy ($z = 3.01$, $p = .003$) as well as in the depressed sample ($z = 3.41$, $p = .001$). This finding was supported in both samples by means of a path analytic approach where the associations between life stress, burnout, and depression were controlled for possible mediator and moderator effects, also considering the influence of age.

Conclusion: By considering the influence of life stress it could be demonstrated that depression and burnout are not identical although they share substantial phenotypic variance ($r = .46$–$.61$). Most important, the trivariate associations are the same in a representative employee sample and in an inpatient clinical sample suggesting the same underlying mechanisms covering the whole range from normal behavior to psychopathology. However, only longitudinal data can show if burnout necessarily turns into depression with the consequence that the burnout – life stress association approaches the depression – life stress association over time.

1. Introduction

There has been an extensive discussion on the association between the constructs of depression and burnout over the past twenty years (e.g., Leiter & Durup, 1994; Maslach, Schaufeli, & Leiter, 2001; Toker, Shirom, Shapira, Berliner, & Melamed, 2005). Particularly, the fact that burnout again will neither appear in the upcoming version of the International Classification of Diseases (ICD-11) nor is recognized in the updated Diagnostic and Statistical Manual of Mental Disorders (DSM V) has intensified this debate.

Although burnout was mentioned first in the 1970s (Freudenberger, 1975; Maslach, 1976), there still is no undisputed definition of this construct. Moreover, there is even no accordance whether burnout can be seen as a distinct syndrome apart from depression. Burnout was initially thought to emerge only in socially oriented professions, which require working with or helping clients/patients (Freudenberger, 1975; Maslach, 1976). Finally, the term "burnout" was broadened and extended to all kinds of occupational groups (Pines & Aronson, 1988) and more and more studies tried to identify this syndrome in specific occupations. The rising number of publications concerning burnout underlined the problem of its inconsistent definition and differentiation from other psychopathologic or psychosomatic syndromes. Furthermore, it became increasingly clear that the exact characteristics of burnout differ between professions. Therefore, the most prominent questionnaire measuring the burnout construct, the *Maslach Burnout Inventory (MBI)*, was modified in a way which allows application to all kinds of occupational groups (Maslach et al., 2001). As the MBI is

the most prominent and most administered questionnaire for the assessment of burnout, most preliminary definitions of burnout use the three symptoms that are measured by the three subscales of the MBI (1. emotional exhaustion, 2. depersonalization or cynicism, and 3. reduced personal accomplishment) to characterize burnout. Although there are many different conceptualizations of burnout, there is one characteristic all definitions have in common: an exhaustion of the organism which is caused by work stress.

Due to this blurry picture, there is much space for discussion whether burnout can be seen as a distinct construct or whether it is just another label for the same group of psychopathologic diseases. Because of a very similar symptomatology there has been a long debate especially concerning the overlap and distinctive characteristics of burnout and depression. Among others, symptoms of depression include fatigue, social withdrawal, feelings of failure or worthlessness and various somatic symptoms such as insomnia or hypersomnia, gain or loss of weight, and decreased interest in sexual activities (DSM-IV-TR; American Psychiatric Association, 2000). While fatigue is quite similar to the emotional and physical exhaustion component of burnout, the depersonalization facet has similarities with social withdrawal. Finally, reduced personal accomplishment can be seen as closely related to depressive feelings of failure and learned helplessness (Abramson, Seligman, & Teasdale, 1978). These results are in line with some newer publications reporting similar symptoms in burned-out and depressed patients and therefore come to the conclusion that burnout cannot be seen as a distinct entity (Bianchi, Boffy, Hingray, Truchot, & Laurent, 2013; Bianchi, Schonfeld, & Laurent, 2014). Bianchi and colleagues furthermore suppose an underestimation of the association between depression and burnout because most work in the field is limited to healthy samples. However, in a confirmatory factor analysis the items measuring burnout and depression were found to load on different factors. Furthermore, the three-factor structure of the MBI could be replicated so that the authors conclude that both syndromes are distinct (Leiter & Durup, 1994). This might also be due to the form in which the items are presented (Toker & Biron, 2012): burnout is, as a part of its definition, closely related to job-context which is why the items are rather specific or situational (e.g., "I doubt the significance *of my work*" or "I feel emotionally drained *from my work*") whereas depression is more global and not restricted to defined situations. Therefore, the items assessing depression are more global as well (e.g., "I am too tired or fatigued to do *most of the things* I used to do" or "I feel guilty *all of the time*").

Although there is some evidence that burnout and depression can be seen as two different psychopathologies, the relation still remains unclear (e.g., Ahola & Hakanen, 2007; Bakker et al., 2000; Glass & McKnight, 1996; Maslach et al., 2001; Toker & Biron, 2012). There is evidence that the association between burnout and depression is particularly based on the emotional exhaustion component of the MBI (e.g., Ahola et al., 2005; Nyklicek & Pop, 2005; Peterson et al., 2008). Iacovides, Fountoulakis, Kaprinis, and Kaprinis (2003) suggest that especially severe burnout can lead to depression, a result which could be replicated by other authors (e.g., Ahola & Hakanen, 2007). Further data suggesting burnout as a preceding syndrome or a step in the development of a depression respectively were presented by Hakanen and Schaufeli (2012). Despite the reported findings, there is still no consensus of any causal direction of the association (Hakanen, Schaufeli, & Ahola, 2008). However, most studies find an overlap between these two syndromes of about 20% shared variance (Iacovides et al., 2003).

Depression affects the whole life in general and can, among others, also be caused by job related factors (Ahola, Hakanen, Perhoniemi, & Mutanen, 2014). In contrast, burnout is thought to be mainly driven by such problems or chronic stress at work (Maslach et al., 2001), although there have been identified other

moderating factors increasing the risk for burnout in adverse working conditions such as personality (Swider & Zimmermann, 2010) or sleep duration (Söderström, Jeding, Ekstedt, Perski, & Åkerstedt, 2012). This fit in causality might be responsible for the above mentioned overlap of 20% between both constructs, because the origin of burnout can also serve as one out of many risk factors for depression whereas other risk factors (e.g., in private life) might lead to depression but are not related to burnout. Therefore, it can be hypothesized that depression and burnout can be dissociated by their relation to the number of stressful life events.

Life stress has repeatedly been associated with depression (e.g., Mazure, 1998) and is mostly operationalized by self-report checklists of specific traumatic life experiences such as divorce, loss of closely related persons, serious diseases, or sexual abuse in childhood. The more stressful life events are experienced by a person, the more likely is the development of a depression (e.g., Kendler, Karkowski, & Prescott, 1999). There is also evidence that this association is moderated by individual factors (for an overview see Hammen, 2005). However, if burnout can be traced back to job relevant factors only, there should be no association between burnout and the number of stressful life events in general, but, if at all, only with events that deal with work stress (e.g., unemployment or financial issues). This result would support the distinctiveness of both constructs and would provide evidence for the genesis of burnout.

Hence, if the job environment is implied to be of specific relevance for burnout while environmental influences on depression are unspecific, we expect (a) burnout to be associated with depression, but (b) no relation of burnout to stressful life events, whereas (c) depression is related to the reported number of stressful life events.

To test our hypotheses, we followed a stepwise strategy: First, the hypotheses regarding the relations of life stress, depression, and burnout were tested in a healthy sample. Second, results were validated in a clinical sample. Based on the assumption of a continuous transition of traits between healthy and psychopathologic persons, similar results were expected in both samples, the healthy controls and the depressed patients.

2. Methods

2.1. Participants

2.1.1. Controls

A total of N = 755 (301 males; 454 females) healthy participants took part in this study. Data was collected within an ongoing project investigating the genetic basis of burnout. Inclusion criteria for participation were an age of over 18 years and actual employment. For participation in the research project participants were compensated with 15€.

To recruit participants, we conducted an internet research to identify businesses and public institutions which were contacted and asked whether they would allow advertising the project to their employees. Thus, participants of this study worked in various companies and professions (e.g., medical staff, administration employees, policemen, management-consultants, or civil servants) so that results are not restricted to a single profession with its specific demands. When employers agreed to take part in the study, employees were informed about the project and asked for their voluntary participation.

2.1.2. Depressed patients

The second sample consisted of N = 397 (266 females, 131 males) inpatients from psychosomatic hospitals. Due to the fact that burnout is not an acknowledged diagnosis, patients suffering

from burnout symptoms were diagnosed by ICD-10 F32 or F33 with an additional job specific anamnesis of exhaustion. Also "pure" depressive patients without a job specific anamnesis were included to allow a differentiation between burnout and depression. Not all hospitals provided us the exact clinical diagnosis of their patients so that we relied preliminary on the scores obtained by the administered assessment tools BDI-2 and MBI. We collaborated with several psychosomatic hospitals spread across Germany, most of them belong to the AHG consortium. The AHG comprises more than 40 hospitals and has an own research department that supported us in this scientific project. As in the healthy sample, depressed participants had to be 18 years or older and also worked in various occupational areas. Therefore, there were various backgrounds/etiologies explaining their disease. However, these participants all underwent an inpatient (cognitive behavioral) psychotherapy during participation and, therefore, were not on the job but on sick leave in the course of this study. Of course, participation was voluntary and participants gave written informed consent. Furthermore, patients also agreed that the respective psychotherapists sent us their clinical diagnoses (only ICD-10 keys).

The study was approved by the local ethics committee at the University of Bonn.

2.2. Questionnaire measures

All used self-report measures and the corresponding reliabilities observed in the present study are outlined below. To assess burnout, participants were asked to complete the *Maslach Burnout Inventory General Survey* (Maslach, Jackson, & Leiter, 1996) that consists of 16 items belonging to the three subscales *Emotional Exhaustion* (controls: $\alpha = .88$, patients: $\alpha = .87$), *Cynicism* (controls: $\alpha = .83$, patients: $\alpha = .81$), and *Professional Efficacy* (controls: $\alpha = .82$, patients: $\alpha = .81$). In order to facilitate comparison of the three subscales, the *Professional Efficacy* scale was inverted so that higher scores indicate a higher proportion of burnout strain as in the *Emotional Exhaustion* and *Cynicism* scales.

Beck's Depression Inventory II (Beck et al., 1996; BDI 2) as one of the most common clinical inventories was used to measure depression. The BDI 2 consists of 21 items which cover affective, cognitive, and somatic symptoms of depression asking specifically for participants' feelings during the last two weeks. Items are answered on a 4 point Guttman scale. Cronbach's alpha of the BDI 2 depression score was $\alpha = .91$ for the healthy sample and $\alpha = .92$ for the clinical sample.

Finally, a list of 30 stressful life events was administered to the participants. Each item consisted of a stressful experience that was answered dichotomously with "yes" or "no" depending on whether the answering person had experienced the event. For example, we asked for the following stressful life events: the death of a beloved pet, a stressful and painful split-up from a partner, a serious accident, the death of closely related persons, sexual abuse, or assault. To avoid that an experienced stressful life event was not covered by the items, an additional item was "Were there any other traumatic situations or experiences that have not been mentioned here".

3. Results

3.1. Differences in subsample characteristics regarding burnout and depression

As the samples were independent and not divided post hoc by means of psychometrical criteria, it has to be mentioned that there were participants in the control sample being highly depressed and/or scored very high on burnout and that there were patients that nearly had recovered and therefore had relatively low scores on

depression and/or on burnout. So first of all, we conducted one-way ANOVAs comparing the healthy sample with the clinical sample to make sure that our samples differed with respect to the dependent variables. As expected, there was a difference between patients and the healthy group in both, depression ($F_{(1, 1150)} = 603.527$, $p < .001$) and MBI burnout ($F_{(1, 1150)} = 693.601$, $p < .001$). Depressive ($M = 22.77$, SD = 11.11) as well as burnout symptomatology ($M = 50.44$, SD = 15.75) in the sample of depressed patients significantly exceeded the values in the control group (depression: $M = 8.84$, SD = 7.92; burnout: $M = 26.06$, SD = 14.49) on both variables.

3.2. Control of sex and age

Next, it was tested whether age and sex had an impact on depression, burnout, or the number of stressful life events. With respect to sex, there was a significant effect on the MBI subscale cynicism in both samples (controls: $F_{(1, 753)} = 5.613$, $p = .018$; patients: $F_{(1, 394)} = 7.722$, $p = .006$) with higher scores in the male (controls: $M = 8.57$, SD = 6.94; patients: $M = 17.58$, SD = 7.25) than in the female (controls: $M = 7.42$, SD = 6.26; patients: $M = 15.32$, SD = 7.81) subsamples. Furthermore, there was a significant difference between males ($M = 20.36$, SD = 10.97) and females ($M = 23.96$, SD = 11.00) on BDI depression in the clinical sample ($F_{(1, 395)} = 9.549$, $p = .002$). Age was only significantly associated with the number of stressful life events ($r = .203$, $p < .001$) in the healthy sample, but not in the clinical sample. However, age was weakly, but significantly associated with depression ($r = -.125$, $p = .012$) and with burnout ($r = -.113$, $p = .025$) in the clinical subgroup. Hence, for analyses including the afflicted variables, age and sex were considered as covariate (age) or second fixed factor (sex) respectively.

3.3. Burnout and depression

Because cynicism was significantly related to sex, correlations between burnout subscales and BDI 2 depression score were computed separately for both sexes and correlation coefficients were compared by means of z-statistics (for procedure see Montag & Reuter, 2008). As there were no significant differences in the heights of correlation coefficients between males and females, only coefficients of the total samples are reported (see Table 1). Correlations between the total MBI score and BDI 2 depression score were $r = .613$ ($p < .001$) in the healthy sample and $r = .456$ ($p < .001$) in the depressed sample.

3.4. Stressful life events, burnout, and depression

When correcting for age, number of stressful life events was correlated with BDI 2 depression scores and MBI emotional exhaustion scores in both samples. The association with MBI Cynicism did not reach significance in any of the subsamples (Table 2). In the control sample, the total MBI score was weakly, but significantly correlated with the number of experienced stressful life events whereas there was a significant, but small association between SLE and MBI Efficacy in the clinical group. Correlation coefficients were compared by means of z-statistics. In the control group, the association between BDI 2 and stressful life events did not differ from the association between MBI emotional exhaustion and number of stressful life events ($z = 1.60$, $p = .111$), but there was a significant difference regarding the association between number of stressful life events and BDI 2 or total MBI score respectively ($z = 3.01$, $p = .003$) indicating a closer relation between depression and number of stressful life events than between burnout and number of stressful life events. Comparison of correlations in the clinical sample revealed similar results with significantly different coefficients between SLE-BDI 2 and SLE-MBI total score ($z = 3.41$, $p = .001$). The

Table 1
Correlations between MBI subscales emotional exhaustion (EE), cynicism (CY) and efficacy (EF) and BDI 2 depression score. (Controls: top line, black colored; patients: bottom line, gray colored.).

N = 755	MBI EF	MBI CY	MBI total	BDI 2
N = 397		r (p)		
MBI EE	.187 (< .001)	.606 (< .001)	.802 (< .001)	.571 (< .001)
	.156 (.002)	.423 (< .001)	.682 (< .001)	.372 (< .001)
MBI EF		.312 (< .001)	.627 (< .001)	.296 (<.001)
		.312 (< .001)	.692 (< .001)	.342 (< .001)
MBI CY			.851 (< .001)	.521 (< .001)
			.806 (< .001)	.294 (< .001)
MBI total				.613 (< .001)
				.456 (< .001)

relationships between life stress – depression and life stress – MBI emotional exhaustion also reached significance in the clinical sample ($z = 1.99$, $p = .047$).

However, when associations between life stress and depression or life stress and burnout were additionally corrected for one another, the association between depression and life stress remained significant whereas MBI emotional exhaustion was no longer related to life stress in both samples. Contrarily, MBI efficacy and MBI total score were associated with number of stressful life events when correcting for age and depression (Table 2). Comparison of these partial correlation coefficients by means of z-statistics revealed a significant difference in life stress – depression association and life stress – efficacy association (controls: $z = 7.12$, $p < .001$; patients: $z = 6.67$, $p < .001$) as well as a significant difference in life stress – depression and life stress – total burnout score association (controls: $z = 6.26$, $p < .001$; patients: $z = 5.53$, $p < .001$).

3.5. The relation between life stress, depression, and burnout in the healthy vs. in the clinical sample

In the very last step, we investigated whether there is a difference in the associations reported above between the healthy and the clinical sample. Therefore, we conducted a series of path analyses by means of the LISREL software package (Science Software International, Inc.) (Fig. 1). At first, we fitted the path model portrayed in Fig. 1 in each subsample separately to estimate the path-coefficients. Both models were saturated and therefore had a
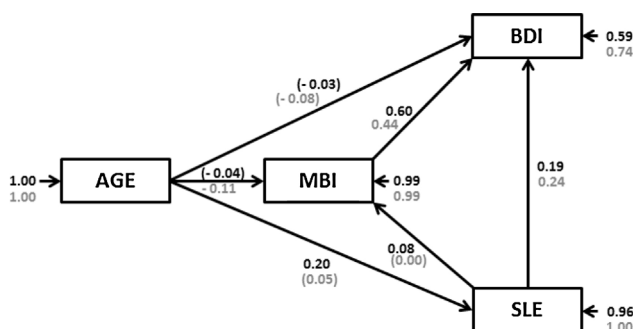

Fig. 1. The influence of AGE and stressful life events (SLE) on burnout (MBI) and depression (BDI): Integrated results of the path analyses calculated for both samples independently. Saturated models with perfect fit. (Coefficients in black: controls; coefficients in gray: patients; nonsignificant coefficients in brackets.)

perfect fit. Second, we conducted a multiple group analysis, estimating all coefficients in the control sample and setting the paths in the patients' sample as invariant. The fit of the multiple group analysis was excellent ($Chi^2 = 10.88$, df = 6, $p = .092$; RMSEA = 0.038; CFI = 0.99). Third, we stepwise set all paths invariant one after another (but only one at a time) in the patient sample and calculated Chi^2 and RMSEA values for the resulting models. There was no significant Chi^2-difference between the healthy and the clinical sample in any of the paths defined in our models (Table 3) indicating the same underlying relations between age, life stress, burnout, and

Table 2
Correlations between stressful life events (SLE) and burnout/depression when correcting for age, depression and age or burnout and age respectively.

N = 755	MBI EE	MBI EF	MBI CY	MBI total	BDI 2
N = 397			r (p)		
SLE age	.158 (< .001)	-.044 (.233)	.069 (.060)	.086 (.018)	.237 (< .001)
	.104 (.040)	-.102 (.045)	.020 (.690)	.003 (.956)	.241 (< .001)
SLE age, depression	.028 (.440)	-.122 (< .001)	-.066 (.070)	-.078 (.034)	-
	.020 (.693)	-.198 (< .001)	-.052 (.312)	-.119 (.019)	
SLE age, burnout	-	-	-	-	.240 (< .001)
					.269 (< .001)

Table 3
All defined paths are tested one by one for significant differences between the healthy and the depressed sample.

Model	Chi^2	df	p	RMSEA	$p(\Delta$Chi$^2)$
All free	0	0	1.000	0.000	
MBI $\rightarrow$ BDI	0.21	1	0.65036	0.000	0.64
SLE $\rightarrow$ BDI	1.92	1	0.16566	0.040	0.17
SLE $\rightarrow$ MBI	1.95	1	0.16257	0.041	0.16
AGE $\rightarrow$ BDI	2.23	1	0.13535	0.046	0.14
AGE $\rightarrow$ MBI	2.15	1	0.14303	0.045	0.14
AGE $\rightarrow$ SLE	2.46	1	0.11672	0.051	0.12

depression independent of group status (patients/controls). Finally, the path models showed for both groups that the association between SLE and depression is still significant when controlling for age and burnout.

4. Discussion

Because of the sustained debate regarding the distinctiveness of burnout and depression and due to the lack of a conclusive definition of this construct, the aim of the present study was to test whether life stress accounts for the relationship between depression and burnout. As there is the widespread assumption that depression arises from and affects many areas of life, whereas burnout is – not only but mainly – restricted to job stressors (Hakanen & Schaufeli, 2012), we assessed experienced life stress in a large sample of employed adults and in a sample of depressed inpatients who were not employed during participation. We hypothesized that both constructs are related, but that the number of stressful life events is closer related to depression than to burnout.

In our data, we found a moderate correlation between burnout and depression, which is quite similar to that reported by Toker et al. (2005) who found correlation coefficients of about $r = .50$ between burnout and depression for men and for women. With an amount of about 36% of shared variance in the healthy control sample, we found a closer relation than other authors suggested in the past (e.g., Iacovides et al., 2003). However, the association was still moderate which means that important shares of variance were not equal for both constructs. Furthermore, correlations of the three MBI subscales drew the typical picture of closest relation between depression and emotional exhaustion and lowest association between depression and reduced efficacy. These findings are in line with shared variance estimates by Schaufeli and Enzmann (1998), who found an overlap with depression of 12–38% (emotional exhaustion), 2–29% (depersonalization), and 3–20% (reduced efficacy) respectively. In the clinical sample, there was an amount of shared variance of about 20%, which meets the shared variance estimates of the literature very well. Worthy of note, Bianchi et al. (2014) also reported similar correlations between depression and burnout for their whole sample but report a much closer relation when only taking highly burned-out participants into account. They argue that the fact that most studies only include healthy participants might lead to an underestimation of the correlation between burnout and depression as these results cannot be generalized to a clinical setting. However, our data suggest the same underlying mechanisms in the healthy as well as in the inpatient depressed sample questioning this assumption. Moreover, the correlation between both constructs was smaller in the depressed sample than in the healthy sample ($r = .456$ vs. $r = .613$).

We found significant associations between the number of stressful life events and depression in both samples, whereas burnout was only related to life stress in the healthy group. When comparing the correlation coefficients, there was a significant difference in the strength of association indicating that life stress is closer related

to depression than to burnout. The emotional exhaustion dimension was related to the number of stressful life events, whereas the association between life stress and cynicism missed significance. Reduced efficacy was weakly related to life stress only in the sample of depressed patients. An association between life stress operationalized as childhood trauma and fatigue, which is quite similar to the emotional exhaustion component of burnout, has recently been found by Borsini, Hepgul, Mondelli, Chalder, and Pariante (2013). Similarly, Carlier, Lamberts, and Gersons (1997) found a significantly increased level of emotional exhaustion in policemen that had experienced traumatic events and suffered from PTSD. An explanation for the association between life stress and emotional exhaustion is that it is the burnout dimension with the closest relation to depression (Ahola et al., 2005; Nyklicek & Pop, 2005; Peterson et al., 2008) while depression is indubitably related to life stress. This explanation is furthermore supported by our own data, because after correcting the association between MBI emotional exhaustion and critical life events for depression, the correlation between both variables is no longer significant in both samples.

When correlations of number of stressful life events were corrected for the association between depression and burnout, there only remained a substantial association with depression, whereas the association between life stress and burnout was – albeit significant – close to zero indicating that burnout is mainly related to life stress by its close relation to depression and not by itself. Hence, when potentially mediating effects are not considered in the relation between either depression or burnout and other constructs, the similarity between both syndromes might be overestimated. To further investigate this assumption, we also set up path analyses for both samples. Again, the association between stressful life events and depression was significant in both samples whereas the path from life stress to burnout was much smaller in the healthy group and did not even reach significance in the patients. Moreover, we used the path models to compare the respective associations between the observed variables in our samples. There were no differences in any of the defined paths so that we suggest the same underlying associations between life stress, depression, and burnout in both samples. These associations therefore seem to be valid for the whole continuum, from the normal/healthy range to psychopathology. We also considered that – because most patients were diagnosed according to the definition of depression (as burnout is no valid ICD-10 diagnosis) – it could be possible that both samples would not differ concerning their burnout scores. When comparing our samples on both variables, we found not only a significant difference in depression with patients scoring significantly higher but also in burnout symptoms in the same direction, i.e. the clinical sample having a higher mean value on MBI as compared to the healthy sample. Taken together, the results in the clinical sample can be seen as an independent replication for the found relations between life stress, depression, and burnout found in the healthy sample. Therefore, results indicate that these associations can also be applied to participants in a psychopathological context.

Nevertheless, assessment of stressful life events has been subject of discussions for a long time as it is mostly operationalized by self-report scales asking for experiences of specific events. This procedure neglects subjective ratings of what is considered as stressful: One might rate the sudden death of a goldfish as traumatic or stressful, whereas others might not classify their heart attack as "serious" and, therefore, not as stressful (Monroe & Reid, 2008; Monroe & Roberts, 1990). Therefore, the problem arises that participants might report a parental divorce or the death of a pet even though it was not traumatic if they are just asked, whether they have experienced a particular life event or not. Because of the individual differences in perceived life stress when experiencing particular events, the assessment of life stress is not valid, as

subjective burden in sense of life stress is not measured, but the objective experience of potentially burdening events. Hence, the validity of life stress assessment might be questioned. This should be considered in future research. A further limitation is that our study is cross-sectional. In future, one could think of controlling for the elapsed time of the particular SLEs. Alternatively, a longitudinal study could be conducted with the first measurement at the earliest possible time to capture the predictive power of SLEs over the life span. Results show that life stress is related to both burnout and depression. This effect may be caused by the temporal overlap between burnout and depression. This could also be clarified by a longitudinal study investigating the relation between all three variables dependent on time. When burnout is seen as a prodromal syndrome of depression (e.g., Iacovides et al., 2003), it is possible that parts of the burnout – life stress association basically represent the depression – life stress association at an earlier stage. This would in turn question the existence or distinctiveness of burnout itself. Longitudinal data could shed more light on this issue by observing the development of the associations reported here during a potential shift from burnout to depression over time. But if so, the explanation is still missing why the depression – life stress association gets closer over time or with growing severity of depression. This would suggest differential and unique aspects of burnout – independent of whether it is a preceding syndrome of depression or not.

This study tried to provide further evidence regarding the relation between depression and the burnout syndrome. Therefore, the relation of stressful life events to both depression and burnout was measured. First of all, our data suggest an overlap of both syndromes that is in line with previous findings (Schaufeli & Enzmann, 1998). With respect to life stress, we found an association between the number of experienced stressful life events and burnout that was – as hypothesized – weaker than the relation between depression and life stress. Hence, our data support the assumption that depression afflicts all areas of life whereas burnout has a rather specific scope even though it has parallels to depression. This seems to hold for the healthy population as well as for depressed patients.

Conflict of interest

Acknowledgements

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