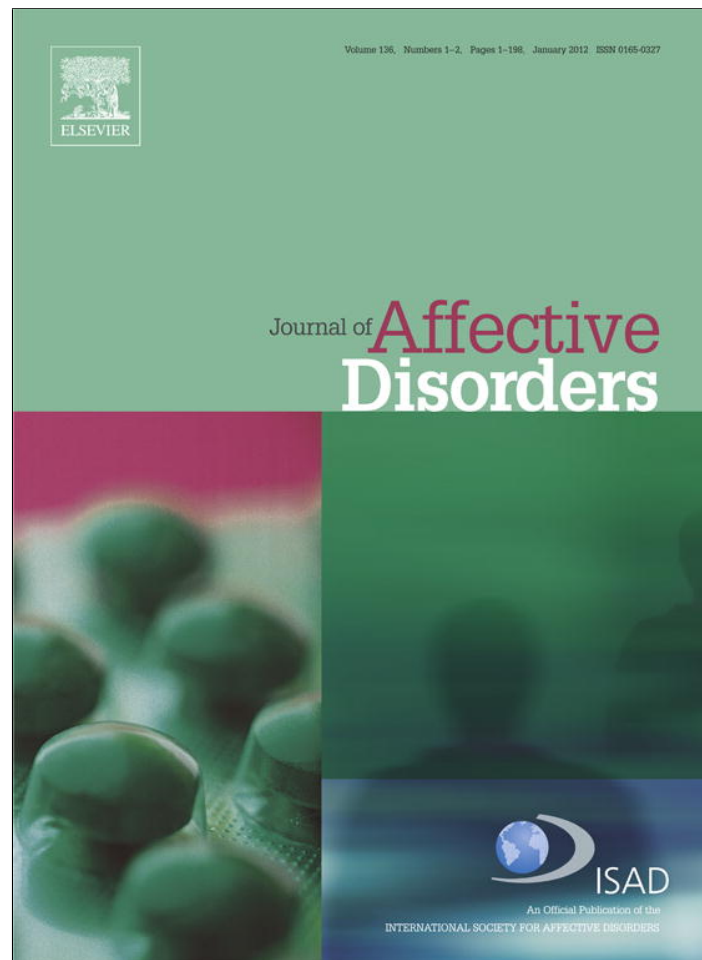


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Research report

The relationship between burnout and depressive symptoms in patients with depressive disorders



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ABSTRACT

Background: Burnout – physical or psychological fatigue in the personal, work and client-related work domains – appears to share numerous overlapping characteristics with major depressive episodes. However, whether burnout and depression are in fact separate conditions is still ambiguous. Our aim was to examine burnout in a clinically depressed patient sample.

Methods: Outpatients with a DSM-IV depressive episode (major depressive episode and dysthymic disorder) completed the Copenhagen Burnout Inventory (CBI) and the Quick Inventory for Depressive Symptomatology, Self-Rated (QIDS-SR). The relationship between CBI-defined burnout and depressive symptoms was examined using correlation and hierarchical multiple regression analyses.

Results: Depressed patients had high rates of CBI-defined burnout as well as significant correlations between burnout scores and overall depression severity scores. Individual depressive symptoms were significantly higher between patients with and without burnout, and significantly correlated with burnout scores, with the exception of guilt/worthlessness. Multiple regression analysis identified changes in sleep and fatigue as significant predictors of burnout.

Limitations: The main limitations of the study were the sample size, the broad definition of depression, and the cross-sectional design.

Conclusions: The high burnout scores and correlations between burnout and depression severity observed in this study highlight the importance of understanding burnout in depressed patients. Despite the significant overlap between burnout and depression, the relationship between these two concepts still requires further clarification.

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1. Introduction

Major Depressive Disorder (MDD) is a highly prevalent psychiatric condition with heterogeneous presentations. Common symptoms of depression include low mood, anhedonia, fatigue, psychomotor retardation, and sleep disturbances. Several of these symptoms overlap with burnout, which is a syndrome that manifests as fatigue, sleep changes, headaches, hopelessness/helplessness, anxiety, reduced self-esteem, behavioral changes and interpersonal disturbances in individuals whose emotional resources become depleted under the burdens of his/her work (Freudenberger, 1974; Seti, 2008). In fact, Freudenberger (1974), who first coined the term in 1974, described a burned-out worker as somebody who “looks, acts and seems depressed”. Initially identified in human services sector workers, burnout has since been observed in numerous other occupations (Schutte et al.,

2000). The burnout syndrome is etiologically complex, with work environments, personalities, motivation and personal attitudes all contributing to various degrees towards the development of symptoms as well as the subsequent personal, occupational and socioeconomic fallout (Iacovides et al., 2003).

Despite the widely accepted view that some type of connection exists between burnout and depression, efforts to further clarify and empirically define this relationship have been met with conflicting findings and diverging views. Burnout and depression are usually regarded as separate constructs in spite of the significant similarities. Burnout is generally thought of as a strictly work-related phenomenon whereas depression is thought of as pervasive and context-independent (Bakker et al., 2000; Maslach et al., 2001). It is possible that burnout and depression result from similar processes that occur in different contexts. Burnout and depression are both related to a lack of reciprocity, but in occupational domains and in intimate relationships, respectively (Bakker et al., 2000). It has also been suggested that burnout is a prodromal phase in the development of a Major Depressive Disorder (Ahola et al., 2005; Iacovides et al., 2003). A cross-sectional study using the data from the Finnish

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Health 2000 Study demonstrated that 52.9% of those with severe burnout had a depressive disorder, and that recent depressive episodes (in the past month) are correlated with a higher prevalence of severe burnout. The authors concluded from these data that burnout and depression are related but separate concepts (Ahola et al., 2005). Other studies have also supported similar views, identifying a moderate correlation and shared variances of around 20% between the two conditions, possibly due to co-development (Iacovides et al., 2003).

However, a more recent study demonstrated that the symptomatology of depression and burnout are virtually indistinguishable on both the overall depression score and the scores on the nine criteria-defining symptoms of depression (Bianchi et al., 2013). Moreover, symptoms that are pervasive and affect the subjects' experiences outside the workplace – sleep changes, cognitive impairment, and suicidal ideation – have been observed in people with burnout (Bianchi et al., 2013; Sandstrom et al., 2005). In addition, burnout has also been correlated with general traumatic life events (Mather et al., 2014). These findings challenge the notion that burnout and depression are separate entities that develop from experiences in different spheres of life, and highlight the need to further examine the extent to and the manner in which burnout and depression are related.

To date, the majority of the research on depression and burnout has studied populations who are in specific occupations and who have relatively low prevalence of depression and burnout. Very few have specifically examined the phenomenon of burnout in populations with clinical depression. Therefore, our study aims to explore the extent to which depression symptoms are correlated with and explain burnout in a sample of subjects with clinically established depressive symptoms from all types of occupational backgrounds. We conducted our study within the framework of burnout as a state of general, work-related, and client work-related exhaustion and fatigue, using the Copenhagen Burnout Inventory.

2. Methods

2.1. Study participants

This chart review study was approved by the Clinical Research Ethics Board of the University of British Columbia. Participants were taken from consecutive patients ($N=127$) referred by family physicians and psychiatrists to the UBC Mood Disorders Outpatient Clinic. Diagnoses were made by board-certified psychiatrists using clinical interviews supplemented by symptom and criteria checklists. Only subjects who fulfilled the following inclusion criteria ($N=77$) were part of the analysis: 1) completed QIDS-SR and CBI questionnaires, 2) provided information about occupational status, and 3) had clinically significant depression, defined as a diagnosis of Major Depressive Disorder, dysthymic disorder or Bipolar Disorder, depressed, and/or a QIDS-SR total score of 11 or higher. Table 1 summarizes the characteristics of the participants. Mean age of the participants was 41.6 ($SD=13.4$) years.

2.2. Questionnaires

Participants completed the Copenhagen Burnout Inventory (CBI) and the Quick Inventory of Depressive Symptomatology, Self-Rated (QIDS-SR) as a part of their initial clinical assessment at the outpatient Mood Disorders Clinic.

2.2.1. QIDS-SR

The QIDS-SR is a self-rated scale used to determine the profile and severity of depressive symptoms (Rush et al., 2003). It has been validated and widely used as a clinical symptom rating tool. There are

Table 1

Characteristics of the participants ($N=77$).

Characteristic	N (%)
<i>Sex</i>	
Male	30 (39)
Female	47 (61)
<i>Primary diagnosis</i>	
Major Depressive Disorder	56 (72.7)
Bipolar Disorder, depressed	12 (15.6)
Dysthymic disorder	2 (2.6)
Other	7 (9.1)
<i>Medications</i>	
Antidepressants	46 (59.7)
Mood stabilizers	14 (18.2)
Atypical antipsychotics	15 (19.5)
<i>Occupations</i>	
Unemployed/disability/retired	17 (22.1)
Student	1 (1.3)
Executive/administrative	3 (3.9)
Professional	8 (10.4)
Technical support	7 (9.1)
Sales	5 (6.5)
Clerical/administrative support	11 (14.3)
Service	5 (6.5)
Precision production/crafts	3 (3.9)
Operator/laborer	6 (7.8)
Other	11 (14.3)
<i>Client-based occupations</i>	
Yes	33 (55.9)
No	26 (44.1)
Unknown	5 (8.9)

16 questions that assess the nine criterion symptoms of depression – depressed mood/irritability, decreased interest/pleasure, change in weight/appetite, change in sleep, change in activity, fatigue/low energy, feelings of worthlessness/guilt, reduced concentration and suicidality. Scores of 0–10 indicate normal or mild depression; 11–15 indicate moderate depression; 16–20 indicate severe depression; ≥ 21 indicate very severe depression. The QIDS-insomnia score is calculated from the first four items while the QIDS-atypical symptoms score is calculated from items 4, 7, 9 and 15.

2.2.2. The Copenhagen Burnout Inventory (CBI)

The Copenhagen Burnout Inventory (CBI) was developed using the data from the Danish PUMA study on burnout among human service workers in Copenhagen, and includes 19 questions categorized into three subscales (Kristensen et al., 2005). The CBI is based on the idea that burnout is primarily a condition of personal and work-related exhaustion. The Personal burnout subscale contains 10 questions that assess the level of fatigue or exhaustion regardless of occupational status. It includes questions such as “How often do you feel tired?” and “How often do you think: I can't take it anymore?”. The second subscale measures Work-related burnout, which is defined as “the degree of physical and psychological fatigue and exhaustion that is perceived by the person as related to his/her work”. The third subscale measures Client-related burnout, which is defined as “the degree of physical and psychological fatigue and exhaustion that is perceived by the person as related to his/her work with clients” (Kristensen et al., 2005). All questions, except for “Do you have enough energy for family and friends during leisure time?”, are keyed in the same direction. Responses for each item are rated as “never/almost never”, “seldom”, “sometimes”, “often” or “always”. The labels are recoded in increments of 25, with 0 being the equivalent of “never/almost never” and 100 being the equivalent of “always”.

Higher scores indicate more severe burnout. As per the PUMA trial, degree of burnout is considered “high” if the scores are greater than 50 (Borritz and Kristensen, 2004). The CBI Client questions are meant to be modified for specific professions, with terms such as “patients” or “students” replacing the term “client” as appropriate. However, due to the variety in the types of professions in this study, the original questions were not modified, and the term “client” is used universally. A General burnout score was calculated as the average of the three CBI subscales (Milfont et al., 2008).

2.3. Statistical analysis

Descriptive statistics, Pearson correlations and multiple regression analyses were carried out using the SPSS statistics software package (IBM Corp., 2013). Level of significance was set at .05. Data are summarized as means ± standard deviation (SD).

3. Results

In the full sample with both working and non-working subjects (N=77), the mean QIDS-SR total score was 14.9 (SD=5.5). The mean CBI Personal burnout score was 64.5 (SD=19.7). 81.8% (N=63) of the sample were considered highly burned out according to these

scores. For subjects who were currently working (N=59), the mean CBI Work burnout score was 56.8 (SD=19.8). 71.2% (N=42) were highly burned out due to their work. Of the 59 subjects who were working, 56 completed the CBI Client questions. The mean CBI Client burnout score was 42.1 (SD=25.2), and 40.7% (N=24) indicated that they were burned out from working with clients.

Of the total sample, 83.1% (N=64) experienced high burnout in at least one domain. Fig. 1 shows the mean scores for each symptom item from the QIDS-SR and the total scores, in those with and without high burnout in any of the three subscales. Burned-out patients report statistically higher scores in all depressive symptoms except guilt/worthlessness ($t(75) = -.49, p=.62$).

In a correlation analysis, the QIDS-SR total scores were significantly correlated with all three CBI subscales, with Pearson's $r(75)=.73, p<.01$ for CBI Personal, $r(57)=.55, p<.01$ for CBI Work, and $r(54)=.32, p<.05$ for CBI Client. Correlation scores were also obtained for CBI scores, QIDS-SR sub-scores and individual depression symptom scores (Table 2). CBI Personal scores had significant positive correlations with QIDS-insomnia score, QIDS-atypical symptoms score and all depression symptom scores except for “Feelings of guilt/worthlessness”, with Pearson's r values ranging from .29, $p<.05$ to .66, $p<.01$. In the working population, CBI Work scores were positively correlated with the QIDS-atypical symptoms score, and all depression symptoms

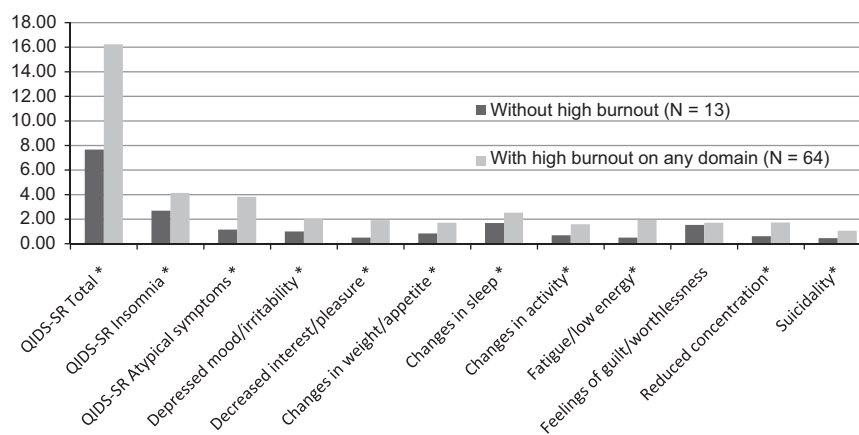


Fig. 1. Comparison of depressive symptoms in patients with and without high levels of burnout. All differences statistically significant ($p < .05$) by t -tests, except feelings of guilt/worthlessness.

Table 2
Correlation matrix for CBI subscale scores, QIDS-SR scores and depression symptom scores.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. CBI Personal score	–														
2. CBI Work score	.67***	–													
3. CBI Client score	.42**	.65***	–												
4. QIDS-SR total score	.73***	.55***	.32*	–											
5. QIDS-insomnia score	.36**	.12	.06	.38**	–										
6. QIDS-atypical symptoms score	.43***	.39**	.30*	.57***	.05	–									
7. Depressed mood/irritability	.58***	.42***	.25	.73***	.32**	.24*	–								
8. Decreased interest/pleasure	.54***	.47***	.20	.70***	.11	.44***	.40***	–							
9. Change in weight/appetite	.29*	.27*	.23	.49***	.06	.63***	.16	.25*	–						
10. Change in sleep	.54***	.36**	.27*	.58***	.72***	.16	.45***	.23*	.07	–					
11. Change in activity	.40***	.27*	.14	.66***	.12	.35**	.27*	.55***	.23*	.30**	–				
12. Fatigue/low energy	.66***	.51***	.31*	.69***	.25*	.46***	.51***	.55***	.21	.32**	.38**	–			
13. Guilt /worthlessness	.22	.11	–.03	.56***	.20	.17	.38**	.18	.22	.32**	.18	.17	–		
14. Reduced concentration	.53***	.52***	.20	.70***	.30**	.28*	.55***	.50***	.13	.34**	.44***	.61***	.29*	–	
15. Suicidality	.41***	.20	.32*	.55***	.21	.39***	.41***	.22	.30**	.36**	.31**	.21	.23*	.17	–
Mean	64.5	58.5	42.1	14.9	3.9	3.4	1.8	1.7	1.6	2.4	1.4	1.7	1.7	1.6	1.0
SD	19.7	19.9	25.2	5.5	2.4	2.7	1.0	1.1	1.2	.8	1.0	1.0	1.1	.9	.9

*** $p < .001$.
** $p < .01$.
* $p < .05$.

except for change in weight/appetite, feelings of guilt/worthlessness and suicidality, with Pearson's *r* values from .33, *p* < .05 to .56, *p* < .01. The CBI Client score positively correlated with the QIDS-atypical symptoms score, change in sleep, fatigue/low energy, and suicidality.

To test for the independent contributions of each of the nine depressive symptoms to the General burnout score, a multiple regression analysis was conducted. Patients' age, sex, medications, primary diagnosis, and occupation were included as covariates. The omnibus test of the model was significant ($F(16, 58)=5.18, p < .001$), with $R^2_{adjusted}=.48$. In particular, two depressive symptoms were found to be significant predictors of General burnout: fatigue/low energy ($\beta=.25, t=2.05, p=.045$) and changes in sleep ($\beta=.29, t=2.59, p=.012$) (Table 3).

To further explore the relationship between depressive symptoms and General burnout, a hierarchical multiple regression analysis was conducted. First, the original covariates were entered ($F(7, 67)=.75, p=.63, R^2=.07$). In the next block, changes in sleep ($\beta=.36, t=3.61, p=.001$) and fatigue/low energy ($\beta=.49, t=5.29, p < .001$) were entered as predictors, which significantly improved the model ($\Delta F(2, 65)=30.24, p < .001, \Delta R^2=.45$). Finally, the

remaining seven depressive symptoms were entered as predictors in the next block, which did not significantly improve the overall model ($\Delta F(7, 58)=1.39, p=.23, \Delta R^2=.07$). Multicollinearity tests showed low co-linearity between depressive symptoms ($VIF < 5.00$) (Table 4).

4. Discussion

In this study, we aimed to examine the nature of the relationship between burnout and depression in a sample of working people presenting with depressive episodes at an outpatient Mood Disorders Clinic using the QIDS-SR and the CBI. To our knowledge, this is the first study to examine burnout in a group of patients with clinical depression. Compared with previous studies focusing on specific occupations, where the prevalence of significant burnout was usually approximately 20% (Ahola et al., 2005; Borritz and Kristensen, 2004), 40.7% of patients in our study were burned out from working with clients, 71.2% were burned out from their work, 81.8% suffered from a general sense of exhaustion, and 83.1% were feeling burned out in at least one domain. Moreover, there was also a higher correlation between depression and burnout than reported in earlier studies (Bakker et al., 2000). This suggests that compared to the general population, burnout could be far more prevalent and have more serious implications in terms of psychiatric consequences in patients with depression. In general, burned-out patients had higher overall depression severity scores and scores in all depression symptoms except "feelings of guilt and worthlessness". This was supported by the correlation results, where we found a strong positive correlation between overall depression scores as well as both overall exhaustion, exhaustion due to work, and exhaustion from working with clients. All depression symptoms except "feelings of guilt/worthlessness" correlated positively with CBI Personal scores. This corroborated the findings from an earlier comparison of depressive symptoms in burned out and depressed patients, where all but "self-blame" were indistinguishable in the two groups (Bianchi et al., 2013). This suggested that it was possible that depressive patients who were burned out were likely to have more severe symptoms, including symptoms that could impact functioning outside of the workplace, such as changes in sleep, concentration, anhedonia and depressed mood.

Table 3
Summary of multiple regression analysis for variables predicting General Burnout ($N=77$).

Variables	B	β	t	Sig.
Sex	5.40	.14	1.39	.17
Intake age	-.043	-.030	-.32	.75
Antidepressant	-1.30	-.78	-.41	.69
Mood stabilizer	1.96	1.18	.45	.66
Antipsychotic	-.87	-.53	-.21	.84
Primary diagnosis	.23	.19	1.98	.052
Occupation	-.37	-.078	-.86	.39
Depressed mood/irritability	1.59	.079	.63	.53
Decreased interest/pleasure	2.69	.15	1.26	.21
Change in weight/appetite	2.34	.14	1.48	.14
Change in sleep	7.54	.29	2.59	.012
Change in activity	-.72	-.037	-.33	.74
Fatigue/low energy	4.96	.25	2.05	.045
Feelings of guilt/worthlessness	-2.41	-.15	-1.49	.14
Reduced concentration	4.46	.20	1.48	.14
Suicidality	1.46	.068	.63	.53

Table 4
Summary of hierarchical regression analysis for variables predicting General Burnout ($N=77$).

Variable	Model 1			Model 2			Model 3		
	B	β	t	B	β	t	B	β	t
Sex	4.36	.11	.86	6.30	.16	1.62	5.40	.14	1.39
Intake age	-.19	-.13	-1.03	-.091	-.064	-.68	-.043	-.030	-.32
Antidepressant	2.60	1.56	.61	.093	.056	.029	-1.30	-.78	-.41
Mood stabilizer	-4.15	-2.50	-.74	-.94	-.56	-.23	1.96	1.18	.45
Antipsychotic	1.38	.83	.26	.58	.35	.16	-.87	-.53	-.21
Primary diagnosis	.12	.10	.85	.28	.23*	2.47	.23	.19	1.98
Occupation	-.53	-.11	-.92	-.26	-.055	-.61	-.37	-.078	-.86
Change in sleep				9.32	.36*	3.61	7.54	.29*	2.59
Fatigue/low energy				9.60	.49**	5.29	4.96	.25*	2.05
Depressed mood/irritability							1.59	.079	.63
Decreased interest/pleasure							2.69	.15	1.26
Change in weight/appetite							2.34	.14	1.48
Change in activity							-.72	-.037	-.33
Guilt/worthlessness							-2.41	-.15	-1.49
Reduced concentration							4.46	.20	1.48
Suicidality							1.46	.068	.63
R ²	.07			.52			.59		
F for change in R ²	.75			30.24**			1.39		

* *p* < .05.
** *p* < .001.

Interestingly, burnout domains related specifically to work—measured using CBI Work and CBI Client subscales—were less closely associated with depression. Amongst the depressed patients in our study, a significantly smaller proportion reported feeling exhausted from work or client-related work compared to experiencing a general sense of physical or psychological fatigue. One possible explanation for this difference could be the phrasing of the questions in the scales. The CBI Work and Client subscales contain questions such as “Do you feel burnt out because of your work?” and “Does it drain your energy to work with clients?”. Such questions imply causality and ask the subjects to attribute their sense of fatigue or exhaustion to their work (Yeh et al., 2007). It may be difficult for patients clinically diagnosed with mood disorders that can cause symptoms of low energy to distinguish whether their fatigue was caused by their psychiatric conditions or their work. The CBI Work and Client scores could have been lower than the CBI Personal scores if the subjects attributed some portion of their exhaustion to their illnesses. Furthermore, in addition to lower correlation coefficients with the QIDS-SR total score, CBI Work scores were only significantly correlated with seven of the major symptoms of depression and CBI Client scores with only three. CBI Client scores did not appear to correlate with anhedonia and depressed moods, which are considered the hallmark symptoms of depression. Several studies have already demonstrated the distinctness of burnout in the three domains based on differences in long-term progression and job characteristics (Borritz et al., 2005; Yeh et al., 2007). Results of our study suggested that such distinctness may include how they relate to depression. While burnout in the personal domain closely overlapped depression, burnout specifically related to work (or at least attributed to work by the person) could be a more distinct phenomenon from depression. In particular, it is possible that some aspects of working with clients can lead to a type of physical or psychological fatigue that is not associated with a higher risk of affective disturbance.

The multiple regression and hierarchical regression analyses were carried out using a General burnout score calculated from averaging the three CBI subscale scores. The results suggested that the syndrome of depression could explain 48% of the variance in General burnout scores. As one would expect from the definition of burnout as physical and psychological exhaustion, the depressive symptom of fatigue and low energy was a strong predictor of General burnout scores. The only other significant predictor was sleep disturbance which, intuitively, could reduce daytime energy levels and contribute to the feelings of being exhausted. The lack of significant contribution from other depressive symptoms to the prediction model could imply a closer relationship between burnout and the more physical aspects of depression rather than the affective aspects. This was certainly an interesting observation that could be further explored through factor analysis studies in the future. The General burnout score as calculated from the average of the three CBI domains was introduced in a reliability and validity study of the CBI in New Zealand teachers, where the possibility of combining the subscores was supported by the high intercorrelations between the items and the acceptable fit for the second-order factor analysis (Milfont et al., 2008). High correlation coefficients of .67 and .42 were also observed in our study. However, while the General burnout score may capture the overall burnout of an individual, it does little to illustrate the distinctiveness of the three domains, including the differential relationships with depression. Moreover, given the limited sample size for the New Zealand study, further research may be necessary to establish the General burnout score as an acceptable metric to combine the three CBI domains.

The primary limitations to our study were the small sample size and the cross-sectional design, which precludes any conclusions

about causality relationships between depression and burnout. In addition to contributing to possible instabilities in our correlation and regression analyses, a small sample size also restricted us in terms of the types of statistical tests we were able to carry out. For future studies, the sample size could be increased by extending the period of data collection and ensuring completion of questionnaires by patients. With a larger sample size, it may also be helpful to use factor analysis studies to determine whether the overlap between depression and burnout observed here is due to similarities in constructs or in wording of items on the rating scales. Moreover, there were a few potential issues related to the administration of the CBI Client questionnaire. No definition of “clients” or “client-related work” was provided to subjects initially, and the CBI Client questions were not customized for each type of occupation. In fact, no clear definition of “client work” was provided by the initial PUMA study. In our study, almost all working patients filled out the CBI Clients questions, including those working in the fields of clerical/administrative support, precision/crafts and operations/labor. Given the lack of further information regarding their work conditions, it was vague who the “clients” served by the patients would be. This uncertainty could significantly affect the interpretation of the CBI Clients data. This problem could indicate a potential problem with using the CBI in situations that preclude the customization of the CBI Clients questions, such as studies in subjects from a wide variety of occupational backgrounds. In addition, this study was carried out using a broad set of inclusion criteria for clinical depression based on both primary diagnoses and high QIDS-SR scores. While this allowed us to examine the overall concept of depression rather than a specific disorder, differences between unipolar and bipolar depression as well as psychiatric comorbidities could have been confounding factors. This analysis could be used as a launching point for future studies done in patients with specific mood disorders.

The high prevalence of burnout and the strong correlations between burnout and depression observed in this study is significant because compared to patients with other types of chronic conditions, most patients with depressive symptoms remain in the workforce (Lam et al., 2013). In addition to absenteeism, increased disability claims and unemployment, presenteeism – workers being present at work with reduced performance – is also a significant source of the depression-related burden of disease (Bender and Farvolden, 2008). While depression treatments such as antidepressants and cognitive behavioral therapy have been shown to reduce symptoms and improve work function (Lam et al., 2013), clinical improvements do not always translate to recovery of productivity (Bender and Farvolden, 2008). It is possible that burnout could help explain some of the residual work dysfunction and other work-related issues seen in depression. In this context, the variations seen in the degree to which depression relates to the three domains of burnout could be a promising observation. Therefore, clarifying the role of burnout in depression and developing appropriate approaches to treatment could contribute towards a significant unmet need in helping this population.

Disclosures

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Conflict of interest

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References

- Ahola, K., Honkonen, T., Isometsa, E., Kalimo, R., Nykyri, E., Aromaa, A., Lonnqvist, J., 2005. The relationship between job-related burnout and depressive disorders – results from the Finnish Health 2000 Study. *J. Affect. Disord.* 88, 55–62.
- Bakker, A., Schaufeli, W., Demerouti, E., Janssen, P., Van Der Hulst, R., Brouwer, J., 2000. Using equity theory to examine the difference between burnout and depression. *Anxiety Stress Coping: Int. J.* 13, 247–268.
- Bender, A., Farvolden, P., 2008. Depression and the workplace: a progress report. *Curr. Psychiatry Rep.* 10, 73–79.
- Bianchi, R., Boffy, C., Hingray, C., Truchot, D., Laurent, E., 2013. Comparative symptomatology of burnout and depression. *J. Health Psychol.* 18, 782–787.
- Borritz, M., Bultmann, U., Rugulies, R., Christensen, K., Villadsen, E., Kristensen, T., 2005. Psychosocial work characteristics as predictors for burnout: findings from 3-year follow up of the PUMA study. *J. Occup. Environ. Med.* 47, 1015–1025.
- Borritz, M., Kristensen, T., 2004. Copenhagen burnout inventory: normative data from a representative Danish population on personal burnout and results from the PUMA study on personal burnout, work burnout, and client burnout [WWW Document]. URL (<http://www.arbejdsmiljoforskning.dk>) (accessed 15.06.14.).
- Freudenberger, H., 1974. Staff burn-out. *J. Soc. Issues* 30, 159–165.
- Iacovides, A., Fountoulakis, K., Kaprinis, S., Kaprinis, G., 2003. The relationship between job stress, burnout and clinical depression. *J. Affect. Disord.* 75, 209–221.
- IBM SPSS Statistics for Windows, Version 22.0. IBM Corp., Armonk, NY.
- Kristensen, T., Borritz, M., Villadsen, E., Christensen, K., 2005. The Copenhagen burnout inventory: a new tool for the assessment of burnout. *Work Stress: Int. J. Work Health Organ.* 19, 192–207.
- Lam, R.W., Parikh, S., Ramasubbu, R., Michalak, E., Tam, E., Axler, A., Yatham, L., Kennedy, S., Manjunath, C., 2013. Effects of combined pharmacotherapy and psychotherapy for improving work functioning in major depressive disorder. *Br. J. Psychiatry* 203, 358–365.
- Maslach, C., Schaufeli, W., Leiter, M., 2001. Job burnout. *Annu. Rev. Psychol.* 52, 397–422.
- Mather, L., Blom, V., Svedberg, P., 2014. Stressful and traumatic life events are associated with burnout—a cross-sectional twin study. *Int. J. Behav. Med.* (Epub ahead of print).
- Milfont, T., Denny, S., Ameratunga, S., Robinson, E., Merry, S., 2008. Burnout and wellbeing: testing the Copenhagen burnout inventory in New Zealand teachers. *Soc. Indic. Res.* 89, 169–177.
- Rush, A., Trivedi, M., Ibrahim, H., et al., 2003. The 16-item quick inventory of depressive symptomatology (QIDS), clinician rating (QIDS-C), and self-report (QIDS-SR): a psychometric evaluation in patients with chronic major depression. *Biol. Psychiatry* 54, 573–583.
- Sandstrom, A., Rhodin, I., Lundberg, M., Olsson, T., Nyberg, L., 2005. Impaired cognitive performance in patients with chronic burnout syndrome. *Biol. Psychol.* 69, 271–279.
- Schutte, N., Toppinen, S., Kalimo, R., Schaufeli, W., 2000. The factorial validity of the Maslach Burnout Inventory-General Survey (MBI-GS) across occupational groups and nations. *J. Occup. Organ. Psychol.* 73, 53–66.
- Seti, C., 2008. Causes and treatment of burnout in residential child care workers: a review of the research. *Resid. Treat. Child. Youth* 24, 197–229.
- Yeh, W., Cheng, Y., Chen, C., Hu, P., Kristensen, T., 2007. Psychometric properties of the Chinese version of Copenhagen Burnout Inventory among employees in two companies in Taiwan. *Int. J. Behav. Med.* 14, 126–133.