2018

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Recommended Citation

Bianchi, R., Verkuilen, J., Schonfeld, I.S., Berna, C., & Laurent, E. (2018). Interpretation bias toward ambiguous information in burnout and depression. Personality and Individual Differences, 135, 216-221. doi:10.1016/j.paid.2018.07.028

Personality and Individual Differences 135 (2018) 216–221

Contents lists available at ScienceDirect

Personality and Individual Differences

journal homepage: www.elsevier.com/locate/paid

Interpretation bias toward ambiguous information in burnout and depression

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ARTICLE INFO

Keywords:
Burnout
Cognition
Depression
Dysphoria
Emotion
Information processing
Mood

ABSTRACT

Burnout has been defined as a job-related syndrome combining pervasive fatigue and loss of motivation. In recent years, evidence has mounted that burnout may reflect a depressive condition. In this study, we expanded on past investigations of burnout-depression overlap by focusing on interpretation biases toward ambiguous information among the two entities. We conducted a web-based study involving 1056 participants (83% female; mean age: 42.87). Burnout symptoms were assessed with the Shirom-Melamed Burnout Measure and depressive symptoms with the PHQ-9. The Ambiguous Scenarios Test (AST), a measure of interpretation bias validated among dysphoric individuals, was the outcome of interest. The AST consists of 24 scenarios that respondents are requested to imagine and assess in terms of (un)pleasantness. Burnout and depression each correlated moderately and negatively with scenario pleasantness. Participants reporting "high" levels of burnout and depression exhibited a negativity bias when interpreting scenarios whereas participants with either "low" or "medium" levels of burnout and depression exhibited a positivity bias. Remarkably, burnout and depression were similarly associated with the pleasantness of job-related scenarios. Like depression, burnout may involve a propensity to interpret ambiguous information negatively. This study supports the view that burnout is associated with a depressive cognitive style.

1. Introduction

Burnout has been defined as a negative affective state that combines pervasive fatigue and loss of motivation and results from unresolvable job stress (Shirom & Melamed, 2006). Although not recognized as a nosological category (American Psychiatric Association, 2013), burnout has become a focal object of attention in occupational health research and practice over the last decades (Bianchi, Schonfeld, & Laurent, 2017; Maslach & Leiter, 2016). Burnout has been associated with a variety of adverse physical (e.g., coronary heart disease), psychological (e.g., hospitalization for mental disorders) and occupational (e.g., absenteeism) consequences (Leiter, Bakker, & Maslach, 2014; Salvagioni et al., 2017).

Keen interest in burnout has coexisted with persistent difficulties in characterizing the phenomenon (Bianchi, Schonfeld, et al., 2017; Cox, Tisserand, & Taris, 2005). Most notably, the issue of whether burnout refers to anything other than a depressive condition remains strongly debated (Bianchi, Schonfeld, & Laurent, 2015; Maslach & Leiter, 2016). In a recent review of enduring problems affecting burnout research (Bianchi, Schonfeld, et al., 2017), burnout has been found to overlap with depression in terms of symptomatology (e.g., fatigue/loss of energy) and etiology (through unresolvable stress). Nevertheless, more research has been called for before definite conclusions can be drawn regarding the (lack of) distinctiveness of the burnout construct (Maslach & Leiter, 2016).

Hitherto, there has been a paucity of research on the cognitive processing of emotional information in burnout. Such research is particularly relevant to the characterization of psychopathological phenomena because it opens a window on possible condition-specific markers, vulnerability factors, and by-products that can inform therapeutic strategies (Jones & Sharpe, 2017; LeMoult & Gotlib, in press). In one of the few studies of how emotional information is processed in burnout, Sokka et al. (2014) focused on automatic sound change detection and involuntary attention allocation using scalp recordings of

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https://doi.org/10.1016/j.paid.2018.07.028
Received 21 March 2018; Received in revised form 16 July 2018; Accepted 18 July 2018
Available online 21 July 2018
0191-8869/

event-related potentials. The authors found that burnout was associated with a faster processing of "negative" stimuli and a slower processing of "positive" stimuli. Effects remained after controlling for depressive symptoms. In an eye-tracking study relying on an image free-viewing paradigm, Bianchi and Laurent (2015) found that burnout was, like depression, associated with increased attention for "dysphoric" stimuli and decreased attention for "positive" stimuli. In a study employing self-report measures of dysfunctional attitudes (e.g., pathological perfectionism and need for approval), ruminative responses, and pessimistic attributions, Bianchi and Schonfeld (2016) observed that burnout was associated with a depressive cognitive style. Finally, increased recall of negative information and decreased recall of positive information have been documented in both burnout and depression (Bianchi, Laurent, Schonfeld, Bietti, & Mayor, 2018).

In this web-based study, we expanded on previous investigations of burnout-depression overlap in cognitive processing by focusing on interpretation biases toward ambiguous information. Evidence suggests that depressive symptoms and disorders are associated with a negativity bias toward ambiguous information (Everaert, Podina, & Koster, 2017). We hypothesized that burnout would, like depression, involve a propensity to interpret ambiguous information negatively. We tested this hypothesis relying on a relatively large sample of participants—exhibiting a wide array of burnout and depressive symptom levels—and using a validated, self-referential measure of interpretation bias.

2. Methods

2.1. Study sample and recruitment procedure

A convenience sample of 1056 French educational staff was recruited (83% female). Respondents' mean age was 42.87 ($SD = 9.81$). The sample mainly included teachers (69%), administrators (15%), professionals having both teaching and supervisory charges (9%), and administrative assistants (4%). The few remaining participants were education assistants, education advisers, school psychologists, accountants, school nurses, and librarians. Respondents' mean length of employment was 15.82 years ($SD = 10.24$).

Participants were reached through electronic contacts with the schools of the districts of Lille and Montpellier—nearly 7000 schools—in November 2017. We sent schools a cover email that included a weblink leading to a 15-minute online survey. School administrators were invited to complete the survey themselves and to forward our cover email to the other professionals employed in their schools to give them the possibility of completing the survey as well. The only eligibility criterion for participating in the study was to be currently employed as an educational staff member in an elementary, a middle, or a high school. Educational staff members, particularly teachers, are exposed to chronic job stressors (Schonfeld, 2001). Web-based studies are methodologically viable and particularly useful to ensure adequate statistical power (Birnbaum, 2004; Gosling, Vazire, Srivastava, & John, 2004).

Participation was voluntary and without compensation. Participants were given the possibility of leaving a personal e-mail address in order to be informed of the study results. Participants were guaranteed confidentiality. No school-related identifying information was asked. Only complete surveys were recorded. The study was conducted in accordance with the ethical standards of the institutional research committee of the University of Neuchâtel.

2.2. Measures

2.2.1. Depression

Depressive symptoms were assessed with the PHQ-9 (Kroenke, Spitzer, & Williams, 2001; Cronbach's $\alpha = 0.86$).[1] The PHQ-9 targets the nine diagnostic criteria for major depressive disorder and thus covers depressive symptoms in their variety (American Psychiatric Association, 2013). Respondents rated the frequency of each symptom on a 4-point scale (from 0 for "not at all," to 3 for "nearly every day"), considering the past two weeks.

2.2.2. Burnout

Burnout symptoms were assessed with the Shirom-Melamed Burnout Measure (SMBM; Shirom & Melamed, 2006; Cronbach's $\alpha = 0.95$).[2] The SMBM includes three subscales: physical fatigue (six items; e.g., "I feel physically drained."; Cronbach's $\alpha = 0.94$), cognitive weariness (five items; e.g., "My thinking process is slow."; Cronbach's $\alpha = 0.95$), and emotional exhaustion (three items; e.g., "I feel I am unable to be sensitive to the needs of coworkers and students."; Cronbach's $\alpha = 0.87$). Respondents indicated how they felt over the past two weeks using a 4-point scale (from 0 for "not at all," to 3 for "nearly every day"). The mean correlation among the three subscales of the questionnaire was 0.59.

2.2.3. Interpretation bias

The Ambiguous Scenarios Test (AST) was employed for assessing interpretation bias (Berna, Lang, Goodwin, & Holmes, 2011; Cronbach's $\alpha = 0.83$). The AST was developed to assess interpretation bias in dysphoric individuals and was used in a variety of studies since (e.g., Orchard, Pass, & Reynolds, 2016; Williams et al., 2015). The AST consists of 24 scenarios to be rated in terms of pleasantness. Six of the 24 scenarios are job-related (Cronbach's $\alpha = 0.70$).[3] Each scenario has an emotionally ambiguous ending (e.g., "You are going to see a very good friend at the station. You haven't seen them for years. You feel emotional, thinking about how much they might have changed.").

Participants were asked to form a mental image of each scenario, imagining that each scenario happened to them personally. Participants then rated the pleasantness of the images formed. A bipolar scale was employed for pleasantness ratings, ranging from 1 for "very unpleasant" to 9 for "very pleasant." Scores below 5 were thus indicative of unpleasant images and scores above 5 of pleasant images. For the purpose of this study, the AST was translated from English to French by a bilingual psychology researcher. The translated version was then discussed with the first author until a consensus was reached on each item. The French version of the AST is available in Supplementary Material 1. The AST was administered at the beginning of the survey to avoid possible mood alterations in participants due for instance to the completion of the PHQ-9 and the SMBM. Each of the 24 scenarios was presented on a separate (web) page. Job-related scenarios correlated 0.67 with job-unrelated scenarios, $p < .001$. Job-related scenarios ($M = 5.08$, $SD = 1.15$) were viewed as less pleasant than job-unrelated scenarios ($M = 5.57$, $SD = 0.86$), $t\ (1055) = -18.39$, $p < .001$, Cohen's $d = 0.48$.

2.2.4. Sociodemographic and check-up questionnaire

Participants reported their age, sex, profession, and length of employment. In addition, history of depressive disorders was investigated with the following item: "Have you ever been diagnosed for a depressive disorder by a health professional (e.g., a general practitioner, a psychiatrist, a psychologist)? Answer 'Yes' only if this diagnosis has resulted in treatment with medication and/or psychotherapeutic treatment." Finally, participants indicated whether they experienced interruptions when performing the AST. Of the 1056 participants, 197 (19%) reported interruptions. Because interruptions (coded 0 for "absent" and 1 for "present") were uncorrelated to AST scores ($r = -0.03$,

[1] Both the English and French versions of the PHQ-9 can be found here: http://www.phqscreeners.com/.

[2] Both the English and French versions of the SMBM can be found here: http://www.shirom.org/arie/index.html.

[3] Job-related scenarios are scenarios 11, 12, 14, 22, 23, and 24 as displayed in Supplementary Material 1.

p = .37), we did not exclude interrupted participants from our analyses.

2.3. Data analyses

We conducted both dimensional (continuum-based) and categorical (group-based) analyses. We examined the collected data using correlation analysis, confirmatory factor analysis (CFA), analysis of variance, analysis of covariance, Tukey's post-hoc test, one-sample *t*-test, and χ^2 test. To investigate the effects of burnout and depression on scenario pleasantness categorically, participants were divided into groups based on their burnout and depression scores. A "low burnout", a "medium burnout," and a "high burnout" group were defined by SMBM scores ranging from 0 to 0.99, 1 to 1.99, and 2 to 3, respectively. A "low depression", a "medium depression," and a "high depression" group were defined by PHQ-9 scores ranging from 0 to 0.99, 1 to 1.99, and 2 to 3, respectively. This modus operandi allowed us to (a) cover the continua of burnout and depression and (b) coherently compare burnout and depression in a context in which no "case-finding" cut-off score and no consensual diagnostic criteria for burnout are available (Bianchi, Schonfeld, et al., 2017).

3. Results

3.1. Correlational analysis and CFA

Treated as dimensional variables, depression and burnout correlated markedly with one another, $r = 0.81$, $p < .001$. In light of this strong correlation, we took a granular look at the relationship between burnout—as measured by the SMBM—and depression—as assessed by the PHQ-9—by conducting a CFA. We initially focused on the SMBM items in a way that is consistent with the SMBM subscales (see Toker, Melamed, Berliner, Zeltser, & Shapira, 2012, p. 841). Given their skewness, we treated the items as ordinal, and used the weighted least squares approach to a CFA. We initially let (a) the items making up each subscale serve as indicators of one burnout-related factor and labeled the factor by the subscale's name and (b) the PHQ-9 items as indicators of a Depression factor. For rational, a priori reasons we let some PHQ-9 items cross-load: PHQ-9 items 3 (sleep disturbance) and 4 (fatigue/loss of energy) on the Physical Fatigue factor and PHQ-9 item 7 (concentration impairment) on the Cognitive Weariness factor. Later to improve fit, we also let PHQ-9 item 8 (psychomotor malfunction) cross-load on the Cognitive Weariness factor. Allowing for such cross-loadings generally reduces the magnitude of the cross-factor correlations. Because SMBM item 4 ("I feel fed up") was problematic (from a theoretical perspective, it did not reflect physical fatigue well; from a practical standpoint, it cross-loaded on every factor), we excluded it from the CFA; doing so further improved model fit.

In view of the large correlations among the hypothesized factors (e.g., Depression-Physical Fatigue, 0.80; Depression-Cognitive Weariness, 0.72; Depression-Emotional Exhaustion, 0.65), we conducted a second-order CFA. Each of the first-order factors loaded on one higher-order factor (Fig. 1). The fit statistics were satisfactory: RMSEA = 0.059; CFI = 0.991.

Scenario pleasantness was found to be moderately correlated with both depression, $r = -0.49$, $p < .001$, and burnout, $r = -0.43$, $p < .001$. Burnout correlated -0.37, and depression -0.40, with the pleasantness of job-related scenarios, $ps < 0.001$. Scenario pleasantness was uncorrelated to sex, $r = 0.04$, $p = .22$, and length of employment, $r = 0.02$, $p = .51$, and weakly correlated to age, $r = 0.13$, $p < .001$, and history of depressive disorders, $r = -0.14$, $p < .001$. Age and history of depressive disorders were used as covariates in subsequent analyses of burnout, depression, and scenario pleasantness.

3.2. Depressive symptoms and scenario pleasantness

Regarding depression-related groups, an effect of group membership on scenario pleasantness was found, F (2, 1053) = 116.13, $p < .001$, partial $\eta^2 = 0.18$. Tukey's post-hoc test showed that the three groups differed from each other, all $ps < 0.001$. Cohen's *ds* ranged from 0.52 to 1.26. The "low depression" group exhibited the highest pleasantness score whereas the "high depression" group exhibited the lowest pleasantness score (Table 1). The effect of group membership on scenario pleasantness was essentially unchanged when age and history of depressive disorders were introduced as covariates. When burnout was introduced as a dimensional covariate, the effect of depression remained significant albeit reduced in size by 83% (partial η^2 falling from 0.18 to 0.03). A similar pattern of results was obtained when we examined the pleasantness of *job-related* scenarios.

The mean pleasantness score of each of the three depression-related groups was tested against the value of 5—the central point of the AST rating scale separating positive interpretations from negative interpretations. The "low depression" group exhibited a positivity bias, t (592) = 24.10, $p < .001$, mean difference = 0.75 (95% confidence interval: [0.69, 0.82]). The "medium depression" group exhibited a positivity bias as well, t (379) = 3.33, $p < .01$, mean difference = 0.13 (95% confidence interval: [0.05, 0.21]). Lastly, the "high depression" group demonstrated a negativity bias, t (82) = -3.16, $p < .01$, mean difference = -0.32 (95% confidence interval: [-0.53, -0.12]).

Analyses involving only job-related scenarios revealed the following pattern of results. The "low depression" group exhibited a positivity bias, t (592) = 9.75, $p < .001$, mean difference = 0.41 (95% confidence interval: [0.33, 0.49]). The "medium depression" group exhibited a negativity bias, t (379) = -3.92, $p < .001$, mean difference = -0.23 (95% confidence interval: [-0.35, -0.11]). The "high depression" group presented with a negativity bias, t (82) = -6.29, $p < .001$, mean difference = -0.81 (95% confidence interval: [-1.06, -0.55]).

3.3. Burnout symptoms and scenario pleasantness

Regarding burnout-related groups, an effect of group membership on scenario pleasantness was also found, F (2, 1053) = 101.57, $p < .001$, partial $\eta^2 = 0.16$. Tukey's post-hoc test showed that the three groups differed from each other, all $ps < 0.001$. Cohen's *ds* ranged from 0.62 to 1.21. The "low burnout" group exhibited the highest pleasantness score whereas the "high burnout" group exhibited the lowest pleasantness score (Table 2). The effect of group membership on scenario pleasantness was essentially unaltered when age and history of

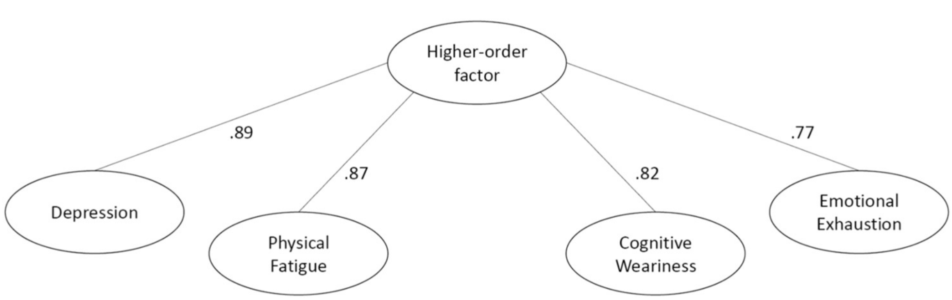

Fig. 1. Summary of our second-order confirmatory factor analysis. The first-order factors of Depression and Physical Fatigue had the highest loadings on the higher-order factor, 0.89 and 0.87, respectively. Cognitive Weariness loaded almost as highly on the higher-order factor, 0.82. Emotional Exhaustion had the smallest, although not insubstantial, loading, 0.77.

Table 1
Characteristics of the "low depression" (n = 593), "medium depression" (n = 380), and "high depression" (n = 83) groups.

	"Low depression" group		"Medium depression" group		"High depression" group		
	M	*SD*	*M*	*SD*	*M*	*SD*	ANOVA p value (η^2)
Depressive symptoms (0–3)	0.47	0.26	1.37	0.28	2.29	0.26	< 0.001 (0.82)
Interpretation bias – scenario pleasantness (1–9)	5.75	0.76	5.13	0.78	4.68	0.93	< 0.001 (0.18)
Interpretation bias – job-related scenario pleasantness (1–9)	5.41	1.02	4.77	1.15	4.19	1.17	< 0.001 (0.12)
Burnout symptoms (0–3)	0.56	0.42	1.40	0.52	2.17	0.57	< 0.001 (0.55)
Age (in years)	43.81	9.63	41.63	10.01	41.88	9.51	0.002 (0.01)
Length of employment (in years)	16.24	10.41	14.98	9.84	16.73	10.73	0.121 (0.00)
	%		%		%		χ^2 test p value (Phi)
Female sex	81		87		78		0.032 (0.08)
History of depressive disorders	24		37		52		< 0.001 (0.19)

Notes. ANOVA: analysis of variance; *M*: mean; *SD*: standard deviation.
The results of the ANOVAs reported here do not include any control variable.

depressive disorders were introduced as covariates. When depression was introduced as a dimensional covariate, the effect of burnout remained significant albeit reduced in size by 94% (partial η^2 falling from 0.16 to 0.01). A similar pattern of results was obtained when we examined the pleasantness of *job-related* scenarios.

The mean pleasantness score of each of the three burnout-related groups was tested against the value of 5—the central point of the AST rating scale separating positive interpretations from negative interpretations. The "low burnout" group exhibited a positivity bias, t (564) = 22.12, p < .001, mean difference = 0.73 (95% confidence interval: [0.67, 0.80]). The "medium burnout" group exhibited a positivity bias as well, t (379) = 6.38, p < .001, mean difference = 0.25 (95% confidence interval: [0.17, 0.32]). Lastly, the "high burnout" group demonstrated a negativity bias, t (110) = −3.63, p < .001, mean difference = −0.33 (95% confidence interval: [−0.50, −0.15]).

Analyses involving only job-related scenarios revealed the following pattern of results. The "low burnout" group exhibited a positivity bias, t (564) = 9.49, p < .001, mean difference = 0.41 (95% confidence interval: [0.33, 0.50]). The "medium burnout" group exhibited a negativity bias, t (379) = −2.71, p < .01, mean difference = −0.16 (95% confidence interval: [−0.27, −0.04]). The "high burnout" group presented with a negativity bias, t (110) = −7.01, p < .001, mean difference = −0.77 (95% confidence interval: [−0.99, −0.56]).

4. Discussion

We examined whether burnout involves, like depression, a negative interpretation bias toward ambiguous information. A total of 1056 participants rated the (un)pleasantness of scenarios as part of the AST—a self-referential measure of interpretation bias validated among dysphoric individuals. Results showed that burnout and depression each correlated moderately and negatively with scenario pleasantness. Participants reporting "high" levels of burnout and depressive symptoms exhibited a negativity bias when interpreting scenarios whereas participants with either "low" or "medium" levels of burnout and depressive symptoms exhibited a positivity bias. Our findings thus suggest that, like depression, burnout is associated with a propensity to interpret ambiguous information in a negative way.

Our results add to prior findings suggesting that burnout and depression show similar alterations in the processing of emotional information at attentional, mnemonic, attitudinal, and inferential levels (Bianchi & Laurent, 2015; Bianchi, Laurent, et al., 2018; Bianchi & Schonfeld, 2016; Cavanagh & Geisler, 2006; Sokka et al., 2014). The present study suggests that burnout and depression share common characteristics in terms of interpretation of emotionally ambiguous stimuli. Our finding that participants with either "low" or "medium" levels of burnout and depression exhibited a positivity bias is consistent with prior findings on interpretation biases among healthy individuals (Menne-Lothmann et al., 2014).[4]

That burnout and depression were similarly associated with the pleasantness of *job-related* scenarios further questions the relevance of a domain-based distinction between burnout and depression (Bianchi & Brisson, 2017; Gauche, de Beer, & Brink, 2017). Our results are in keeping with those of Bianchi and Laurent's (2015) study, in which burnout and depression were related to similar attentional alterations toward work-*un*related emotional information. Previous research may have both underestimated the pervasiveness of burnout symptoms and overlooked the fact that "classical" depressive symptoms can be job-

Table 2
Characteristics of the "low burnout" (n = 565), "medium burnout" (n = 380), and "high burnout" (n = 111) groups.

	"Low burnout" group		"Medium burnout" group		"High burnout" group		
	M	*SD*	*M*	*SD*	*M*	*SD*	ANOVA p value (η^2)
Burnout symptoms (0–3)	0.46	0.28	1.36	0.29	2.40	0.31	< 0.001 (0.83)
Interpretation bias – scenario pleasantness (1–9)	5.73	0.79	5.25	0.75	4.67	0.95	< 0.001 (0.16)
Interpretation bias – job-related scenario pleasantness (1–9)	5.41	1.03	4.84	1.12	4.23	1.16	< 0.001 (0.12)
Depressive symptoms (0–3)	0.54	0.37	1.24	0.49	1.93	0.51	< 0.001 (0.55)
Age (in years)	43.69	9.85	41.80	9.80	42.37	9.28	0.012 (0.01)
Length of employment (in years)	16.21	10.31	15.13	10.03	16.22	10.58	0.259 (0.00)
	%		%		%		χ^2 test p value (Phi)
Female sex	80		86		87		0.017 (0.09)
History of depressive disorders	24		37		48		< 0.001 (0.17)

Notes. ANOVA: analysis of variance; *M*: mean; *SD*: standard deviation.
The results of the ANOVAs reported here do not include any control variable.

induced (e.g., Melchior et al., 2007).

Consistent with the results of many previous studies, we found a strong correlation between burnout and depression. Sokka et al. (2014), for example, found a correlation of 0.71 between burnout—assessed with the Maslach Burnout Inventory-General Survey—and depression—assessed with the Beck Depression Inventory-II. Correlations of such magnitudes are in fact commonly observed when two measures of burnout symptoms (see Shirom & Melamed, 2006; see also Halbesleben & Demerouti, 2005) or two measures of depressive symptoms (see Bianchi, Rolland, & Salgado, 2018) are examined. The results of our correlational analyses were reinforced by the results of our CFA. Indeed, the identified first-order factors—Depression, Physical Fatigue, Cognitive Weariness, and Emotional Exhaustion—were found to load strongly on the second-order factor, suggesting that the first-order factors were manifestations of one overarching factor. Burnout-depression overlap was also reflected in the fact that the control of (a) burnout in depression-related analyses and (b) depression in burnout-related analyses resulted in dramatic reductions (by 83%–94%) in the effect sizes associated with the main independent variables. All in all, our results are consistent with a growing body of evidence suggesting that the discriminant validity of the burnout construct is highly problematic (Bianchi, Schonfeld, et al., 2017).

Negative interpretation bias may play an important role in the development and maintenance of burnout/depressive symptoms in the occupational sphere. How ambiguous information is interpreted, for instance during interpersonal interactions with colleagues and superiors, or with respect to job demands in general, is likely to affect individuals' appraisal of daily work-related stimuli as being stressful or not (Schmidt, Roesler, Kusserow, & Rau, 2014; Zhou, Yan, Che, & Meier, 2015). The propensity to interpret ambiguous information in a negative manner may thus be worth considering in the prevention and treatment of burnout/depressive symptoms in the work context (Hirsch, Meeten, Krahe, & Reeder, 2016; Menne-Lothmann et al., 2014), although more research on cognitive bias modification therapies is needed (Jones & Sharpe, 2017).

Our study has several limitations. First, our study sample only included educational staff members and mainly involved female participants. This characteristic promotes sample homogeneity but diminishes the study's external validity. This being mentioned, the female to male ratio observed in our study is consistent with the fact that French elementary, middle, and high schools employ a vast majority of women; in elementary schools, for instance, the proportion of female employees is above 80% (Ministère de l'Éducation nationale, 2017). Second, due to our recruitment procedure, we could not determine the response rate. While the number of contacted schools was known, we had no information on either the proportion of school administrators who relayed our invitation or the proportion of invited educational staff who eventually responded. The study might thus have attracted respondents with specific profiles. We note, however, that our study relied on a relatively large sample of participants (N = 1056)—such sample sizes are seldom found in research on cognitive biases (Everaert et al., 2017)—that included individuals with various levels of burnout and depressive symptoms, a key point in an "analytical study" such as ours (see Kristensen, 1995, p. 21). Third, the use of self-report measures is susceptible to various response biases (e.g., acquiescence bias). Fourth, we could not conduct analyses at the school level (e.g., using multilevel analysis) because school-related identifying information was not asked. Fifth, although "Internet findings generalize across presentation formats, are not adversely affected by nonserious or repeat responders, and are consistent with findings from traditional methods" (Gosling et al., 2004, p. 93), web-based studies can involve disadvantages, such as higher rates of drop out (Birnbaum, 2004).

[4] This finding also confirms that the scenarios of the AST are not a priori biased toward negative interpretations.

Overall, our study suggests that burnout is, like depression, associated with a propensity to interpret ambiguous information negatively. Our findings support the view that burnout involves a depressive cognitive style.

Supplementary data to this article can be found online at https://doi.org/10.1016/j.paid.2018.07.028.

Acknowledgements

The authors thank Adrian Bangerter and Guillaume Python for their help with the translation of the Ambiguous Scenarios Test.

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