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► To cite this version:

Patrick Hardy, Jean-François Costemale-Lacoste, Christian Trichard, Florence Butlen-Ducuing, Isabelle Devouge, et al.. Comparison of burnout, anxiety and depressive syndromes in hospital psychiatrists and other physicians: Results from the ESTEM study. *Psychiatry Research*, 2020, 284, pp.112662. 10.1016/j.psychres.2019.112662 . hal-03489666

HAL Id: hal-03489666

<https://hal.science/hal-03489666>

Submitted on 21 Jul 2022

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Comparison of burnout, anxiety and depressive syndromes in hospital psychiatrists and other physicians: results from the ESTEM study

Patrick Hardy^{a,b,c,*}, Jean-François Costemale-Lacoste^{a,c,d}, Christian Trichard^{c,e}, Florence Butlen-Ducuing^{a,b,c}, Isabelle Devouge^{c,f}, Valérie Carboneschi^{c,g}, Elisabeth Jacob^{c,h}, Richard Buferne^{c,i}, Amine Benyamina^{c,j}, Alain Cantero^{k,l}, Véronique Gravier^{k,m}, Teim Ghanem^{c,n}, Agnès Guérin^{k,o}, Antoine Meidinger^{c,k,p}, Jean-Marc Baleyte^{k,q,r,t}, Antoine Pelissolo^{k,r,s,t} and Emmanuelle Corruble^{a,b,c}

^a CESP/UMR-S1178, Equipe “Dépression et Antidépresseurs”, Univ Paris-Sud, Faculté de Médecine, INSERM, 94270 Le Kremlin-Bicêtre, France

^b Service Hospitalo-Universitaire de Psychiatrie de Bicêtre, Hôpital Bicêtre, Hôpitaux Universitaires Paris Sud, Assistance Publique-Hôpitaux de Paris, 94275 Le Kremlin-Bicêtre, France

^c Dispositif Territorial de Recherche et de Formation (DTRF) Paris Sud, 94275 Le Kremlin-Bicêtre, France

^d Service Hospitalo-Universitaire de Psychiatrie de l'adulte et du sujet âgé, Hôpital Corentin-Celton, Hôpitaux Universitaires Paris Ouest, Assistance Publique-Hôpitaux de Paris, 92130 Issy-les-Moulineaux, France

^e Secteur 91G05, EPS Barthélémy Durand, 91150 Etampes, France

^f Pôle 92G13, Groupe Hospitalier Paul Guiraud, 94800 Villejuif, France

^g Secteur 92G18, Groupe Hospitalier Paul Guiraud, 92140 Clamart, France

^h

Unité intersectorielle de réinsertion, EPS Erasme, 92160 Antony, France

ⁱ CH Fondation Vallée, 94250 Gentilly, France

^j Département de psychiatrie et d'addictologie, Hôpital Paul Brousse, Hôpitaux Universitaires Paris Sud, Assistance Publique-Hôpitaux de Paris, 94800 Villejuif, France

^k Dispositif Territorial de Recherche et de Formation (DTRF) Grand Paris Est, 94000 Créteil, France

^l Pôle 94G16, Hôpitaux de Saint-Maurice, 94410 Saint-Maurice, France

^m Grand Hôpital de l'Est Francilien, 77100 Meaux, France

ⁿ Pôle de psychiatrie d'adultes, GH Nord-Essonne, 91440 Bures-sur-Yvette, France

^o Pôle 94G05, CH Les Murets, 94510 La Queue-en-Brie, France

^p Clinique L'abbaye (CLINEA), 91170 Viry-Châtillon, France

^q Service universitaire de psychiatrie de l'enfant et de l'adolescent, CHI Créteil, 94000 Créteil, France

^r Faculté de médecine, UPEC, Université Paris-Est, 94000 Créteil, France

^s Assistance Publique-Hôpitaux de Paris, Pôle de Psychiatrie, Hôpitaux Universitaires Henri-Mondor, 94000 Créteil, France

^t INSERM, IMRB, U955, Team 15, 94000 Créteil, France

Authors

Corresponding author *

Patrick Hardy (MD, PhD)

Service de psychiatrie

Hôpital Bicêtre

78, rue du Général Leclerc

94275, Le Kremlin-Bicêtre, France

E-mail address: patrick.hardy@aphp.fr

Tel : +33 1 45 21 26 30 (22 78)

Fax : +33 1 45 21 28 64

ORCID: 0000-0002-1255-0945

1. Introduction

Burnout, anxiety, depression and suicide rates are high among physicians (Dzau et al., 2018) and recent studies have shown the strong negative impact of burnout on physicians, patients, healthcare organizations and systems (West et al., 2018). Rates vary, however, by country, medical specialty, practice setting, gender, and career stage (Lemaire and Wallace, 2017). In this regard, particular attention focused on psychiatrists and most authors consider these as more vulnerable to experiencing stress and burnout than other physicians (Garcia et al., 2015; Heponiemi et al., 2014; Kumar, 2007, 2011; Umene-Nakano et al., 2013). However, many studies merely listed the risk factors to which psychiatrists would be exposed (Kumar, 2007, 2011; Lasalvia et al., 2009) or pointed out that psychiatrists may be predisposed to burnout due to their personality traits (Deary et al., 1996). Authors therefore deduced that psychiatrists may be more stressed and vulnerable to burnout than other medical specialists, although source data is often poor and patchy.

Indeed, most of the studies on burnout are not comparative (Heponiemi et al., 2014; Lasalvia et al., 2009; Baumgardt et al., 2015; Benbow and Jolley, 2002; Bressi et al., 2009; Sarma, 2018) and the results of the comparative studies are mixed. Early comparative studies showed higher burnout scores for psychiatrists. Nevertheless, the difference was not significant in the two Finnish national surveys (Korkeila et al., 2003; Olkinuora et al., 1990) and the size of the psychiatrist population was small in the only significant study (Deary et al., 1996). Recent studies have reported lower burnout for psychiatrists, with significant results in the Serbian study (Pejuskovic et al., 2011) but not in the US national study (Shanafelt et al., 2012).

Compared to burnout, data on physician's work-related anxiety and depression is very insufficient. Few studies examined these syndromes individually or in association with the burnout syndrome. According to a recent review on physician's burnout (Rotenstein et al., 2018), only 10.4% of the studies concurrently assessed depression (18.3% including GHQ-12 assessments). There is significant overlap between burnout and depression (Bianchi et al., 2015a), as well as burnout and anxiety (van Dam, 2016). The resulting confusion of concepts probably contributed to excluding the assessment of depression and anxiety from studies of work-related mental distress. This is clinically problematic because burnout is a psychosocial concept and a marker for population-based studies, and not a clinical concept, useful for a comprehensive approach and for individuals care strategies, which includes access to care, psychopathological analysis and referring to clinical care (Bianchi et al., 2015a; Bianchi et al., 2017). We thereby consider necessary to include an assessment of depression and anxiety in research on work-related psychological distress.

The aim of the ESTEM survey was twofold: (a) to compare the prevalence of burnout, anxiety and depression, among hospital psychiatrists and non-psychiatrists, (b) to compare the risk factors between syndromes and between physicians.

2. Method

2.1. Study design and population

ESTEM is a cross-sectional survey conducted by the Territorial Research and Training Networks (DTRF) Paris Sud and Grand Paris Est. All the 2229 physicians and residents working in psychiatric services or hospitals from southern and eastern Paris (n=793) and from the three hospitals of the University Hospital Paris Sud - HuPS (n=1436) were invited by e-mail to fill in an anonymous online survey. HuPS is a hospital group, which cater more than 50 specialties or sub-specialties. The survey was conducted in two stages: from 19 September to 19 October 2017 for the HuPS, and from 13 March to 13 April 2018 for the psychiatric services.

Due to their specificities, respondents with part-time work <50%, residents and physicians serving as resident were excluded from the analyses (data relating to the residents are presented in other publications). Of the 1540 physicians with part-time work $\geq 50\%$, 44.0% (677/1540) responded to the survey. Response rates were 43.3% (285/658) for psychiatrists and 44.4% for HuPS (392/882). The 285 psychiatrists included 67 child psychiatrists. Since the aim of the study was to compare psychiatrists and non-psychiatrists physicians, the 66 respondents from Neuroscience Center of HuPS, which includes both psychiatrists and non-psychiatrists, were excluded from the non-psychiatrists group (n=326).

2.2. Data collected

Respondents answered a two-section 61-items questionnaire via the LimeSurvey software (www.limesurvey.org).

The first part of the questionnaire included eight socio-demographic and professional items, the Hospital Anxiety and Depression Scale (HADS) and the Copenhagen Burnout Inventory (CBI). The HADS is a widely used and validated questionnaire (Zigmond and Snaith, 1983). The CBI consists of three scales measuring personal burnout, work-related burnout, and client-related burnout (Kristensen et al., 2005). Before CBI, respondents answered three questions. The first two dealt with the existence (no [0] or yes [1]) and intensity (0: no, 1: mild, 2: moderate, 3: intense, 4: very intense) of "excessive" job-related stress, psychological suffering or exhaustion. Job-stress was definite by any score above 0. The third question aimed at identifying the work relationships considered by respondents as a major stress factor: patients or relatives, care teams, colleagues, collaborators, leaders, hospital management and administration, or other (multiple answers allowed). It should be noted that respondents were asked to complete the client-related burnout scale of the CBI by referring to all of these potential stressors. The scale was therefore re-titled "interpersonal burnout" scale. The second part was completed by "job-stressed" respondents only.

In this section we assessed the subjective impact of work-related psychosocial risk factors (PRFs) reported by respondents. Our questionnaire is based on the six-dimensional model proposed by the main French reference guide (Gollac and Bodier, 2011). These six PRFs overlap with four of the six key areas described by Maslach and Leiter (2016) and four of the seven main work-related stressors quoted in Shanafelt and Noseworthy review (2017). Thus, participants answered six questions about “work intensity and time”, “emotional demands”, “lack/insufficiency of autonomy”, “bad quality in social relation at work”, “conflict of values (ethical suffering)” and “insecurity at work”. Each question was defined by a 45-60 words text and then investigated the role of each factor in the onset of the job-related condition. Responses were rated on 3-point scale, ranging from 0 for little or no effect to 2 for major effect (discriminant value retained). In this second part, participants also answered eleven questions related to the previous year about: length of their psychological distress, use of psychotropic treatments for that condition, increased intake of alcohol or tobacco, use of illicit substances or misuse of prescribed drugs, related sick leave (and duration), professional consultations for this condition, reporting of that condition to their close relatives and reporting of this condition to a hospital referent (and to whom).

Our data set had no missing values (all questions were mandatory to validate the survey).

2.3. Ethic consideration

The study was carried out in accordance with ethical principles for medical research involving humans (WMA, Declaration of Helsinki). Data were obtained via an online survey. An email was sent to using the hospital mailing lists. This email described the rationale and the goals of the study and included an invitation to participate by clicking on a URL link. The study was voluntary-based and subjects could withdraw from the survey at anytime before sending back their questionnaire. The questionnaires were collected anonymously. Therefore, IP addresses were deleted from the dataset. Data were stored in an offline database for further analyses. Respondents were informed that by accepting to send back their anonymous questionnaires, they gave their informed consent to participate: no informed consent form and advice of an ethical committee were required.

2.4. Criteria for specific syndromes and populations

We distinguished **five** work-related specific syndromes.

The three burnout syndromes (personal burnout, work-related burnout, and interpersonal burnout) were defined by two criteria: job-stress and CBI sub-score ≥ 50 .

By analogy, two other syndromes were defined using HADS. Pure anxiety was defined as anxiety without depression, using three criteria: “job-stress”, HADS-anxiety (HADS-A) subscale score ≥ 8 and HADS-depression (HADS-D) subscale score < 8 . Depression was defined by two criteria: “job-stressed” respondent and HADS-D score ≥ 8 . Pure job-stress was a job-stress without anxiety or depression (HADS-A and HADS-D < 8). A score ≥ 8 identifies “doubtful cases” and a score ≥ 11 identifies “definite cases” for depression and anxiety (Zigmond and Snaith, 1983). Of course, without clinical exam, these anxious and depressive syndromes can not be considered as medical diagnoses.

The burnout syndrome was defined by the presence of at least one specific burnout syndrome.

The burnout-anxiety-depression syndrome encompasses the five specific syndromes to constitute a global syndrome.

Junior physicians were defined by seniority < 4 years, senior physicians by seniority ≥ 4 years. Residents who participated in the ESTEM survey were not included in the analyses.

2.5. Statistical analysis

After descriptive analysis of the whole population, bivariate analyses were conducted to explore differences between psychiatrists and non-psychiatrists on anxiety and depression (HADS sub-scores and prevalence), personal, work-related and interpersonal burnout (CBI sub-scores and prevalence) and all others variables of the questionnaire.

A binary logistic regression analysis was performed to identify significant risk factors for the burnout-anxiety-depression syndrome and the five above mentioned specific syndromes, among the five socio-demographic and occupational variables as well as the six PRFs. Bivariate analyses were first conducted for the entire population, the psychiatrists and the non-psychiatrists, to examine work-related pure anxiety, depression and burnout risk factors. Respondents with work-related pure anxiety or depression were compared to respondents not presenting with any of those conditions. Respondents with a burnout syndrome were compared to the others respondents. The significant explanatory variables ($p \leq 0.10$) were then selected for multivariate analysis. The seven work relationships identified as potential stress factors for interpersonal burnout were analyzed independently.

The statistical analyses were performed using the SPSS version 20.0 software package (IBM SPSS statistic 20). All bivariate analyses were conducted using the Fisher exact test for categorical variables, t-tests and Pearson's correlations for independent samples for continuous variables. The multivariate analyses were conducted using a binary logistic regression model. All statistical tests were two-tailed, with α level set at 0.05.

3. Results

3.1. Description of participants and bivariate analyses

Prevalence of job-stress, anxiety, depression and burnout are shown in Table 1.

A job-stress was reported by 88.5% of all respondents. Its severity was rated zero by 11.6% of respondents, mild by 26.0%, moderate by 38.1%, intense by 20.6% and very intense by 3.6%. There were no differences between psychiatrists and non-psychiatrists for job-stress severity (Pearson Chi-Square=5.99, $p=0.20$).

All non-psychiatrists and 21.1% of psychiatrists (60/285) were from university hospitals. The prevalence of job-stress, anxiety, depression, personal burnout, work-related burnout and interpersonal burnout among university hospital psychiatrists (88.3%, 38.3%, 16.7%, 50.0%, 46.7% and 43.3%, respectively) and among other psychiatrists (92.9%, 51.6%, 24.0%, 51.6%, 41.3% and 45.8%) did not differ (all $p \geq 0.2$).

Psychiatrists had lower anxiety rates than non-psychiatrists (48.8% vs 57.7%; $p=0.029$), but prevalence of "pure anxiety" was similar in the two groups (28.1% vs 30.4%). Interpersonal burnout rates were higher in psychiatrists than in non-psychiatrists (45.3% vs 37.1%; $p=0.048$). Further analysis showed that interpersonal burnout rates were higher in senior psychiatrists (55.9%) than in senior non-psychiatrists (39.8%; $p=0.002$), but do not differ between the two junior groups (29.6% vs 31.0%). Thus, interpersonal burnout rates were higher in senior psychiatrists than in junior psychiatrists (55.9% vs 29.6%; $p < 0.0005$).

The prevalence of burnout-anxiety-depression syndrome, burnout syndrome and other specific syndromes was similar in both groups, although a lower score of depression was reported in psychiatrists compared to non-psychiatrists.

3.2. Risk factors

Results are shown in Table 2

To compare the risk factor profile of the five specific syndromes, we selected the risk factors common to both groups of physicians. Among PRFs, "work intensity and time" was associated with all syndromes, except interpersonal burnout. "Emotional demands" was associated with the three burnout syndromes, "lack of autonomy" with depression and work-related burnout, "bad quality in social relation at work" with interpersonal burnout and "conflict of values" with work-related burnout. "Insecurity at work" was not associated with any syndrome. Female gender was a shared risk factor for personal burnout only.

For interpersonal burnout, which was more prevalent among psychiatrists, two risk factors were significant in both groups: "emotional demands" and "bad quality in social relation at work". "Work intensity and time" and greater seniority (≥ 4 years) were associated with interpersonal burnout only among the psychiatrists, while "lack of autonomy" and "conflict of values" affected only the non-psychiatrists. Respondents were asked to identify the work relationships considered as a major stress factor. According to the binary logistic regression analysis (Table 3), relationships with patients or their relatives were not associated with interpersonal. Relationships with leaders were the only significant risk factors for both groups of physicians.

3.3. Anxiety, depression and burnout overlap

As shown in figure 1 there was a strong overlap between anxious-depressive syndrome and burnout syndrome: 77.1% of burnout syndromes (283/367) were associated with anxiety or depression, while 84.0% of anxious-depressive syndromes (283/337) were associated with burnout syndrome.

3.4. Associated characteristics

Increased intake of alcohol/tobacco (23.8%) and of illicit substances or misused medicines (2.4%), sick leave (7.1%) and professional consultations for work-related distress (24.2%) did not differ between psychiatrists and non-psychiatrists with burnout-anxiety-depression syndrome. Psychiatrists used psychotropic treatments for burnout-anxiety-depression syndrome more frequently than non-psychiatrists (31.8% vs 21.0%, $p=0.014$) and reported more frequently this condition to their close relatives (88.0% vs 80.8%, $p=0.046$). However, reports to occupational physicians or hospital managers (physicians and administrators) were equally uncommon among psychiatrists and non-psychiatrists (13.0% and 13.1%).

4. Discussion

Our study confirms some results of previous studies and brings new knowledge on several points.

4.1. Syndromes prevalence and overlap

Our study defined different syndromes by threshold scores on the HADS and CBI questionnaires. It can not therefore be compared to studies on the prevalence of mental disorders (depressive disorders and anxiety disorders) in similar populations. Our results, however, provide some answers to questions left unanswered by previous studies.

Comparisons between psychiatrists and non-psychiatrists provided two main results. First, the prevalence rate of three of the five specific syndromes (depression, personal burnout and work-related burnout) and of their clustering (BADS) was similar in both groups. This result reflects a comparable level of psychological distress among psychiatrists and non-psychiatrists, which helps clarifying results from previous studies. Second, we have highlighted two intergroup differences: anxiety rate was lower in psychiatrists than in non-psychiatrists, but this was not the case for "pure anxiety" syndrome; by contrast, IRB was higher in psychiatrists than in non-psychiatrists. Available data do not explain those contrasted results. We hypothesize, however, that psychiatrists' greater use of psychotropic medication and knowledge on psychological management may have reduced their anxiety level as well as their depression scores. The difference in IRB could be explained by the exposure of psychiatrists to particular chronic risk factors.

The prevalence rates for personal burnout in all respondents is 49.3%. Few studies have assessed burnout among physicians by using CBI. Our result, however, is close to the 48.7% reported by Klein et al. (2010) among surgeons and to the 40.1% reported by Heinke et al. (2011) among anesthetists, using the same CBI criteria. Since no studies have established the correlations between CBI and MBI scores, it is difficult to compare the personal burnout rate of our

study (49.3%) with the average burnout rate observed in physicians using MBI (50% according to West et al., 2018). The comparison with previous studies evaluating the prevalence of depression and anxiety among hospital physicians is also difficult, in particular because of their small number and the diversity of methodologies (Hayes et al., 2017). In addition, the few studies using HADS in senior hospital physicians are ancillary or limited to very specific populations (Atif et al., 2016; Caplan, 1994; Wolfshohl et al., 2019; Xiao et al., 2014).

The strong overlap observed between anxious-depressive and burnout syndromes (fig. 1) is hardly surprising since previous research (Ahola & Hakkanen 2006, Ahola et al. 2006, 2014) established that burnout is a progressive syndrome and that higher levels of severity are accompanied by increasing rates of depression, anxiety and other health problems. Other studies have confirmed the clustering between burnout and depressive symptoms (Bianchi et al., 2015b), and the existence of a common general factor, or “nonspecific psychological distress”, linking anxious, depressive and burnout symptoms (Schonfeld et al., 2019).

4.2. Risk factors

Our multifactorial and self-reporting approach for PRFs study can not identify the objective working conditions that concretely contribute to the psychological distress in physicians: computerized physician order entry and clerical burden (Shanafelt et al., 2016), work hours, night or weekend call duties, time spent at home on work-related tasks, work-home conflicts (West et al., 2018), for example. Likewise, this approach does not enabled us to study some subjective conditions, as the perceived value of work, if not in a very indirect way. Indeed, the RPSs "lack of autonomy" and "ethical suffering" could be related to the notion of illegitimate tasks, which constitute a recognized source of stress and suffering at work (Semmer, 2010, 2015). On the other hand, this approach does enable to compare the risk profiles between different occupations and, for physicians, between specialties or between medical students, residents and practicing senior physicians.

4.2.1. Comparisons between syndromes

Our results showed a low syndromic specificity for PRFs. This is not surprising because of the strong overlap between anxious-depressive and burnout syndromes (§ 4.1.). Our results also showed that depression and burnout syndromes were associated with several RPSs, which is consistent with the multifactorial approach used in psychopathology and in psychiatry, with Kielholz's early work on exhaustive depressions (1959) and with current studies on physician burnout (Shanafelt and Noseworthy, 2017). The strong association between an excessive "emotional demand" and the three burnout syndromes seems consistent with the theory that the main source of burnout is an “intense level of personal, emotional contact” between “the provider and his recipients” (Maslach and Jackson, 1981; Maslach and Leiter, 2016). The plurality of RPSs associated with burnout, however, goes against this unifactorial model. This one seems all the more uncertain as occupational interpersonal relationships that contribute significantly to the interpersonal burnout are relationships with leaders (and, to a lesser extent, with colleagues, care teams, or hospital management/administration) and do not include relationships with patients or their relatives.

"Work intensity and time" and “emotional demands” were the only PRFs associated with the burnout-anxiety-depression syndrome in both groups of physicians. The first PRF was strongly associated with anxiety, depression and two burnout syndromes and the second was associated with the three dimensions of burnout. Moreover, the existence of a stressful relationship with the leaders is the main factor contributing to the bad quality in social relation at work and therefore the risk of interpersonal burnout. Other PRFs had a greater impact in some areas. There is thus a link between “lack of autonomy” and depression, which may be included in the Demand-Control model of job stress (Karasek and Theorell, 1990) and, more specifically, in the learned helplessness model of depression (de Rijk et al., 1998).

4.2.3. Comparisons between physician groups

Our main finding was the lack of a group-specific risk profile and the preponderance of PRF "work intensity and time" in both groups of physicians. Three other points, however, are worth highlighting.

The first point concerns the PRF “emotional demand”. For some authors, high patient-related stress is an important risk factor for psychological distress in psychiatrists (Heponiemi et al., 2014). Our results showed, however, that emotional demand similarly affected both groups of physicians for burnout-anxiety-depression syndrome and burnout, and that it was a specific risk factor only for psychiatrist anxiety and depression (Table 2).

The second point concerns the PRFs “bad quality in social relation at work” and “conflict of values”. These PRFs affected non-psychiatrists, but not psychiatrists, for the burnout-anxiety-depression syndrome and several other syndromes. Differences in coping strategies, such as a higher level of exchange with close relatives in psychiatrists, may partly explain this finding.

The third point concerns interpersonal burnout. Our study showed that its prevalence was higher in psychiatrists than in non-psychiatrists and that two risk factors, seniority and “work intensity and time”, were significant in psychiatrists only. The effect of seniority on psychiatrists' interpersonal burnout is substantiated by a previous analysis of the ESTEM survey, which showed that interpersonal burnout rates did not differ between psychiatrist residents and others (Hardy et al., 2019). The cumulative effect of workload on psychiatrists' mental health was highlighted by Garcia et al. (2015), according to which chronic insufficient resources predict increased exhaustion. For its part, Bressi et al. (2009) stressed the impact of local organizations and their transformations on the mental health of psychiatrists. In France, as in other countries (Kumar, 2007), psychiatry is a specialty facing great challenges, due to both the dramatic lack of human resources and the inability to effect systemic change. Persistence of such situations could foster the emergence of interpersonal tensions within the institutions and the occurrence of an interpersonal burnout among the most vulnerable psychiatrists.

The cumulative effect of workload and interpersonal tension could be reinforced by some personality traits. Pointing out that psychiatrists had scored higher than other physicians on neuroticism trait, Deary et al. (1996) hypothesized that neuroticism increased workload-related stress. Such a characteristic could also accelerate interpersonal burnout over time and explain the existence of an age effect among psychiatrists.

4.3. Limitations

First, as for every anonymous online survey, uncontrollable recruitment bias may exist (van Gelder et al., 2010), although the response rates (43.3% and 44.4%) were high enough to reduce the risk. Similarly, the promotion of ESTEM survey by the hospitals could be another source of recruitment and response bias such as a desire to express support or opposition to management. The fact that only 21% of psychiatrists, compared to 100% of non-psychiatrists were from the university hospital could be a third source of bias. However this bias is likely to be low, as the prevalence of the five syndromes studied was comparable between academic and non-academic psychiatrists.

Secondly, ESTEM is a cross-sectional study and used a self-report for the evaluation of the PRFs. This is why we assessed the subjective impact of PRFs on stressed physicians, rather than the level of PRFs exposure for all respondents, which usually requires objective assessments. Thus, causal relationships between putative risk factors and psychological suffering assessed by the HADS and the CBI cannot be demonstrated and the reality of the perceived risk factors can be questioned. Self-report perceived stress scales are however commonly used in stress research (Shields and Slavich, 2017) and many PRFs can't be measured otherwise.

Thirdly, to assess interpersonal burnout we introduced an amendment to the client-related burnout subscale of the CBI, i.e. including in the questions several potential work-relationships instead of the only term "client". The structure and the content of the questionnaire have however not been more modified. Moreover, this amendment concurs with a project of the CBI's authors, which wrote "we have not developed specific questionnaires for work with customers or colleagues yet but may do so in the future" (Kristnsen et al., 2005).

Lastly, ESTEM is a regional study and its results cannot be generalized until confirmed by further studies. However, the prevalence and risk factors of the syndromes we studied vary widely across regions, and ESTEM's methodology allows for these variations to be highlighted.

4.4. Recommendations

"Work intensity and time" and "emotional demands" were the two main PRFs associated with the burnout-anxiety-depression syndrome in both groups of physicians, and stressful relationship with leaders is the main factor contributing to the risk of interpersonal burnout. These results confirm the need to reduce the perceived workload, as well as to improve the management of emotions by the physicians. Organization-directed approach are needed to reduce the workload and some measures, such as increasing the number of medical assistants, seem able to reduce the level of burnout in hospital physicians (Wright and Katz, 2018). Similarly, physician-directed interventions as mindfulness-based stress reduction techniques or educational interventions targeting physicians' self-confidence and communication skill, have been proposed to promote a better management of emotions (West et al., 2018). According to a recent meta-analysis, organization directed interventions were associated with medium significant reductions in burnout whereas physician-directed interventions were associated with small significant reductions (Panagioti et al., 2017).

The impact of relationship with leaders emphasises the need to improve their managerial skills. Like other institutions, the Mayo Clinic has made this goal a priority and defined a strategy to "harness the power of leadership". According to Shanafelt and Noseworthy (2017), the selection, training and evaluation of leaders are the main drivers of such a strategy.

The implementation of such measures is not easy because they imply a major cultural change, while the current hospital organizations are highly contested in many countries. This underscores the importance of strong commitment from hospitals and physicians to promote their mental health.

Conflict of interest

None

Funding source

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors

Acknowledgments

None

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Figure I
Overlap between work-related “pure” stress, “pure” anxiety, depression and burnout syndrome (BOS)

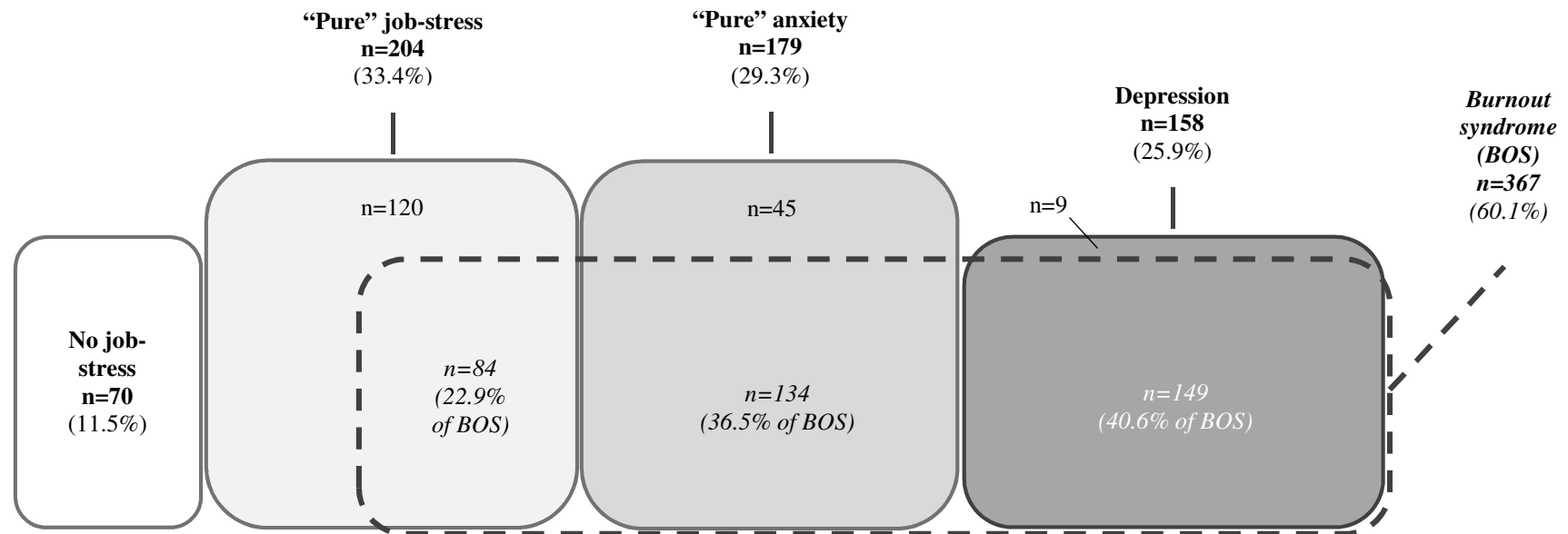


Table 1

Description of participants and bivariate analyses comparing psychiatrists and non-psychiatrists

	Total (n=611)	Psychiatrists (n=285)	Non- psychiatrists (n=326)	p
Sociodemographic and occupational variables				
Gender (female)	61.7%	61.1%	62.3%	ns
Age ≥ 40 years	64.0%	61.8%	66.0%	ns
Permanent contract	74.0%	76.5%	71.8%	ns
Full-time work	89.2%	87.7%	90.5%	ns
Seniority ≥ 4 years	64.8%	59.6%	69.3%	0.014
Job-stress, anxiety, depression and burnout				
Job-stress	88.5%	88.4%	88.7%	ns
Anxiety (HADS-A ≥ 8)	53.5%	48.8%	57.7%	0.029
Anxiety (HADS-A ≥ 11)	28.6%	22.8%	33.7%	0.003
HADS-A score	8.45 (4.15)	7.85 (4.08)	8.97 (4.14)	0.001
Depression (HADS-D ≥ 8)	25.9%	22.5%	28.8%	ns
Depression (HADS-D ≥ 11)	11.1%	9.5%	12.6%	ns
HADS-D score	5.29 (3.86)	4.92 (3.82)	5.61 (3.86)	0.027
Personal burnout (CBI≥50)	49.3%	51.2%	47.5%	ns
Personal burnout score (CBI)	46.39 (21.48)	47.46 (21.05)	45.45 (21.84)	ns
Work-related burnout (CBI≥50)	44.0%	42.5%	45.4%	ns
Work-related burnout score (CBI)	44.06 (18.12)	43.26 (20.30)	44.76 (15.96)	ns
Interpersonal burnout (CBI≥50)	40.9%	45.3%	37.1%	0.048
Interpersonal burnout score (CBI)	41.69 (22.34)	43.90 (22.22)	39.75 (22.29)	0.022
Burnout syndrome	60.1%	60.0%	60.1%	ns
Burnout-anxiety-depression syndrome	68.9%	67.4%	70.2%	ns
Work relationships considered as a major stress factor				
Patients or relatives	26.4%	28.1%	24.8%	ns
Care teams	24.7%	29.5%	20.6%	0.011
Colleagues	28.3%	27.0%	29.4%	ns
Collaborators	13.7%	10.5%	16.6%	0.034
Leaders	30.8%	28.8%	32.5%	ns
Hospital management and administration	45.3%	49.8%	41.4%	0.042
Other persons	7.0%	5.3%	8.6%	ns
At least one relationship	87.4%	89.1%	85.9%	ns
Psychosocial risk factors (PRFs)				
Work intensity and time	37.8%	33.0%	42.0%	0.024
Emotional demands	21.8%	24.6%	19.3%	ns
Lack/insufficiency of autonomy	11.9%	13.0%	11.0%	ns
Bad quality in social relation at work	23.6%	24.2%	23.0%	ns
Conflict of values (ethical suffering)	18.3%	21.4%	15.6%	ns
Insecurity at work	11.0%	11.9%	10.1%	ns

Table 2

Risk factors for pure anxiety, depression, personal burnout, work-related burnout, interpersonal-related burnout and their clustering (BADs) among psychiatrists and non-psychiatrists. Binary logistic regression analyses (OR [95% CI]). Non-significant variables are not included.

		Burnout-anxiety-depression syndrome	Pure anxiety	Depression	Personal burnout	Work-related burnout	Interpersonal burnout
Gender (ref: women)	P	2.17 [1.12-4.22]	2.26 [1.17-4.40]	/	2.66 [1.42-5.02]	/	/
	NP	/†	ns‡	/	2.08 [1.18-3.69]	/	/
Seniority ≥ 4 years	P	/	/	/	/	/	4.23 [1.72-10.42]
	NP	/	/	/	ns	/	/
Work intensity and time	P	20.02 [5.83-68.70]	2.38 [1.18-4.80]	2.82 [1.30-6.09]	9.64 [4.63-20.08]	7.01 [3.62-13.60]	7.60 [3.73-15.48]
	NP	3.03 [1.60-5.77]	2.35 [1.31-4.21]	2.14 [1.14-4.03]	3.29 [1.93-5.60]	4.23 [2.49-7.19]	ns
Emotional demands	P	7.80 [2.20-27.63]	4.87 [2.23-10.64]	4.14 [1.72-9.96]	3.13 [1.45-6.75]	4.27 [2.02-9.02]	4.33 [1.95-9.62]
	NP	11.07 [2.51-48.86]	ns	ns	3.62 [1.71-7.67]	3.94 [1.92-8.11]	3.77 [1.90-7.48]
Lack / insufficiency of autonomy	P	ns	/	3.79 [1.16-12.40]	ns	3.78 [1.06-13.54]	ns
	NP	ns	/	4.52 [1.50-13.66]	ns	2.84 [1.11-7.26]	5.12 [1.95-13.46]
Bad quality in social relation at work	P	ns	/	ns	ns	ns	3.10 [1.17-8.22]
	NP	11.23 [2.55-49.44]	ns	ns	3.33 [1.63-6.80]	3.19 [1.61-6.34]	5.30 [2.71-10.35]
Conflict of values (ethical suffering)	P	ns	/	ns	ns	2.59 [1.10-6.12]	ns
	NP	13.79 [1.75-108.76]	ns	4.01 [1.48-10.88]	3.48 [1.47-8.22]	2.65 [1.16-6.10]	2.99 [1.34-6.70]
Insecurity at work	P	ns	/	ns	ns	4.98 [1.52-16.35]	ns
	NP	ns	/	ns	ns	ns	ns

Significant risk factors (OR and CI) common to both physician groups are in bold face

†/ = non-significant explanatory variables after bivariate analysis (p > 0.10), ‡ns = non-significant variables after binary logistic regression analysis (p > 0.05)

P = psychiatrists (n= 285, except for pure anxiety [n=221] and depression [n=205]), NP= non-psychiatrists (n= 326, except for pure anxiety [n=232] and depression [n=227])

The criteria for the different syndromic categories have been specified in § 2.4.

Table 3
Work relationships associated with interpersonal burnout. Binary logistic regression analyses (OR [95% CI])

	Psychiatrists (n=285)	Non-psychiatrists (n=326)
Patients or relatives	ns	ns
Care teams	2.55 [1.06-6.15]	ns
Colleagues	3.94 [1.67-9.27]	ns
Collaborators	ns	ns
Leaders	4.01 [1.68-5.54]	5.31 [2.11-13.33]
Hospital management and administration	ns	2.47 [1.02-6.01]
Other persons	ns	ns

Significant risk factors (OR and CI) common to both physician groups are in bold face