

Burnout Syndrome in Critical Care Nursing Staff

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Rationale: Burnout syndrome (BOS) associated with stress has been documented in health care professionals in many specialties. The intensive care unit (ICU) is a highly stressful environment. Little is known about BOS in critical care nursing staff.

Objectives: To identify determinants of BOS in critical care nurses.

Methods: We conducted a questionnaire survey in France. Among 278 ICUs contacted for the study, 165 (59.4%) included 2,525 nursing staff members, of whom 2,392 returned questionnaires with complete Maslach Burnout Inventory data.

Measurements and Main Results: Of the 2,392 respondents (82% female), 80% were nurses, 15% nursing assistants, and 5% head nurses. Severe BOS-related symptoms were identified in 790 (33%) respondents. By multivariate analysis, four domains were associated with severe BOS: (1) personal characteristics, such as age (odds ratio [OR], 0.97/yr; confidence interval [CI], 0.96–0.99; $p = 0.0008$); (2) organizational factors, such as ability to choose days off (OR, 0.69; CI, 0.52–0.91; $p = 0.009$) or participation in an ICU research group (OR, 0.74; CI, 0.56–0.97; $p = 0.03$); (3) quality of working relations (1–10 scale), such as conflicts with patients (OR, 1.96; CI, 1.16–1.30; $p = 0.01$), relationship with head nurse (OR, 0.92/point; CI, 0.86–0.98; $p = 0.02$) or physicians (OR, 0.81; CI, 0.74–0.87; $p = 0.0001$); and (4) end-of-life related factors, such as caring for a dying patient (OR, 1.39; CI, 1.04–1.85; $p = 0.02$), and number of decisions to forego life-sustaining treatments in the last week (OR, 1.14; CI, 1.01–1.29; $p = 0.04$).

Conclusion: One-third of ICU nursing staff had severe BOS. Areas for improvement identified in our study include conflict prevention, participation in ICU research groups, and better management of end-of-life care. Interventional studies are needed to investigate these potentially preventive strategies.

Keywords: end of life; conflicts; ethics; communication; organization

Burnout syndrome (BOS) was identified in the early 1970s in human service professionals, most notably health care workers (1). BOS has been described as an inability to cope with emotional stress at work (2) or as excessive use of energy and resources leading to feelings of failure and exhaustion (3). Although depression affects nearly every aspect of the person's life, symptoms of burnout occur only at work; however, BOS also decreases overall well-being (4). Maslach and Jackson developed the Maslach Burnout Inventory (MBI) for detecting and measuring the severity of BOS. The scale evaluates three domains, namely, emotional exhaustion, depersonalization (negative or cynical attitudes toward patients), and loss of a feeling of personal accomplishment at work (1). Clinical symptoms of BOS are

AT A GLANCE COMMENTARY

Scientific Knowledge on the Subject

The reality of burnout syndrome in critical care nurses has been suggested, but never demonstrated in large cross-sectional surveys.

What This Study Adds to the Field

Burnout syndrome is frequent in ICU nursing staff.

nonspecific and include tiredness, headaches, eating problems, insomnia, irritability, emotional instability, and rigidity in relationships with other people.

Wide variations in the prevalence of BOS in health care professionals have been reported across specialties, both in doctors (5) and in nurses (6). Workplace climate and workload were determinants of BOS (7). However, higher levels of severe BOS were found in oncologists (8–11), anaesthesiologists (12), physicians caring for patients with AIDS (13), and physicians working in emergency departments (14).

Intensive care units (ICUs) are characterized by a high level of work-related stress (15), a factor known to increase the risk of BOS (16). High rates of severe BOS were reported in ICU nurses as early as 1987 (17). BOS is associated with decreased well-being among nursing staff members (18), decreased quality of care (19–21), and costs related to absenteeism and high turnover (22), all of which have particularly devastating consequences in the ICU. Few studies have addressed the prevalence and determinants of BOS in ICUs. A study based on the MBI showed a high rate of BOS among ICU physicians, with determinants being related to both patient care and inadequate support (23). Similarly, studies in ICU nurses indicated that BOS was common and preventive strategies were urgently needed (24, 25). However, these studies did not identify independent risk factors for BOS, which is a crucial step toward developing preventive strategies.

To look for potentially modifiable precursors to BOS, we conducted a large nationwide study in 2,392 nursing staff members working in 165 ICUs throughout France. Our results show a high level of BOS and identify determinants of BOS that suggest preventive strategies.

METHODS

Nurses in France are graduates of a 3-year diploma program, and ICU nurses receive the same training as nurses in other specialties. At first arrival in the ICU, the nurse receives 3 months of specific training. Nurses work 35 hours a week in two or three daily shifts of 8 to 12 hours each. Each ICU has a head nurse, who usually holds a Bachelor's or Master's of Science in Nursing. The patient-to-nurse ratio is

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2.5 to 3 in most ICUs and the patient-to-nursing assistant ratio is 4. Nursing assistants help nurses in patients' care, but they do not care directly for the patients. Staff meetings are held by physicians, nurses, and nursing assistants to discuss patient care. In some ICUs, physicians and nurses participate in research groups to investigate specific issues.

The ethics committee of the French Society for Critical Care approved the current study in December 2004. An invitation letter and a study draft were sent to the head nurses of the 286 ICUs that were affiliated with the French Society for Critical Care (which account for half the ICUs in France) and that met the following criteria: located in a not-for-profit hospital, more than six beds and more than two attending physicians, and at least one physician on site 24 hours a day. The head nurses were invited to give a questionnaire to each nurse and nursing assistant in the ICU. Questionnaires were completed anonymously. Head nurses completed an additional questionnaire on the ICU (Table 1). Staff meetings were defined for the study as meetings held at least once a week by physicians and nurses to discuss patient care.

The questionnaire was three pages long and was accompanied by a letter explaining that the goal of the study was to investigate well-being in ICU nurses and that the questionnaire was to be completed anonymously and returned in a sealed envelope. The first page of the questionnaire included items on demographics and the work-related factors listed in Table 2. Participation in an ICU research group depends on the organization of each ICU and is usually coordinated by the head nurse and one of the senior intensivists. Conflict was not defined in the questionnaire and was therefore evaluated according to the perceptions of each respondent. In addition, nurses were asked to grade their relationship with other nurses, head nurses, and physicians on a 0 to 10 scale, where 0 indicated the worst possible relationship and 10 the best possible relationship. The second page of the questionnaire included the 22 items of the MBI (Human Services version, validated in French [13]), as well as eight items designed to assess the impact of BOS on daily life (1). Recognized for over a decade as the leading measure of burnout, the MBI incorporates the extensive research that has taken place in the 15 years since its initial publication (1). The MBI measures burnout as it manifests itself in staff members in human services institutions and health care occupations, such as nursing, social work, psychology, ministry, and various other socially related occupations (1, 26, 27). Previous studies in the critical care setting have pointed out that the MBI was reliable for measuring burnout in critical care staff (23, 25, 28). The MBI comprises three subscales: emotional exhaustion (9 items), depersonalization (5 items), and personal accomplishment (8 items). High scores of emotional exhaustion and depersonalization and low

scores of personal accomplishment result in high scores of BOS. Each item is scored from 0 (never) to 6 (every day). The third and last page of the questionnaire included the 22 items of the Center for Epidemiological Studies Scale for Depression (CES-D), as previously recommended when studying BOS (29).

The sealed envelopes containing the individual questionnaires were collected by the head nurse in each ICU and sent back to the main investigators. No data were recorded on nursing staff members who declined to answer. The questionnaires were audited by the senior authors of this article (M.C.P., P.T., and E.A.), and missing data on ICU characteristics were collected by phone calls and e-mail contact with head nurses.

Statistical Analysis

Questionnaires with no missing MBI data were included in the analysis. We determined each of the three MBI subscale scores and the total score. We defined severe BOS as a total MBI score greater than -9 , in accordance with Maslach and colleagues (1).

Results are reported as medians (interquartile range [IQR]) or as numbers (%). Categorical variables were compared using the chi-square test or Fisher exact test, as appropriate, and continuous variables using the nonparametric Wilcoxon test or Kruskal-Wallis test. Presence of "severe BOS" was the outcome variable of interest. We performed univariate logistic regression analyses to identify variables that significantly influenced the likelihood of severe BOS, as measured by the estimated odds ratio (OR) with the 95% confidence interval (95% CI). All variables whose *p* values were less than 0.20 were introduced in a multivariable stepwise logistic regression model. All tests were two-sided, and *p* values smaller than 0.05 were considered statistically significant. Analyses were performed using the SAS 9.1 software package (SAS Institute, Cary, NC).

RESULTS

As reported in Figure 1, 165 (57.7%) of the 286 invited ICUs participated in the study and sent questionnaires completed anonymously by 2,497 nursing staff members. ICUs who agreed to participate were not significantly different than ICUs who declined to participate, in terms of location in France, unit size (number of beds), teaching versus community hospitals, and case mix. The head nurses reported that 237 nursing staff members declined to participate in the study. Questionnaires that had complete MBI data were returned by 2,392 respondents (1,937 [81%] nurses, 359 [15%] nursing assistants, and 96 [4%] head nurses). Characteristics of the participating ICUs are presented Table 1. Time from nursing school graduation to questionnaire completion was a median of 40 months (IQR, 17–96 mo), and time in the ICU was 36 months (IQR, 17–58 mo). Work schedule was 16 days (IQR, 13–20 d) per month, 10 hours (IQR, 8–12 h) per day, and 36 hours (IQR, 35–40 h) per week. Patient–nurse ratio was 3 (IQR, 3–3).

Severe BOS (MBI < -9) was identified in 785 (32.8%) respondents, with no significant differences between nurses, nursing assistants, and head nurses. Among the characteristics of the participating ICUs, only the type of hospital was associated with the rate of severe BOS, which was higher in teaching hospitals than in other hospitals (36 vs. 31%, *p* = 0.01). Characteristics of the respondents and factors significantly associated with severe BOS in the univariate analysis are shown in Figures 1 and 2 and Table 2. In the multivariable analysis (Table 3), four groups of characteristics were associated with severe BOS, namely, personal characteristics of the respondent, such as age (OR, 0.97/yr; 95% CI, 0.96–0.99); organizational factors, such as days off scheduled as wished (OR, 0.69; 95% CI, 0.52–0.91) and participation in an ICU working group (OR, 0.73; 95% CI, 0.56–0.97); quality of working relationships, such as conflicts with patients (OR, 1.96; 95% CI, 1.16–3.30), relationship with head nurses (OR, 0.92; 95% CI, 0.86–0.98) and physicians (OR, 0.81; 95% CI, 0.74–0.87); and end-of-life-related factors, such as caring for a dying patient

TABLE 1. CHARACTERISTICS OF THE PARTICIPATING INTENSIVE CARE UNITS*

	Median (25th–75th) or numbers (%)
University hospital	52 (31.5)
Type of ICU	
Medical	32 (19.4)
Surgical	17 (10.3)
Medical-surgical	116 (70.3)
Number of ICU beds	10 (8–15)
Number of patients admitted per year	415 (315–439)
Length of ICU stay	7 (5.8–9)
SAPS II	41.5 (35–45)
Observed mortality	22.5 (16–46)
Number of patients per nurse	3 (2–4)
Number of nurses	21 (16–32)
Number of nursing assistants	12 (8–18)
Number of attending physicians	4 (2–5)
Number of residents	1 (0–3)
Full-time psychologist	28 (17)
Debriefing meetings between physicians and nurses on a regular basis	51 (30.9)
Participation in an ICU research group	84 (50.0)

Definition of abbreviations: ICU = intensive care unit; SAPS = Simplified Acute Physiologic Score.

* *n* = 165.

TABLE 2. CHARACTERISTICS OF THE RESPONDENTS*

	All Respondents (n = 2,392, 100%)	Respondents with Severe BOS (n = 785, 32.8%)	Respondents without Severe BOS (n = 1,607, 67.2%)	p Value
Respondent's age	31 (27 to 39)	31 (26 to 38)	33 (27 to 40)	0.02
Female sex	1,963 (82.1)	648 (82.5)	1,315 (81.8)	0.55
Months in the ICU	40 (17 to 96)	43 (17 to 96)	40 (17 to 96)	0.14
Single	842 (35.2)	285 (36.3)	557 (34.7)	0.60
Number of work hours per day	10 (8 to 12)	10 (8 to 12)	10 (8 to 12)	0.79
Number of work days per month	16 (13 to 20)	17 (14 to 20)	16 (12 to 20)	0.60
Number of work nights per 6 months	15 (0 to 30)	14 (0 to 30)	15 (0 to 30)	0.81
Able to schedule days off according to personal wishes	1,359 (56.8)	377 (48)	980 (61)	< 0.0001
Believed that the work schedule was changed too often	741 (31)	280 (35.8)	461 (28.7)	0.0006
Participation in a working group within the ICU	1,129 (47.2)	334 (42.5)	795 (49.5)	0.02
Respondent was off on the day before the study	1,076 (45)	329 (42)	747 (46.5)	0.06
Respondent reports current conflict with another nurse	254 (10.6)	126 (16)	128 (8)	< 0.0001
Grade (1–10) given to the relationship with other nurses	8 (7 to 9)	7.5 (7 to 8)	8 (8 to 9)	< 0.0001
Grade (1–10) given to the relationship with the head nurse	8 (6 to 9)	7 (5 to 8)	8 (7 to 9)	< 0.0001
Respondent reports current conflict with physicians	227 (9.5)	106 (13.5)	121 (7.5)	< 0.0001
Grade (1–10) given to the relationship with physicians	7 (6 to 8)	6.5 (5 to 8)	7 (6 to 8)	< 0.0001
Respondent reports current conflict with patients	146 (6.1)	74 (9.5)	72 (4.5)	< 0.0001
Respondent reports current conflict with family members	105 (4.4)	55 (7)	50 (3.1)	< 0.0001
Respondent is caring for a dying patient	863 (36.1)	341 (43.4)	522 (32.5)	< 0.0001
Respondent participated in an end-of-life decision on the study day	325 (13.6)	112 (14.3)	213 (13.2)	0.59
Respondent had patients who died in the last week	990 (41.4)	354 (45.1)	636 (39.6)	0.02
Respondent was involved in an end-of-life decision in the last week	782 (32.7)	272 (34.6)	510 (31.7)	0.22
Number of DFLSTs in the last week	0 (0 to 1)	1.5 (0 to 2)	0 (0 to 1)	0.09
Maslach Burnout Inventory total score	-16 (-26 to -5)	-23 (-30 to -16)	1 (-4 to 10)	< 0.0001

Definition of abbreviations: BOS = burnout syndrome; DFLSTs = decisions to forego life-sustaining therapies; ICU = intensive care unit.

Values shown are medians (25th–75th) or numbers (%).

* n = 2,392.

(OR, 1.39; 95% CI, 1.04–1.85) and larger number of decisions to forego life-sustaining treatments within the last week (OR, 1.14; 95% CI, 1.01–1.29).

Figure 4 shows the prevalence of symptoms designed to assess the impact of BOS on daily life, and of depressive symptoms as measured by the CES-D. These symptoms were significantly more common in respondents with severe BOS than in the other respondents. Symptoms of depression on the CES-D scale were noted in 287 (12%) respondents, including 223 (28.4%) respondents with severe BOS and 64 (4%) respondents without severe BOS ($p < 0.0001$). Furthermore, 458 (60%) respondents with severe BOS reported thinking about changing to another profession, compared with only 468 (29.9%) of the other respondents ($p < 0.0001$).

DISCUSSION

The ICU is a highly stressful environment and may therefore be associated with a high rate of BOS in staff members (15, 17). The cost of BOS includes decreased quality of care (19, 30–32), absenteeism and high turnover rates (22), and poor communication with families (19). We report the first large multicenter study of the prevalence of severe BOS in ICU nursing staff members, as measured by the MBI scale for human service professionals. In the 165 participating ICUs, 2,392 nursing staff members completed the MBI, including 785 (32.8%) with severe BOS. Several factors associated with severe BOS were identified, thereby opening up avenues for research into preventive strategies.

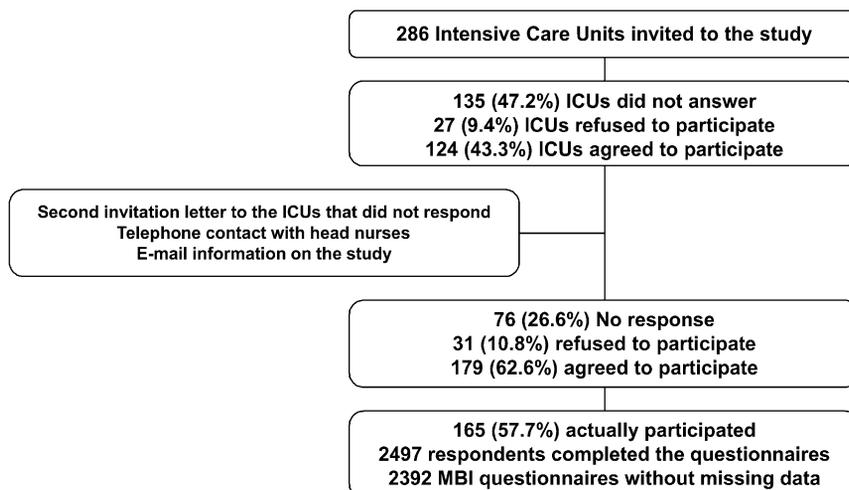


Figure 1. Study flow chart. ICU = intensive care unit.

Maslach Burnout Inventory Score

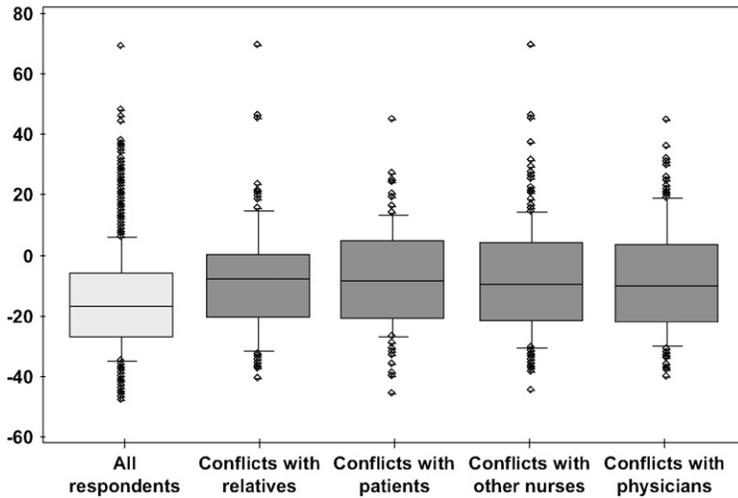


Figure 2. Maslach Burnout Inventory scores in all respondents and in those reporting conflicts. From *bottom to top*, the five *horizontal lines* in each *box plot* indicate the 10th, 25th, 50th (median), 75th, and 90th percentiles.

Both personal characteristics and work-related factors have been associated with BOS (18, 30). Among work-related factors, workplace climate and workload influence the risk of BOS (7). We identified four groups of variables that were independently associated with severe BOS; however, the number of hours worked was not among them. Our finding that choosing days off and participating in research groups decreased the risk of severe BOS agrees with earlier data (6) and suggests simple preventive strategies. In keeping with data in residents (19, 31), our results suggest that younger and less experienced nursing staff members might benefit the most from preventive strategies. Job satisfaction is increased when individuals receive positive feedback indicating that their work is valued and significant. Interventions such as research groups (33), stress management workshops (34, 35), and training in communication and stress management (36) have been found to decrease stress and BOS

in health care workers. In addition, staff meetings were not associated with a significant reduction in the rate of severe BOS in our study, suggesting a need for evaluating and improving debriefing techniques (37).

Perceived conflicts with patients, families, or other staff members increased the risk of BOS in our study. Emotional exhaustion is a direct consequence of conflict that leads to depersonalization and to loss of a sense of personal accomplishment (1). In our study, both perceived conflicts and perceived poor relationships with other staff members were strong independent risk factors for severe BOS. In keeping with this finding, having poor relations with patients was associated with a higher risk of BOS among physicians in an earlier study (5). Preventing conflicts and improving communication in the ICU may therefore decrease the risk of BOS. Conflicts in the ICU are being increasingly studied (38). Physicians and nurses differ in their perceptions of work

Maslach Burnout Inventory Score

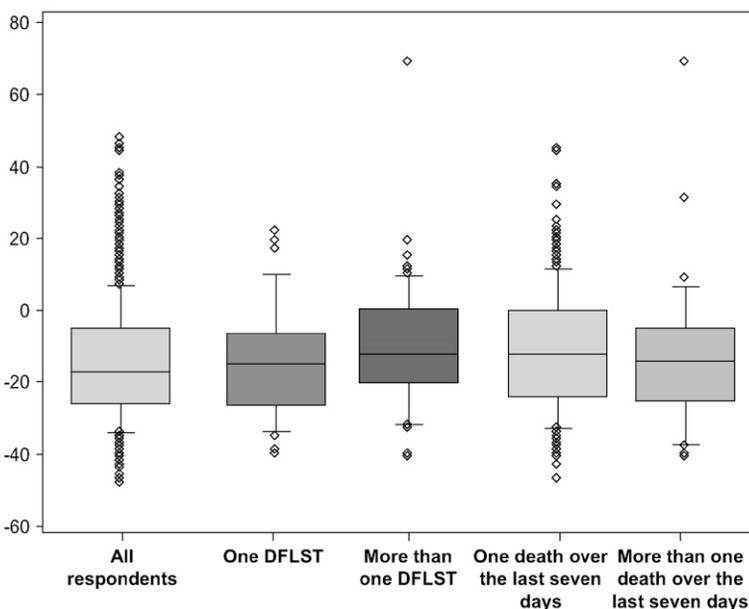


Figure 3. Impact of factors related to end-of-life care on the Maslach Burnout Inventory score. From *bottom to top*, the five *horizontal lines* in each *box plot* indicate the 10th, 25th, 50th (median), 75th, and 90th percentiles. DFLST = decision to forego life-sustaining treatments.

TABLE 3. MULTIVARIABLE ANALYSIS: INDEPENDENT DETERMINANTS OF SEVERE BURNOUT SYNDROME IN NURSING STAFF IN INTENSIVE CARE UNITS

	Odds Ratio	95% Confidence Interval	p Value
Respondent's age (per additional year)	0.97	0.96–0.99	0.0008
Able to schedule days off according to personal wishes	0.69	0.52–0.91	0.009
Participates in an ICU research group	0.73	0.56–0.97	0.03
Conflicts with patients	1.96	1.16–3.30	0.01
Grade (1–10) given to the relationship with head nurses	0.92	0.86–0.98	0.02
Grade (1–10) given to the relationship with physicians	0.81	0.74–0.87	0.0001
Respondent caring for a dying patient	1.39	1.04–1.85	0.02
Number of DFLSTs in the last week	1.14	1.01–1.29	0.04

Definition of abbreviations: DFLSTs = decisions to forego life-sustaining therapies; ICU = intensive care unit.

relationships (39), and of decisions to forego life-sustaining treatments (DFLSTs) (40–42), which may lead to conflicts and decreased quality of care (43–45). Further work is needed to clarify the interactions between conflicts and BOS. Interventional studies of conflict prevention should include an evaluation of BOS in participants.

DFLSTs are made for most of the patients who die in the ICU (46) and may lead to conflicts (40–42) and increased stress (18). High BOS rates have been reported in staff caring for dying patients (47), most notably in oncology nurses (48). Sharing the decision with the physicians (49) and being actively involved in the decision-making process were major goals reported by nurses (50). Previous studies showed that nurses provided compassionate care and effective assistance to dying patients and their relatives (51, 52). Several studies identified differences between ICU nurses and physicians regarding the provision of futile care (28, 43) or the assessment of treatment goals (39, 52). In our study, caring for a dying patient and a larger number of DFLSTs were independent determinants of BOS. In recent years, consid-

erable effort has been expended to improve end-of-life care (53), improve communication, and share discussions and decisions with patients and family members in the ICU (54). Our results suggest a need for expanding these efforts toward the nursing staff (43, 55). Intensive communication between nurses and physicians about DFLSTs may help nurses to feel that the work they do is valued and to escape from feelings of guilt.

Our study has several limitations. First, France and other countries may differ regarding factors associated with BOS, such as relationships between physicians and nurses (55). However, our sample was large and representative of different types of ICUs. Moreover, previous studies found similar rates of BOS in France and other countries (56). Second, a semistructured interview might have produced different results from the self-administered MBI questionnaire used in our study. However, the MBI has been validated as a tool for detecting BOS in health care professionals. Third, the questionnaire did not define conflicts, which may have biased one of the major findings of this study. By not supplying a definition, we collected data on

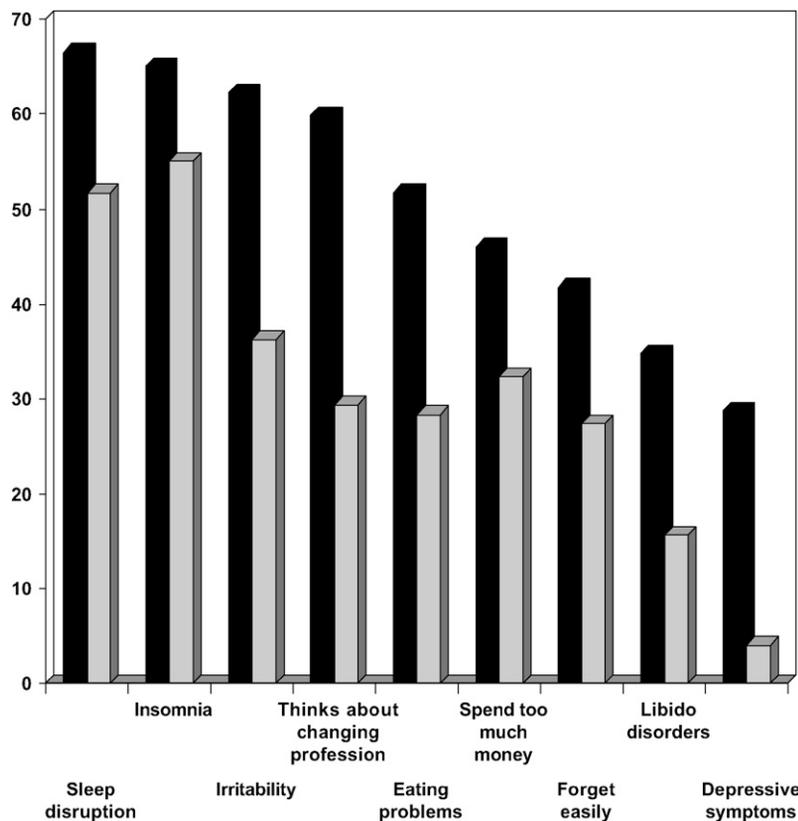


Figure 4. Clinical impact of severe burnout syndrome (BOS) in respondents. *Solid columns* indicate prevalence of symptoms in nurses with BOS and *shaded columns* indicate prevalence of symptoms in nurses without BOS. All differences are statistically significant ($p \leq 0.01$).

perceived conflicts, which are probably those relevant to the occurrence of BOS. Fourth, nursing assistants and head nurses represented 20% of the total nursing staff surveyed. However, even though these respondents had the same level of BOS than the nurses, strategies to address their burnout might be different. Further studies will need to identify specific needs from each group in the nursing staff (57). Last, as reported in Figure 4, severe symptoms that disrupt everyday life occurred also in respondents who did not have severe BOS. These respondents may have had moderate BOS or other sources of distress, either personal or work related, that were not explored in our study. Similarly, qualitative analysis of depressive symptoms in critical care nurse might reflect another domain needed to be studied.

In conclusion, severe BOS was common in a large group of ICU nurses and nursing assistants. The development of ICU research groups may hold promise for preventing BOS, together with conflict prevention and improvements in communication within the ICU caregivers during the end-of-life decision-making process.

Conflict of Interest Statement: M.C.P. does not have a financial relationship with a commercial entity that has an interest in the subject of this manuscript. P.T. does not have a financial relationship with a commercial entity that has an interest in the subject of this manuscript. L.P. does not have a financial relationship with a commercial entity that has an interest in the subject of this manuscript. N.K.-B. does not have a financial relationship with a commercial entity that has an interest in the subject of this manuscript. J.-F.T. received two research grants from Pfizer France. F.P. does not have a financial relationship with a commercial entity that has an interest in the subject of this manuscript. S.C. does not have a financial relationship with a commercial entity that has an interest in the subject of this manuscript. B.S. received two research grants from Pfizer France. E.A. received two research grants from Pfizer France.

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