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Young and burnt? Italian contribution to the international BurnOut Syndrome Study (BOSS) among residents in psychiatry

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Key words
Burnout syndrome; psychiatry; residents

Parole chiave
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Summary
Background: *The Burnout Syndrome (BS) is a common condition among health care professionals, yet data concerning its prevalence and associated factors among psychiatric residents are lacking.* **Objectives:** *To report the results of the Italian contribution to "BOSS", an international multicentre research project aiming at estimating the burden of BS among residents in psychiatry, and at identifying factors contributing to its development and prevention.* **Methods:** *Cross-sectional study. The BOSS online questionnaire, which collected socio-demographic data and five psychometric tools (MBI-GS, AWLS, PHQ-9, SIBQ, BFI), was administered electronically to 180 Italian residents in psychiatry. Simple and multiple linear regressions were performed to analyse data.* **Results:** *108 questionnaires provided data for the study (response rate: 60%). Mean age: 30.5±3.7 years. Eighty percent of the sample were female. A moderate level of BS emerged, related to work conditions, absence of major depression, satisfaction with pay or less academic activity. Only 0.9% (N=1) of the sample showed PHQ-9 scores suggestive of major depression, while lifetime suicidal ideation was admitted by 16% of residents. For the three dimensions of the MBI-GS, Italian sample scores were consistent with previously published results concerning pooled data in a French-Croatian sample, reporting moderate levels of BS. Higher workload, symptoms of depression and lower satisfaction predicted higher levels of Emotional Exhaustion and Cynicism.* **Conclusions:** *Italian residents in psychiatry showed overall moderate levels of BS, related to workload and work organization. Other alerts of psychic distress were found among participants, namely symptoms of depression, suicidal ideation and use of psychotropic medications.*

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Riassunto

«Giovani e bruciati? Studio Internazionale sulla Sindrome del Burnout negli specializzandi in psichiatria, i dati italiani». **Introduzione:** *La Sindrome del Burnout (BS) è molto diffusa tra gli operatori sanitari, tuttavia scarseggiano dati riguardanti la prevalenza tra gli specializzandi in psichiatria.* **Obiettivi:** *Comunicare i risultati del contributo italiano al BOSS (Burnout Syndrome Study), studio internazionale multicentrico per determinare il livello di BS tra gli specializzandi in psichiatria, identificando fattori in grado di influenzarne sviluppo e prevenzione.* **Metodi:** *Studio trasversale. Il questionario BOSS online, costituito da dati sociodemografici, e da cinque strumenti psicometrici (MBI-GS, AWLS, PHQ-9, SIBQ, BFI) è stato inviato a 180 specializzandi in psichiatria italiani, utilizzando Surveymonkey. Analisi statistica effettuata mediante regressioni lineari semplici e multiple (SPSS 17.0).* **Risultati:** *108 questionari sono stati correttamente compilati (response rate: 60%). Età media: 30.5±3.7 anni. Donne: 80% del campione. È emerso un livello moderato di BS associato alle condizioni di lavoro e a: presenza di sintomi depressivi, soddisfazione per lo stipendio, minor numero di pubblicazioni scientifiche. Solo lo 0.9% del campione (N=1) presentava score al PHQ-9 significativi per depressione maggiore, mentre nel SIBQ il 16% ammetteva di aver pensato al suicidio. Complessivamente è emerso un livello di BS "moderato", analogo a quanto precedentemente riportato in un campione franco-croato. Alto carico di lavoro, sintomi depressivi e insoddisfazione predicevano alti Esaurimento Emotivo e Depersonalizzazione.* **Conclusioni:** *Gli specializzandi intervistati mostravano un livello moderato di BS, correlato al carico e all'organizzazione del lavoro, anche se altri segni di distress psicologico sono emersi, in particolare sintomi depressivi, ideazione suicidaria e uso di psicofarmacoterapie.*

Introduction

"Burnout" means literally "to burn till exhaustion", due to a running out of resources. The term has been used since the very beginning of the 20th Century, in different fields such as sport (46), literature (33) and medicine (19, 59), including psychiatry. In 1976 Cristina Maslach was the first to introduce the term in its current clinical conceptualization to describe a growing situation of work stress, typically reported by nurses or physicians, related to the organization of work and ultimately leading to a psychiatric syndrome, the "Burnout Syndrome" (BS) (39, 38). Three dimensions of BS were described: Emotional Exhaustion (EE), the feeling of progressive loss of energy with emotional lability; Depersonalization, or Cynicism (C), a coldness and feeling of detachment from others, who end up being perceived as objects; and reduced Professional Efficacy (PE), the perception of individual inadequacy and reduced self-confidence in the work place. The Maslach Burnout Inventory (MBI; 37) was specifically developed to measure the three dimensions of BS. BS was not included as such in the DSM (1), but is mentioned in the ICD-10 (67) among factors that influence individual wellbeing (Z73.0). BS is the end-point of a three-step process (10, 40): the first step is an imbalance between available resources and demands, leading to the development of a short-term stress response (second step), with exhaustion, fatigability, and anxiety. Finally, changes in the individual behavioural pattern occur. Both individual factors connected to personality (12) and relational, organizational and socio-cultural factors (62, 11) contribute to this process.

The typical clinical presentation of BS includes both physical and psychological symptoms (headache, dizziness, fatigue, reduced self-esteem, apathy, anhedonia, anxiety). In the later stage, it may turn into a depressive disorder, though with differences in psychopathology (i.e. self-accusing and self-blaming are generally not present). Comorbidity with other psychiatric conditions is common, e.g. alcohol-substance abuse and self-harm behaviour in the most severe cases (54).

Symptoms of, or full-blown BS are common among medical doctors (EE: 46%-80%; C: 22%-93%; PE: 16%-79%; 11) and health professionals of all specialties; significant levels of BS (EE and C

dimensions especially) were reported among physicians and nurses working in oncology (9). A study involving Italian nurses reported clinically significant mean scores in the MBI (49). Among psychiatrists, a prevalence of BS of 37.6% was found, with EE: 49%; C: 39%; PE: 22% (6, 25). BS also considerably affects General Practitioners (GPs): in a sample of Italian GPs, 37.5% scored high on EE, 26.8% on C and 8.9% on PE (44, 45).

BS seems to be even more common and/or severe among residents and early career physicians (13, 50). The reasons for increased susceptibility to BS among young doctors may be several: increased exposure to a contrast between higher ideals and work reality (23); for residents, the ambiguity of the professional role, half-way between students and professionals; for newly specialized physicians, the abrupt passage from being a student to working unprotected in the "real world", and in clinical settings very different from traditional teaching hospitals; limited or no involvement in work-systems and decision processes; the risk of professional isolation; work over-load.

Consequently, residents in psychiatry and early career psychiatrists may be at even higher risk of developing BS, since they experience all these risk factors (22). Only a few studies have been performed, however, to test this hypothesis: Prins et al. examined levels of burnout in 158 medical residents working at the University Medical Centre of Groningen, the Netherlands: 13% had symptoms of BS, and they were mostly residents in Psychiatry (50). Italian residents in psychiatry showed high levels of EE and C, though with low levels of PE (66).

The "BurnOut Syndrome Study" (BOSS) was conceived by a network of researchers involved in the European Federation of Psychiatric Trainees (EFPT) and the Early Career Psychiatrists project of the European Psychiatric Association, as an international multi-centric study coordinated by two of this paper's authors (NJ and JB) (23). The aim of BOSS was to assess BS rates among psychiatric trainees in an international perspective, and explore whether working conditions, with context-specific features, influence burnout. University post-graduate schools of specialization in psychiatry of the following 21 countries were involved: Austria, Bosnia, Bulgaria, Czech Republic, Croatia, Denmark, Egypt, France, Germany, Greece, Hungary, Italy, Iran, Latvia, Netherlands, Romania, Russia, Slovenia, Turkey, UK, USA. No control group was included in the research protocol, since comparison was between the different national experiences.

France and Croatia were the first two nations to complete the study, and their contribution to BOSS has already been published (23). The aim of the present study was to present the results of the Italian contribution to BOSS.

Methods

Italy took part in BOSS, with two of the authors as national coordinators (SF and UV). The original English research questionnaire was translated into Italian by the researchers, with a standardized procedure and under supervision of the international coordinators. The Italian versions of five psychometric tools were included in the electronic questionnaire. The study was approved by the Modena Ethical Committee in February 2009. Written informed consent was provided by participants (included as a first gate-keeping question in the electronic questionnaire), and guidelines governing research from the Declaration of Helsinki were respected.

Subjects

The Italian BOSS started in 2009; in that year, 774 residents in psychiatry, 252 male (33%) and 522 female (67%), were attending the 32 post-graduate psychiatry specialization schools over the national territory (source: website of the Italian Ministry of University and Research). Residents were contacted informally (mailing lists, network of early career psychiatrists of the Italian Psychiatry Society, at meetings and scientific events), in order to preserve spontaneity and motivation to respond. One hundred and eighty residents were invited to take part in the survey, representing 11 of the 32 Italian schools and 23% of the total number of trainees in psychiatry that year. The only inclusion

criterion was "being resident at an Italian psychiatric post-graduate school". No exclusion criteria were defined in the research protocol.

Residents interested in participating in the study communicated their e-mail address to the national coordinators, who forwarded them to the international coordinators. The latter sent an invitation e-mail, including a description of the study and the link to the on-line questionnaire with request of consent incorporated. The Surveymonkey software was used to develop the on-line questionnaire and collect results automatically and anonymously in the study database using industry standard encryption technology. Two reminders were sent to non-responders at fortnightly intervals following the initial invitation.

Measurements

Participants were administered a 138-item questionnaire, including closed, multiple-choice and open questions, and structured into 10 sections, each covering a specific topic; 5 of the sections comprised standardized psychometric instruments, permission for use was obtained from the authors of the original versions. The structure of the questionnaire is detailed in table 1.

Statistical analysis

Descriptive statistical analysis was calculated, using means and standard deviations for continuous variables and proportions for binary variables. A regression analysis was then performed for inferential statistics, with the three scores for the MBI-GS as dependent variables. Regressors were represented by all other collected data, namely socio-demographic features (used for adjustment) and scores in AWLS, PHQ-9, SIBQ, BFI-10. First, simple linear regressions were performed to detect associations between individual co-variables and response variables. Subsequently, all co-variables were included in multiple linear regression models. All regressions were adjusted for socio-demographic factors. A level of statistical significance of $p<0.05$ was adopted. SPSS (version 17.0) was used for all analyses.

Results

One hundred and eighty Italian residents in psychiatry were invited to participate, corresponding to the 23% of the total number of residents in psychiatry in Italy in the year considered; of these, 124 (69%) accessed the online questionnaire, and 108 (60% of the total sample, 87% of those accessing the questionnaire) completed the survey.

Descriptive analysis

Socio-demographics, training, work conditions

Table 2 displays results for sections P2-4 and P10 of the questionnaire.

Scores on psychometric scales

Table 3 displays scores for the five psychometric tools included in the survey.

MBI-GS scores showed moderate levels of BS on the three subscales: EE (2.5±1.3), C (1.5±1.3) and PE (4.6±0.62). Figure 1 reports the proportion of subjects for each subscale who obtained scores indicative of mild, moderate or severe BS, compared with normative values (29).

Regression analysis

Results reaching statistical significance via simple linear regressions are displayed in table 4. An increase in the C score was associated with an increase in the EE score. An increase in the PE score was associated with a decrease in C. As far as the individual components of the AWLS are concerned, the following associations emerged: a decrease in EE was predicted by an increase in the scores of Workload, Control, Reward, Working group and Fairness; in the same way, a decrease in C was predicted by an increase in Workload, Reward and Working group. Finally, a decrease in PE was predicted by an increase in Control and Reward. As for the PHQ-9 scores, an increase predicted a higher EE score, but a decrease in C. Scientific production was significantly associated only

Table 1 - Structure of the *BOSS* questionnaire

Sections	Content
P1	Invitation and consensus to participation.
P2	Socio-demographics: sex; age; city; country; relationship status; number of children; living conditions (7 items)
P3	Pre- and post-graduate training experiences, including: year of specialist psychiatry training; reasons for choosing psychiatry; time of career choice in psychiatry (before, after or during medical school); if psychiatry was the first choice or not (if not which other medical specialty it); a list of psychiatric topics of best interest; post graduate training experiences; scientific activity; knowledge of a foreign language (11 items).
P4	Description of working conditions including : working and leisure hours, hours for academic activities, clinical duties and clinical research; hours with tutor (clinical activities or individual psychotherapy with tutor); satisfaction with salary, experiences of mobbing or stalking, medical and psychiatric health, including medications (32 items).
P5	Maslach Burnout Inventory General Survey (MBI-GS; 57) – this self-administered 16-item questionnaire is rated on a seven-point (0-6) Likert scale; a validated Italian version is available (60).
P6	Areas of Worklife Survey (AWLS) – self-rating 29-item questionnaire, with ratings ranging from 1 (strongly disagree) to 5 (strongly agree), expressing perception of congruence or incongruence of respondents on statements covering six areas of worklife: workload (6), control (3), reward (4), community (5), fairness (6), and values (5) (26). This is widely used in conjunction with the MBI. No validated Italian version was available, and a supervised translation was developed by the authors.
P7	Patient Health Questionnaire 9 (PHQ-9) – a 9-item, self-administered, commonly used tool to screen for depression in clinical practice, based on the DSM-IV diagnostic criteria for depression, whose validity and reliability have been thoroughly confirmed, also in the Italian language (43).
P8	Suicide Ideation and Behaviour Questionnaire (SIBQ) – a 14-item questionnaire evaluating the different stages of suicidal behaviour, from negative thoughts to active attempts (35). No validated Italian version was available, and a supervised translation was developed by the authors.
P9	Big-Five Inventory-10 (BFI-10) – a 10-item self-rated questionnaire developed to study personality in its 5 main traits of: Conscientiousness, Openness to experience, Extraversion, Agreeableness and Neuroticism. The Italian version used for the survey was validated by Caprara et al. (8).
P10	Description of activities outside work.

with PE. An increase in the number of papers published was associated with a lower perceived PE. An increase in perceived wage adequacy was associated with an increase in the reported score of EE.

Results from the multiple linear regression analysis for the three dimensions of BS are shown in table 5.

EE was predicted negatively by the score in AWLS-workload: an increase in the AWLS-workload score, suggesting good consistency between one's expectations and the workplace objective conditions, predicted lower levels of BS.

A significant association was also found between C and both number of weekly working hours and reward. In particular: the higher the number of weekly working hours, the lower the C score; and the higher the AWLS-reward, the lower the C score, suggesting a lower level of BS.

PE was found to be positively predicted by AWLS-reward and negatively by AWLS-fairness. In other words, the higher the reward, the higher the PE, indicating lower levels of BS. In contrast, fairness was found to negatively predict PE. In other words, the higher the levels of fairness, the lower the levels of PE, indicating higher BS.

Table 2 - Socio-demographics, training, work conditions of the sample

Section	Respondents N = 108	
P2	Mean	SD
Age	30.5	3.7
	N	%
Sex (M/F)	12/86	20.0/80.0
In a stable relationship	64	59.3
Married	10	9.3
Single	34	31.1
No children	99	91.7
One child	8	7.4
2 children	1	0.9
Living in a rented house	55	50.9
Living in own house or property	20	18.5
P3		
1st year of residency	51	47.0
2nd year	20	19.0
3rd year	33	30.0
4th year	4	4.0
Career choice in psychiatry:		
Before entering medical school	44	41.0
After graduation	12	11.0
During university years	52	48.0
Psychiatry first career choice	94	87.0
Neurology first career choice	4	3.7
Post graduate training experiences:		
School of Psychotherapy	40	37.0
PhD	6	5.6
Master's Degree	5	4.6
Individual Psychoanalysis	3	2.7
Speaks at least one foreign language	66	61.0
	Mean	SD
Mean scientific activity:		
Papers	1.4	2.0
Posters	2.9	3.7
Oral presentations	0.3	0.8
P4	Mean	SD
Mean weekly working hours	44	8.4
Academic activities	28.4	0.2
Clinical duties	8.7	5.5
Other tasks (e.g. clinical research)	5.4	7.9
Individual psychotherapy with tutor/supervisor	2.0	2.2
Clinical activity with tutor/supervisor	1.5	3.0
Other non- mandatory activities (e.g. study, research meetings and symposia, courses)	3.2	4.5
Mean daily working hours	1.7	4.1
	N	%
Not involved in formal disciplinary actions for professional reasons	96	88.0
Not involved in legal actions for professional reasons	107	99.1
Never had experience of bullying or harassment at workplace	75	69.4
Never had experience of stalking by patients	103	95.4

(continued)

Table 2 - Socio-demographics, training, work conditions of the sample

Section	Respondents N = 108	
P10	N	%
Currently taking medication:	19	18.0
Antidepressants	5	4.6
Analgesics	2	1.9
Sedatives	4	3.7
Hypnotics	2	1.9
	Mean	SD
Mean weekly hours of leisure activities	16.0	10.9

Table 3 - Scores on psychometric scales

Psychometric instrument	Mean	SD
MBI-GS		
EE	2.5	1.3
C	1.5	1.3
PE	4.6	0.6
AWLS		
Workload	2.9	0.7
Control	2.8	0.9
Reward	3.2	0.9
Working group	3.0	1.0
Fairness	2.4	0.8
Values	3.0	0.6
PHQ-9	3.8	3.6
	N	%
PHQ-9 clinical cut-off		
No/mild symptoms	102	94.0
Moderate symptoms	5	4.6
Severe symptoms	1	0.9
SIBQ		
No suicidal ideation	82	75.9
Passive suicidal ideation	26	24.1
Active suicidal ideation	17	15.7
	Mean	SD
BFI-10		
Extraversion	5.9	1.7
Agreeableness	5.6	2.0
Conscientiousness	6.3	1.5
Neuroticism	5.3	1.9
Openness to experience	6.0	1.8

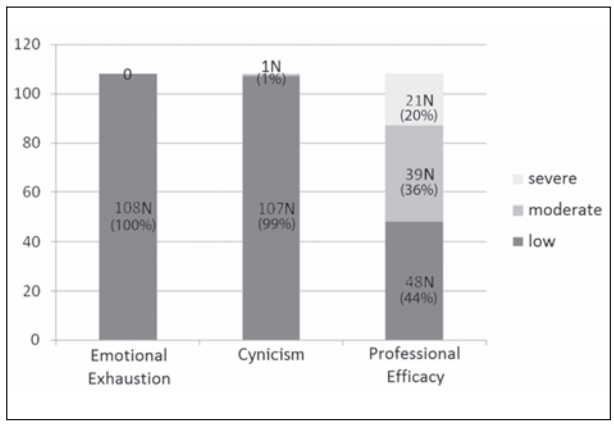

Figure 1 - Clinical significance of MBI-GS scores in the sample

Discussion

The present study aimed at estimating the level of BS in a sample of Italian residents in psychiatry and at detecting possible predictors of its development, related to training, lifestyle, working conditions and psychopathology. It also aimed at compensating for the lack of research on this subject, specifically in Italian populations (7).

A high response rate (60%) was observed: this may be related to the strategy of enrollment, via "informal" channels such as e-mailing lists and meetings and seminars, as well as to the on-line electronic structure of the survey, favouring quick and easy replies (41). The response rate for the Italian survey was higher than the Croatian and French studies (54.0% and 42.6% respectively; 23).

Table 4 - Results from simple linear regression analysis (only significant results are included)

Variable	EE		C		PE	
	Beta	p-value	Beta	p-value	Beta	p-value
C	5.02	.00				
PE			-4.64	.00		
Workload	-6.95	.00	-2.90	.01		
Control	-3.50	.00			-2.48	.02
Reward	-3.98	.00	-3.65	.00	-2.56	.01
Community	-2.21	.01	-2.23	.03		
Fairness	-2.66	.01				
PHQ-9	8.41	.00	-4.00	.00		
N0. of papers published					-2.81	.01
Wage adequacy	2.21	.03				

Table 5 - Results of multiple regression analysis for the 3 dimensions of BS

Variable	EE		C		PE	
	Beta	p-value	Beta	p-value	Beta	p-value
Age	-0.03	0.33	-0.05	0.09	-0.02	0.90
Living conditions	-0.02	0.87	0.07	0.53	-0.18	0.75
Year of attendance	-0.01	0.97	-0.05	0.67	0.38	0.54
Psychiatry first career choice	0.36	0.26	-0.35	0.27	1.96	0.21
Weekly working hours (No)	-0.02	0.20	-0.04	**0.02**	-0.12	0.15
Weekly working hours (Mean)	-0.01	0.54	-0.01	0.50	0.03	0.75
Days of vacation	0.08	0.28	0.10	0.13	-0.35	0.30
Workload	-0.90	0.01	-0.24	0.13	0.32	0.68
Control	-0.10	0.49	0.02	0.90	1.18	0.10
Reward	-0.24	0.12	-0.34	0.02	1.47	0.04
Community	-0.01	0.93	-0.12	0.40	0.13	0.83
Fairness	0.08	0.66	0.12	0.49	-2.00	**0.02**
Values	-0.22	0.30	0.07	0.73	1.10	0.28

The socio-demographic features of the sample were similar to those observed by other authors, referring to a population that is homogeneous by definition, particularly as to age: in Italy, the mean age at which residents enter specialization school is 28 years, about two years after the mean age of graduation in Medicine and Surgery (2). The vast majority of respondents were female: this is consistent with the well-known worldwide process of "feminization" of medicine (15). In Italy women outnumber men by about 2:1 in all Italian medical school students and new medical graduates; women make up more than 65% of total physicians in the age range of 25-34 years, though it is true that still very few women occupy leading and managerial roles. Psychiatry may be particularly attractive to female doctors, both for the specific features of clinical work (i.e., emphasis on listening, empathy, support) and organizational aspects (i.e., flexible work patterns). Being an older female doctor with family and children was associated with higher risk of BS (53), due to difficulty in reconciling contrasting demands of work and family, though "having a life" out of work is also a well-known protecting factor. In the sample of the present study, however, it was not possible to reproduce

the finding by Ritcher and al., since the majority of respondents were female, in a stable relationship but without children.

Altogether, the socio-demographic features of the Italian sample were similar to those observed among French and Croatian participants, although mean age and percentage of women were higher among Italians. Interestingly, no significant associations were found between level of BS and socio-demographic variables, namely age and gender. As to gender, this lack of association differed from previously published research (27), that showed instead a higher prevalence of BS among male health care professionals (both physicians and non-physicians) than women (36, 40, 44, 45). When considering the role of age in BS, findings from the literature seem conflicting: BS was found to be more common among younger professionals in some studies (13, 34, 50, 52), but the other way round in other reports (47, 63), although the specific profession may also play a role, with older nurses more at risk (4).

More than half of the participants were in the first year of residency and up to 70% in the first and second years. Unfortunately, the initial distribution over the four years of specialty of residents invited to take part in the survey was not available, making it impossible to understand whether the year of attendance influenced the response rate. Therefore, it seems that the present study was more able to describe younger residents than older ones and this may be a reason why no significant association was found with age. The stage of training would be expected to considerably affect the development of BS: the increase in autonomy and responsibility, mandatory for final year residents, may impact on BS, EE and C dimensions, even though it may also contribute to increased PE. The present sample did not allow appreciation of this progression. Nevertheless, addressing BS even at earlier stages of the medical career seems highly relevant. Very few studies in the literature looked for the prevalence and features of BS among university students (14, 65) and college students (55), but it was suggested that early assessment of personality traits and/or coping strategies among students may predict development of BS and support tailored prevention strategies (5, 61). In the field of psychiatry, this may be particularly relevant, given the complex motivational pathways leading to this career choice (17, 18).

Almost all trainees confirmed that psychiatry was their first career choice as a medical career, and this decision was taken rather early during the study course. Even when psychiatry was not reported as first choice, residents' first choice was always in the field of neurosciences. These data suggest that attention should be focused on reasons and motivations leading to career choice, as these could provide hints to improve under-graduate training (18, 28). A change may also be expected in the near future, as a consequence of a massive revision of the examinations procedure to access schools of medical specialization that took place in Italy in 2014. The psychiatric subject attracting the highest interest was adult clinical psychiatry; the second was psychotherapy: consistently, up to 40% of the residents were attending or had attended a school of psychotherapy during and as additional training for the school of specialization: this practice is common among Italian residents in psychiatry (2).

When considering work patterns, responses of Italian residents in psychiatry seemed consistent with information from trade unions, regarding respecting adequate pauses, regular resting periods, holidays and an average 38-hour working week. These topics should be compared with issues raised by the changes in structure of medical training made in other countries, especially in the field of surgery (3, 21). Italian data reflect the varied organization of different schools over the national territory: the range of duties and activities is sufficiently wide and support from tutors and supervisors is available and helpful, as it is considered it should be from previous surveys (2). Italian residents also take sufficient vacation leave from work, though they do not usually take long holidays. If compared to their French and Croatian colleagues, they work for slightly less average hours per week, are less involved in research activities and a smaller number of them attend out-of-school psychotherapy courses. Psychotropic medication use appeared to be rather popular among Italian residents, with 14%

of them admitting regular use and 50% of these by self-prescription.

Very few residents reported involvement in claims or disciplinary actions for professional reasons or stalking; a slightly higher number complained about bullying and harassment in the workplace. Although this was not specifically and thoroughly investigated by the BOSS questionnaire, these results are relevant with respect to the role of exposure to violence in the development of BS. BS among mental health workers has been strongly associated with exposure to threats and violence, both at the workplace and in their personal life (e.g. stalking). The risk of being subjected to such exposure is considerably higher among mental health professionals and emergency workers, as found by Magnavita et al. (31), when compared with laboratory or radiology workers. Physical aggression at the workplace predicts higher levels of psychological distress among health workers in the following year (32). The low figures for experiences of violence, stalking and aggression found in the present study may contribute to explaining the moderate overall rate of BS in this sample, although these variables could not be included in the statistical model for adjustment. The status of resident, in this case, may work as a protective factor, both because residents may be less directly exposed (urgent referrals, for example, are commonly performed together with senior medical tutors) and because they have been working for fewer years and therefore have had fewer occasions to be experience to incidents or fights. It would have been interesting to follow up in time the few residents that reported problems, to verify whether this correlated with the development of psychological distress, as reported elsewhere (32).

Italian residents reported, on the whole, moderate levels of BS for the three dimensions measured by the MBI-GS. Interestingly, 60% of respondents admitted moderate to high levels of BS for the PE dimension. This is not consistent with previous findings in Italian early career psychiatrists, who scored higher on EE and C but lower on PE (66), yet it is substantially consistent with the French-Croatian sample (23): in that sample, mean scores were: 2.28 (±1.37) for the EE dimension, 1.59 (±1.15) for the C dimension, and 4.13 (±1.18) for the PE dimension, indicating moderate BS. Consequently, for the three dimensions of the MBI-GS, the Italian sample scores were consistent with the pooled data from French-Croatian residents, indicating moderate levels of BS. Yet, by comparing the Italian, French and Croatian samples individually (23), some noticeable differences emerged. In particular, the Croatian sample presented higher levels of PE, indicating lower BS, while the French sample scored lower for the same dimension, indicating higher levels of BS. The Italian sample situates itself somehow in the middle. As far as C is concerned, the Italian and Croatian sample showed the same results (consistent with moderate BS), while French trainees reported a lower score, indicating lower BS. National, general differences, together with specific differences in training in psychiatry may explain such discrepancies.

There is no consensus yet about the cut-off that should indicate the presence of BS, measured with the MBI-GS, which should be conceptualized as only prodromal of a full-blown psychiatric disorder (9). In particular, the use and the validity of the PE subscale is still under debate (58).

In their work experience as measured by the AWLS, workload was perceived as lower than both normative values and the results in the French-Croatian sample, whereas, for all the other subscales, less satisfaction than average and than among French-Croatian residents was reported.

Very few cases of clinically significant PHQ-9 scores were found, although a large number of respondents (102 residents; 94% of the sample) reported at least some symptoms of depression.

The long-debated choice to include the SIBQ among the psychometric tools of the study seemed to have paid off when considering the results: lifetime suicidal ideation was admitted by 16% of the sample and 10% reported a family history of suicide. These findings, combined with reports of depressive symptoms and psychotropic drug use, contribute to the idea that in some cases a career choice in psychiatry may have a self-therapy valence, but may also be a trigger for further psychological difficulties, especially if not adequately ad-

dressed. Given the huge potential negative consequences of this hypothesis both on professionals and their patients, it seems a major priority to improve awareness about these risks and set up effective preventive strategies, that should involve medical professionals even before they graduate and start working. Many authors have expressed their concern, made suggestions and started addressing these needs (5, 29, 20, 61), but further research is undoubtedly required.

When studying personality traits via the BFI-10, Italian residents in psychiatry had higher levels of conscientiousness and extroversion, a finding slightly contrasting with previous research on psychiatrists, which seemed to rate higher in hopelessness and lower in conscientiousness (24).

The results of the simple linear regression analysis (table 5) confirmed the strong reciprocal correlation existing between all three dimensions of BS: C showed a close association with EE (Beta=5.02, p=0.00), and PE showed a close association with C (Beta=-4.64, p=0.00). Moreover, previous findings (23, 28, 32, 39, 56, 64) on the close connection between the onset of BS and objective and subjective working conditions were confirmed. These include perception of an excessive workload, limited resources and feeling of impotence in the management of work (28, 36, 51). In particular, AWLS-reward was negatively associated with all three BS dimensions, AWLS-workload and working group with EE and C, AWLS-control with EE and PE, and AWLS-fairness with EE only. These findings, somehow contrasting, were later better specified in the multiple regressive analysis discussed below.

An association between MBI-GS and PHQ-9 scores was also expected, given the potential prodromal significance of BS for clinical depression. Among Italian residents, more symptoms of depression (higher PHQ-9 scores) were associated with higher levels of EE (Beta=8.41, p=0.00), but, rather contrastingly, with lower levels of C (Beta= -4.00, p=0.00). This finding may support the idea that BS and depression share some psychopathological features, but do not completely overlap. For example, it was recently pointed out that late-stage BS, though overlapping with a clinical picture consistent with a Major Depressive Disorder, is rarely characterized by self-blaming, in other words showing different psychopathological impairments where ideation is concerned (7).

Previous research (16) and the Croatian-French BOSS results (23) found a noticeable correlation between PE and residents' being active academically, optimistically suggesting that cultivating research and scientific interests may protect against BS. This was not entirely the case among Italian residents: the linear regression analysis produced an inverted association between academic production (number of published papers) and decreased PE (higher levels of BS), (Beta=-2.81, p= 0.01). Yet this association was not confirmed by the multiple linear regression. Similarly, the association between perception of wage adequacy and BS was unexpected, with EE increasing as opinions on pay were positive (Beta=2.21, p=0.03).

Only few of the previously reported associations were still significant in the multiple regression model (table 5): EE was negatively predicted by AWLS-workload (Beta=-0.90, p=0.01); C by mean number of working hours (Beta=-0.04, p=0.02) and reward (Beta=-0.34, p=0.02); PE was positively predicted by reward (Beta=1.47, p=0.04), and negatively by fairness (Beta=-2.00, p=0.02). Some of these unexpected and controversial results may be explained by features that are specific of the Italian culture of work and work systems: i.e., being accustomed to lack of flexibility and lack of meritocracy could lead residents to disregard reward, motivation and, especially, equity, and vice versa believing that "the more hours you work, the better doctor you are". These context- and cultural-specific features may also account for the differences in the rate of BS among Italian residents and residents examined by previous research mentioned in the introduction, particularly those working in the USA. The pooled data of the international study will provide very interesting suggestions on this aspect. The fact that the sample was largely made up of young residents in their first years of specialty, as previously acknowledged, may have played a role, given the enthusiastic, sometimes idealistic approach of young physicians in their very first years of the profession.

The choice of reporting and discussing both simple and multiple linear regression results in the present paper is partly due to the nature of the BS itself, that suggests the importance of considering it as a whole construct (a syndrome) on the one hand, and of splitting it and studying its three dimensions of EE, C and PE independently on the other hand, given that the diagnosis of such a condition does not require pre-determined cut-offs at the same time on the three sub-scales. In other words, the BS challenges research and methodology, because of its intrinsic dimensional nature.

The present study had some limitations. Firstly, the impact of a recruitment bias should be considered, due to the informal, non-systematic method of invitation, which may have excluded involvement of those people mostly affected by BS, and lead to over-representation of female and younger subjects. Nevertheless, this recruitment method had the positive effects of 1) increasing motivation, as witnessed by a higher response rate (60%) than in the French-Croatian study; 2) reducing fear of answers being somehow "controlled" or obliged by superiors. Both these effects certainly contributed to a higher reliability of the present results. Secondly, the sample size (N=108) was not large enough to guarantee high statistical validity for associations. This limitation, nevertheless, will be completely overcome when pooled data from the multicentric study is analyzed. Thirdly, for some of the psychometric tools included in the present study (namely, AWLS and SIBQ) no validated and standardized Italian version was available: despite the impact that this choice may have had on reliability, the chance to compare results in the Italian sample with those coming from the international study, by using the same methodology and tools, was felt to be a priority. Fourthly, since the total M:F ratio in the original population of 774 residents was not available, it was not possible to discuss the striking prevalence of female subjects among respondents. Finally, and more generally, criticism on the appropriateness of measuring BS through a self-administered tool has been previously raised (7), since possibly those most affected by BS are those less aware of it, potentially leading to underestimation of BS rates: nevertheless, the MBI is still the best approximation available, combining feasibility (reaching larger samples of respondents) and accurate, validated measurement of BS.

To conclude, Italian residents in psychiatry showed overall moderate levels of BS, closely related to the work-load and work organization, even though other signals of psychic distress were found among this category, namely symptoms of depression, suicidal ideation and use of psychotropic medication.

BS heavily affects the quality of life of workers and their professional efficiency, making it highly relevant to recognize early determinants of onset and to correct them promptly, when possible. This is especially true when dealing with residents and early career medical doctors, bearing in mind their increased vulnerability but also their higher resilience than more experienced colleagues.

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