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The coping styles to stress of Italian emergency health-care professionals after the first peak of COVID 19 pandemic outbreak,

Dear Editors,

In Italy, thousands of Emergency healthcare professionals were involved during the first COVID 19 pandemic outbreak, fighting at the frontline to address the challenges posed to the healthcare systems by almost 250.000 patients infected by the end of June 2020. Poor coping strategies to stress may lead to impaired job performance and risk of infection, as well as psychological distress and burnout, also in relation to coping styles [1].

A cross-sectional survey of different coping styles to workload distress was carried out between June 15 and June 30, 2020, immediately after the first COVID-19 Italian outbreak. All members of the Italian Emergency Society (SIMEU) (1855 physicians and 618 nurses were invited to complete an on-line questionnaire on demographic and clinical data (agreed upon during a Focus group) and the Coping Inventory for Stressful Situations (CISS). CISS is a validated 48-item self-administered questionnaire that identifies the characteristics of coping response to stressful situations [2], organized in three major styles: a) task-oriented, b) emotion-oriented, and c) avoidance-oriented. Examples of task-oriented strategies include outlining priorities or learning from mistakes; emotion-oriented coping is characterized by emotional distress (i.e., becoming tense or self-blaming); avoidance-oriented coping uses distractions, such socializing away from work, or doing a hobby [3]. The data, collected following informed consent, included age, sex, occupation in the Emergency Department (ED), ED area, regional area, marital status, living with sons or elderly relatives, comorbidities (diabetes, chronic obstructive pulmonary disease, psychiatric, coronary, cerebrovascular, neurological diseases), use of benzodiazepines, hypnotics, analgesics, alcohol and or drugs of abuse. Concern for the possible impact on family planning, leisure time, personal/family budget and the occurrence of personal COVID-19 positivity/disease or COVID-19 diseases or death of family members or friends.

Within the expiry date of June 30, 940 out of 2473 (38%) potentially eligible participants filled in the questionnaire; 705 were physicians, 235 nurses, aged 46.4 [SD 10.8] years, 44.7% males. Sixty percent of responders were from Northern Italian regions (Table 1). Responders were single (45.9%), living with sons (51.3%), and living with aged persons (6.0%). Use of benzodiazepines or neuroleptics was reported in 2.9% of cases, analgesics in 4.4% without differences between physicians or nurses. Present use of hypnotics (5.6%) was eight times more common in physicians vs. nurses. The use of alcohol / drugs abuse was reported by 18.7%, again higher in physicians. Impact on family planning was reported in 80.0% of cases and disease or death of family members or friends for COVID in over 31.1% of respondents. Coronavirus disease or a positive nasopharyngeal swab was reported in 7.9% of respondents (significantly higher prevalence in physicians).

The results of CISS were reliable, with Cronbach's alpha values >0.8 indicating a very good internal consistency [4]. Scores of task-oriented scales (49.5 [SD 9.8]) were much higher than emotion-oriented scale (32.9 [10.4]), without difference between physicians and nurses. The scores of avoidance, distraction (38.8 [8.5]) and social distortion-oriented (19.0 [4.4]) scales were much lower, but values were higher in nurses than in physicians, in keeping with the age-difference.

The association of upper tertiles of CISS scales with responders' characteristics were tested in logistic models, by stepwise forward analysis. Male sex, younger age, living with sons and impact on leisure time and personal budget were risk factors for high levels of task-oriented scale (Table 2). This indicates that ED professionals, although involved in higher levels of hard work and stress, maintained satisfactory levels of rational coping strategies. The scores of emotion- and avoidance-oriented scales, associated with burnout and depression [1] were much lower, and significantly associated with younger age, female sex, as well as the use of hypnotics, alcohol and drug of abuse. Notably, young age was also associated with high values of avoidance, distraction, and social distortion-oriented subscales, suggesting that old healthcare professional are globally less reactive to stressful events, confirming a meta-analysis of the three outbreaks of coronavirus of the last two decades (SARS, MERS and COVID-19) [5]. Dysfunctional reactions to stressful events, typical for an emotional pattern of coping, were also associated with analgesic use, alcohol /drugs of abuse consumption. In early surveys on stressful situations 10–12% of physicians reported to develop substance/alcohol abuse during their career, but this rate was similar in the general population [6,7].

Our data are in keeping with the burnout markers selected in a Canadian ED survey, where coping strategies oriented to rational behaviors were adopted to counter the emotional and cognitive responses associated with professional stress of healthcare professionals [1].

In summary, the present study shows that Italian emergency healthcare professionals maintained a task-oriented pattern of response following the first pandemic COVID-19 outbreak, with less represented emotional coping strategy. A correct definition of the coping strategies of health-care professionals may be important to prevent burnout by promoting positive actions to counter stressful events.

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Ethics approval

The questionnaire and methodology for this study was approved by the Institutional Review Board of SIMEU (02/05/2020). All participants signed an informed consent to anonymous data collection and report upon completion of the web Care Report Form. The manuscript was

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Table 1
Characteristics of the 940 Emergency participants tested by the Coping Inventory to Stressful Situations (CISS) questionnaire soon after the first Italian Coronavirus pandemic outbreak in relation to their role in ED.

Characteristics	Physicians ($n = 705$)	All subjects ($n = 940$)	Nurses ($n = 235$)	OR (95%CI)	*P* value
Sex (male %)	323 (45.8)	420 (44.7)	97 (41.3)	1.20 (0.89–1.62)	0.256
Age (years)	47.7 [10.7]	46.4 [10.8]	42.3 [10.0]	–	0.108
Decades (years)					
20–30	36 (5.1)	73 (7.8)	37 (15.7)	0.32 (0.20–0.52	<0.0001
31–40	173 (24.5)	242 (25.7)	69 (29.4)	0.84 (0.61–1.15)	0.2653
41–50	183 (26.0)	258 (27.4)	75 (31.9)	0.81 (0.60–1.10)	0.1866
51–60	230 (32.6)	276 (29.4)	46 (19.6)	1.67 (1.17–2.36)	0.0042
> 60	83 (11.8)	91 (9.7)	8 (3.4)	3.45 (1.65–7.25)	0.0010
Italian area					
North	402 (57.0)	564 (60.0)	162 (68.9)	0.83 (0.65–1.05)	0.1130
Centrum	162 (23.0)	203 (21.6)	41 (17.4)	1.31 (0.91–1.91)	0.1480
South	141 (20.0)	173 (18.4)	32 (13.6)	1.46 (0.97–2.21)	0.0669
Relationship					
Single	315 (44.7)	431 (45.9)	116 (49.4)	0.83 (0.62–1.11)	0.227
Living with sons	372 (52.8)	482 (51.3)	110 (46.8)	1.27 (0.94–1.71)	0.114
Living with elderly	39 (5.5)	56 (6.0)	17 (7.2)	0.75 (0.42–1.35)	0.342
COVID positivity	34 (11.6)	74 (7.9)	40 (6.2)	2.00 (1.24–3.23)	0.006
Illness /death of family members/friends	212 (30.1)	292 (31.1)	80 (34.0)	0.83 (0.61–1.14)	0.256
Impact on family planning	564 (80.0)	755 (80.3)	191 (81.3)	0.92 (0.63–1.34)	0.706
Current Use					
BDZ/neuroleptics	21 (3.0)	27 (2.9)	6 (2.6)	1.17 (0.47–2.94)	0.826
Analgesics	33 (4.7)	41 (4.4%)	8 (3.4)	1.39 (0.63–3.06)	0.466
Hypnotics	51 (7.2)	53 (5.6)	2 (0.9)	9.08 (2.19–37.6)	<0.001
Alcohol/drugs of abuse	144 (20.4)	176 (18.7)	32 (13.6)	1.63 (1.07–2.47)	0.021

Abbreviations: Categorical data are reported as number of cases and (percent) and continuous variables as mean and [standard deviation]. Mean values, standard deviations, and medians, interquartile ranges; number of cases, percent with 95% confidence intervals was used to describe data distribution. Fisher's exact test and Student *t*-test were used to compare categorical and continuous variables between groups.

Table 2
Factors associated with upper tertile of the task-oriented and emotion-oriented scale of the Coping Inventory to Stressful Situations (CISS) in Emergency participants following the initial Italian Coronavirus pandemic period

	Task-oriented scale		Emotion-oriented scale	
Variables	OR (95% CI)	*P* value	OR (95% CI)	*P* value
Impact on personal budget	2.48 (1.41–4.36)	0.002	–	–
Male sex	1.96 (1.47–2.61)	<0.001	0.65 (0.48–0.87)	0.004
Impact on leisure time	1.60 (1.17–2.17)	0.003	1.56 (1.15–2.13)	0.004
Living with sons	1.45 (1.09–1.94)	0.011	–	–
Age (decades)	0.86 (0.75–0.98)	0.023	0.81 (0.71–0.92)	0.002
Use of hypnotics	0.39 (0.19–0.81)	0.011	2.83 (1.57–5.08)	0.001
Use of analgesics	–	–	5.31 (2.65–10.63)	<0.001
Alcohol /drugs abuse	–	–	1.67 (1.18–2.39)	0.004

Variables not included in the models: role in the ED (physician or nurse), ED area (pre-hospital emergency care, first line or short stay unit), work regional area, marital status, living with elderly, comorbidity index, impact on family planning, severe illness or death of family members or relatives/friends, occurrence of COVID or positivity during the pandemic period.
A multivariable model was developed by stepwise forward analysis of factors significant in univariable analysis and according to selected predictors. Data were expressed as odds ratio (OR) and 95% confidence interval (95% CI). Colinearity was tested by the variation inflation factor (<2, not significant) in the analyses.

prepared according to the STROBE requirements for the observational studies (cross sectional studies).

Consent to participate

All respondents consent to participate to the study.

Consent to publish

All Authors consent to publish the results of the study.

Availability of data and material

Data are available for additional studies upon motivated request.

Code availability

Not applicable.

Authors' contributions

AF had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the results. All authors were involved in the study concept and design and statistical

analyses. FRP, CG, MG, GF, AR, SM were responsible for collection, management, analyses and interpretation of the data. AF, GM, FD conducted the statistical analyses and drafted the manuscript. All authors contributed substantially to its revision and agree to be accountable for all the aspects of the work. AF takes responsibility for the paper as a whole.

Declaration of Competing Interest

All Authors declare no conflicts of interests / competing interests.

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Andrea Fabbri
[a]*Emergency Department, AUSL della Romagna, Presidio Ospedaliero Morgagni-Pierantoni, via C. Forlanini 34, 47121 Forlì, (FC), Italy*
*Corresponding author.
E-mail address: andrea.fabbri@auslromagna.it

Fabio De Iaco
[b]*Emergency Department, Ospedale Martini, via Fernando Marsigli 84, 10141 Torino (TO), Italy*

Giulio Marchesini
[c]*Department of Medical and Surgical Sciences, "Alma Mater" University, Sant'Orsola-Malpighi Hospital, Via Massarenti 9, I-40138 Bologna, Italy*

Francesco Rocco Pugliese
[d]*Emergency Department, ASL Roma 2, Ospedale Pertini, via dei Monti Tiburtini 385, 00157 Roma (RM), Italy*

Clemente Giuffrida
[e]*Emergency Department, Azienda Ospedaliera Ospedali Riuniti Papardo-Piemonte, viale Ferdinando Stagno d'Alcontres, 98158 Messina, (ME) Italy*

Mario Guarino
[f]*Emergency Department, Azienda Specialistica dei Colli, Ospedale Monaldi-Cotugno, CTO, viale Colli Aminei 21, 80141 Napoli, (NA) Italy*

Giuseppina Fera
[g]*Emergency Department, ASL 4 Chiavarese, via Don Bobbio 25, 16033 Lavagna, (GE), Italy*

Alessandro Riccardi
[h]*Emergency Department, Ospedale San Paolo, via Genova 1, 17100 Savona, (SV), Italy*

Salvatore Manca
[i]*Emergency Department, (President SIMEU), ASL Oristano, Corso Umberto 176, 09170 Oristano, (OR), Italy*

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