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(Article begins on next page)

The psychological impact of COVID-19 on general practitioners in Piedmont, Italy

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The spread of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has produced unprecedented pressure on healthcare systems.

In Italy, the first western nation to be affected by the pandemic, to date, 226.699 people have been found COVID-19 positive, and 32.169 have died due to this condition. Among the latter, 164 were medical doctors and 57 were general practitioners (GPs) (FNOMCeO, 2020).

While hospitals are involved in the treatment of patients with moderate/severe symptoms of COVID-19, GPs exert incredible effort as gatekeepers of the healthcare system by detecting patients with suspected infection. Furthermore, this effort is made without clear guidelines on COVID-19 management or protection, risking infection and spread to the community (De Sutter et al., 2020; Shanafelt et al., 2020).

On these bases, the present study aimed to investigate the psychological impact of the COVID-19 pandemic on GPs. Specifically, we aimed to investigate anxiety, depression, and post-traumatic stress symptoms (PTSS) on a convenience sample of GPs practicing in Piedmont, one of the most affected Italian regions. In addition, we explored whether any sociodemographic or work-related variables could be associated with these psychological symptoms.

In order to reach these goals, a convenience sample of 2049 GPs (out of a total of 3100 GPs in Piedmont) affiliated with the regional FIMMG, Italy's most popular general practitioner union, were contacted via email and asked to participate in an anonymous online survey about the spread of SARS-CoV-2. Data were collected from April 28, 2020 to May 10, 2020.

A total of 246 GPs (12% of the contacted GPs) completed the survey. For the purpose of this study, we analyzed sociodemographic information, work-related variables, and the results of three self-

report scales investigating symptoms of anxiety, depression, and post-traumatic stress: the State-Trait Anxiety Inventory-Form Y1 (STAI Y1), the Beck Depression Inventory (BDI-II), and the PTSD Checklist for DSM-5 (PCL-5), respectively.

The study was approved by the University of Turin Ethics Committee and conducted in accordance with the Declaration of Helsinki. All the participants gave their written informed consent to participate in the study.

With regard to sociodemographic and clinical characteristics of the total sample, participants had a mean age of 51.1 (SD = 13.1) years and 56% (138) of them were female. The majority of the GPs had at least one child (64%, 157) and had no previous medical condition (69%, 170).

Results of the psychological assessment showed that 32% (79) of the GPs presented significant PTSS, whereas 75% (185) and 37% (91) of the GPs reported clinically relevant anxiety and depressive symptoms, respectively. Furthermore, concerning the work-related questions, 41% (100) of GPs reported not having Personal Protective Equipment (PPE) at their disposal, 48% (119) reported not receiving adequate information to protect their families, and 61% (149) did not receive clear diagnostic/therapeutic guidelines on COVID-19 to do their jobs.

Comparisons between GPs based on psychopathology scale results are reported in **Table 1**.

GPs with clinically relevant anxiety and depressive symptoms were younger, more likely to be female, and had been practicing for fewer years. Moreover, a significantly higher percentage of GPs with clinically relevant anxiety, depression, and PTSS were found in those who reported not receiving adequate information to protect their families and clear diagnostic/therapeutic guidelines on COVID-19 to do their jobs.

The results of the present study highlight that an extremely high percentage of GPs experienced clinically relevant anxiety and depressive symptoms, as well as significant PTSS, because of the SARS-CoV-2 pandemic.

GPs who were female, younger, and less experienced showed significantly higher levels of anxiety and depressive symptoms compared to male, older, and more experienced GPs. This evidence confirmed the data in the general health care population (Kisely et al., 2020).

An extremely low percentage of GPs (39%) received clear guidelines on COVID-19 management, confirming the results from a sample of GPs from Lombardy, a region near Piedmont (Fiorino et al., 2020). In addition, high percentages of GPs, 41% and 48%, had not received either PPE or clear information on how to avoid infecting their families, respectively.

Our results provide evidence that clear guidelines on COVID-19 management are a key unmet need (Thornton, 2020). In fact, the less GPs are informed about how to protect their families and adequately manage their patients, the more they experience psychopathological symptoms. In addition, since significant PTSS can result in post-traumatic stress disorder beyond the immediate situation, it is essential to develop timely screening programs to identify GPs at risk.

These results highlight that GPs are forced to perform their job in incredibly stressful conditions, such as working without clear guidelines and, in many cases, without adequate PPE. This is reflected in clinically relevant psychopathology.

Health care providers should deploy clear and shared guidelines on COVID-19 management in order to reduce the psychological impact of this pandemic on GPs. Additionally, they should implement a psychological screening program to identify GPs at risk and, eventually, refer them to psychological treatment.

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Table 1. Sociodemographic, clinical, and work-related characteristics of the general practitioners who scored above vs below the cutoff score for the PCL-5 (≥ 33), BDI-II (>13), and STAI Y1 (≥ 41). The mean (SD) or percentage, *t*-test or chi-square (χ^2) test are listed.

PCL-5			BDI-II			STAI-Y1			
Above cut-off (<i>n</i> = 79)	Below cut-off (<i>n</i> = 167)	Test (df)	Above cut-off (<i>n</i> = 91)	Below cut-off (<i>n</i> = 155)	Test (df)	Above cut-off (<i>n</i> = 185)	Below cut-off (<i>n</i> = 61)	Test (df)	
<i>Sociodemographic and clinical data</i>									
Age (years)	49.8 (12.6)	51.7 (13.3)	<i>t</i> (244) = 1.12	48.2 (13.0)	52.8 (12.8)	<i>t</i> (244) = 2.73**	49.80 (13.4)	55.0 (11.3)	<i>t</i> (119.6) = 2.98**
Gender			$\chi^2(1) = 0.21$			$\chi^2(1) = 11.88^{**}$			$\chi^2(1) = 7.52^{**}$
Female	46 (58.2%)	92 (55.1%)		64 (70.3%)	74 (47.7%)		113 (61.1%)	25 (41.0%)	
Male	33 (41.8%)	75 (44.9%)		27 (29.7%)	81 (52.3%)		72 (38.9%)	36 (59.0%)	
Children			$\chi^2(1) = 2.37$			$\chi^2(1) = 3.78$			$\chi^2(1) = 0.88$
Yes	45 (57.0%)	112 (67.1%)		51 (56.0%)	106 (68.4%)		115 (62.2%)	42 (68.9%)	
No	34 (43.0%)	55 (32.9%)		40 (44.0%)	49 (31.6%)		70 (37.8%)	19 (31.1%)	
Medical diseases			$\chi^2(1) = 1.70$			$\chi^2(1) = 0.10$			$\chi^2(1) = 0.47$

Yes	20 (25.3%)	56 (33.5%)		27 (29.7%)	49 (31.6%)		55 (29.7%)	21 (34.4%)		
No	59 (74.7%)	111 (66.5%)		64 (70.3%)	106 (68.4%)		130 (70.3%)	40 (65.6%)		
Work-related data										
Years of practice	21.4 (13.3)	23.2 (13.3)	t(244) = 1.02	19.8 (13.4)	24.3 (13.0)	t(244) = 2.57*	21.3 (13.5)	26.6 (11.9)	t(114.3) = 2.90**	
Number of patients	1064.8 (567.9)	1108.6 (585.6)	t(244) = 0.55	1029.4 (592.9)	1032.8 (569.4)	t(244) = 1.35	1073.3 (582.9)	1158.7 (567.6)	t(244) = 0.99	
Personal protective equipment			$\chi^2(1) = 1.84$				$\chi^2(1) = 1.16$	$\chi^2(1) = 0.29$		
Yes	42 (53.2%)	104 (62.3%)		50 (54.9%)	96 (61.9%)		108 (58.4%)	38 (62.3%)		
No	63 (46.8%)	37 (37.7%)		41 (45.1%)	59 (38.1%)		77 (41.6%)	23 (37.7%)		
Adequate information to protect family			$\chi^2(1) = 8.13^{**}$				$\chi^2(1) = 6.60^{**}$	$\chi^2(1) = 10.59^{**}$		
Yes	31 (39.2%)	98 (58.7%)		38 (41.8%)	91 (54.7%)		86 (46.5%)	43 (70.5%)		
No	48 (60.8%)	69 (41.3%)		53 (58.2%)	64 (41.3%)		99 (53.5%)	18 (29.5%)		
Guidelines on COVID-19 management			$\chi^2(1) = 3.99^*$				$\chi^2(1) = 8.65^{**}$	$\chi^2(1) = 4.40^*$		
Yes	24 (30.4%)	73 (43.7%)		25 (27.5%)	72 (46.5%)		66 (35.7%)	31 (50.8%)		

No	55 (69.6%)	94 (56.3%)	66 (72.5%)	83 (53.5%)	119 (64.3%)	30 (49.2%)
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SD = Standard deviation; df = Degrees of freedom; PCL-5 = PTSD Checklist for DSM-5; BDI-II = Beck Depression Inventory; STAI Y1 = State-Trait Anxiety Inventory Form Y1.

* $p < .05$; ** $p < .01$