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Stress and depressive symptoms among Italian mental health nurses during the COVID-19 pandemic, a cross-sectional study

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ARTICLE INFO

Keywords:

Mental health
COVID-19
Stress
Depression
Nurse

ABSTRACT

This study used the cross-sectional web survey methodology to assess how the COVID-19 pandemic affected Italian psychiatric nurses in terms of stress levels and depressive symptoms. A total of 266 nurses belonging to the Italian Mental Health Departments were interviewed and they were subjected to two validated scales respectively PSS-10 (for the evaluation of stress) and PHQ-9 (for the evaluation of depressive symptoms). Statistical analysis showed moderate stress levels and a prevalence of sub-threshold (borderline) depressive symptoms among responding nurses. Logistic regression analysis reported that frontline nurses on COVID-19 positive patients are at greater risk of reporting higher levels of stress and major depressive symptoms, as are female nurses and juvenile nurses. age. Monitoring and managing the psychological well-being of nursing staff are to be considered among the priorities of mental health service managers and are part of a process that aims to increase individual and organizational well-being but above all to improve the outcomes resulting from assistance.

Introduction

At the end of December 2019, starting from the city of Wuhan (China), there has been an escalation of infections and deaths related to the new coronavirus disease (COVID-19) all over the world, this situation has led the World Organization of Health to declare a state of pandemic (WHO, 2020).

In Italy to date (April 7, 2021) there have been more than 3.66 million infections from COVID-19 and more than 110.559 people have died (Istituto Superiore di Sanita, 2021).

To cope with the spread of COVID-19 infections, also in the Italian mental health services there has been the implementation of measures to prevent and spread the virus (D'Agostino, Demartini, Cavallotti, & Gambini, 2020; Moreno et al., 2020; Percudani, Corradin, Moreno, Indelicato, & Vita, 2020) as well as the reorganization of operating procedures, these measures included:

- carrying out screening on patients and healthcare professionals (introduction of triage protocols);
- the limitation (or elimination) of visits;
- the reduction of outpatient appointments (in some cases the cancellation of support groups);

- the implementation of telemedicine services to the detriment of the number of acute care beds or the length of hospitalization;
- the creation of specific hospital departments dedicated to Covid-19 positive psychiatric patients.

In this situation, doctors and nurses from the Mental Health Departments were transferred to units dedicated to COVID-19 positive (non-psychiatric) patients, while those who remained in the mental health services witnessed the transformation of the same into structures for COVID-19 patients (dedicated to psychiatry) or even have sometimes found themselves managing the isolation of patients with mental distress in single rooms for weeks.

Most of the daytime psychiatric structures were temporarily closed, while the patients admitted to the residential structures could only partially benefit from exit permits from the structures, remaining in fact confined to the same (De Girolamo et al., 2020) and intensifying in some cases their own restlessness.

In hospital psychiatric services, family visits have been forbidden and all this has very often increased the suffering of patients and the difficulties of the operators in charge of them.

As evidenced by several studies (Greenberg, Docherty, Gnanaprasam, & Wessely, 2020; Ji et al., 2017; Shanafelt, Jonathan, & Mickey, 2020; Zhu et al., 2020), the COVID-19 pandemic is representing one of

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the most stressors of recent times, both for the general population and in particular for patients and healthcare professionals; the main reasons that place the latter at the top of the pyramid are represented by the lack of sufficient rest by the permanent threat of being infected, by the increase of workloads, from prolonged exposure to traumatic events (deaths) and from the continuous redefinition of operating methods in services.

Nurses, being at the forefront of fighting the pandemic and always working closely with the patient, are at high risk of developing high levels of stress, depressive symptoms and other mental health conditions such as post-traumatic stress symptoms (Chew et al., 2020; Liu, Zhang, Wei, et al., 2020; Tan, Chew, Lee, et al., 2020).

On the basis of data from other studies conducted in a tendentially intensive setting, this cross-sectional study aimed to investigate whether alterations in stress levels and depressive symptoms in relation to COVID-19 pandemic.

Methods

Study design, participants and ethical implications

A cross-sectional study was conducted using an anonymous online questionnaire, among nurses working in Italian mental health Departments.

The period of administration of the questionnaire was from 01/27/2021 to 03/30/2021, all nurses provided their informed consent before participating in the study.

The nurses were recruited through the use of the main social networks (Facebook, Instagram, Twitter) and through a notice published on the official website of the Società Italiana di Scienze Infermieristiche in Salute Mentale (S.I.S.I.S.M.).

This highly intelligent recruitment method was chosen to maximize the final sample size and the willingness/freedom of nurses to participate in the study.

The questionnaire was built using the Google Forms platform, to avoid incompleteness in filling in the questionnaires it was decided to make it mandatory to answer all questions.

Only and exclusively nurses (including coordinators/manager) were enrolled in the study who, at the time of completing the questionnaire, declared to work in the Italian mental health services.

Before completing the questionnaire, all nurses gave their informed consent after an explanation of the purpose of the study. The data was analyzed in aggregate form in order to guarantee the maximum privacy of the participants. Ethical permission was not obtained from any institution because the research was not interventional as well as the data collected using social media tools.

The questionnaire was not aimed at: nursing students, retired nurses or nurses who at the time of completing the questionnaire were not working in the Italian mental health services.

Responses from 266 nurses were included in the final dataset.

Instrument

The questionnaire consisted of three sections: demographic and occupational information, the Perceived stress scale to 10 items (PSS-10) (Cohen, Kamarck, & Mermelstein, 1983) and the Patient Health Questionnaire-9 (PHQ-9) (Kroenke, Spitzer, & Williams, 2001).

Socio-demographic and professional information included: gender, age (expressed in years), educational level, the mental health context in which the nurse is serving and experience (expressed in years) in mental health settings as a nurse.

Nurses were also asked if they had ever suffered from depressive episodes before the COVID-19 pandemic and if they had cared for COVID-19 positive patients during the pandemic.

The Perceived Stress Scale (PSS) is the most used psychological tool for stress assessment, it's a measure of the degree to which situations in

one's life are classified as stressful, the questions are of a general nature and therefore are relatively devoid of specific content for any subpopulation group.

The ten questions contained in the PSS-10 analyze feelings and thoughts during the last month, each item is rated on a 5-point scale ranging from 0 to 4. Each participant's score can range from 0 to 40. The highest scores indicate a higher perceived stress, if between 0 and 13 they indicate low stress; if between 14 and 26 moderate stress; and if over 27 severe stress.

The Patient Health Questionnaire-9 (PHQ-9) is a 9-question scale with a score ranging from 0 to 3 for each item and is used for diagnosis, monitoring and determination of the severity of depressive symptoms.

The overall PHQ-9 score has a range between 0 and 27. Scores between 5 and 9 indicate the possible presence of sub-threshold depressive symptoms. The score of 10 is the optimal cut-off for highlighting depressive symptoms of clinical relevance with three different levels of severity depending on the score, in particular with scores between 15 and 19 we talk about moderate depressive symptoms, while with scores starting from 20 one speaks of severe depressive symptoms.

Statistical analysis

SPSS version 20.0 software (IBM Corp., Armonk, New York, United States) was used for data processing.

Descriptive analysis was used to describe the variables considered, frequencies and percentages were used for the counting data.

Subsequently, independent *t*-tests (for variables with two alternatives) and One-way ANOVA (for variables with 3 or more alternatives) were performed to assess the presence of possible differences (in levels of stress and depressive disorders) among nurses who have cared for COVID-19 positive patients and those who have not cared for this type of patient; the mean scores of the PSS-10 and PHQ-9 scales were also compared also in relation to the socio-demographic and professional variables considered.

Finally, two logistic regression models were applied to assess whether the socio-demographic and occupational variables considered were significant predictors of stress outcomes (major, PSS score > 26; minor, PSS score < 27) and depressive symptoms (major, PHQ-9 score > 9; minor, PHQ-9 score > 10).

The results of the logistic regression model are reported as Odds ratios (OR) and related 95% confidence intervals.

Results

Demographic and personal characteristics

266 questionnaires were included in the analysis, demographics and occupational data are shown in Table 1.

Among the responding nurses, 69.9% were female, while 30.1% were male, the sample showed a higher frequency of nurses over the age of 50 (40.6%), while 15% belonged to less than 30 years of age.

41% of the respondents served at General Hospital Psychiatric Units (GHPUs), 28.9% worked in Community Mental Health Centres (CMHCs), 24.8% in Residential facilities (RFs) while 5.3% were in service at Direction of Mental Health Departments (DMHDs); among responding nurses, 27.4% had less than 5 years of work experience in a mental health setting while 27.8% reported working in mental health for more than 20 years.

Eighty-two (30.8%) nurses reported experiencing depressive episodes before the COVID-19 pandemic while the remaining 69% reported never having suffered from it.

Finally, 117 (44%) nurses reported having cared for COVID-19 positive patients during this pandemic, while 149 (56%) nurses reported not caring for patients with the virus.

Table 1
Socio-demographic characteristics of the sample (N.266 nurses).

Variables		N	%
Gender	F	186	69.9%
	M	80	30.1%
Age (y)	<30	40	15.0%
	>50	108	40.6%
	30–40	45	16.9%
	41–50	73	27.4%
Education level	Regional School Diploma	85	32.0%
	MNS/Phd	30	11.3%
	BNS	90	33.8%
	First level University Master	61	22.9%
Care setting	Community Mental Health Centres (CMHCs)	77	28.9%
	Direction of Mental Health Departments (DMHDs)	14	5.3%
	General Hospital Psychiatric Units (GHPUs)	109	41.0%
	Residential facilities (RFs)	66	24.8%
Experience in mental health settings (y)	<5	73	27.4%
	>20	74	27.8%
	11–20	65	24.4%
	5–10	54	20.3%
Depressive episodes before the Covid-19 pandemic	No	184	69.2%
	Yes	82	30.8%
Have you cared for Covid-19 positive patients?	No	149	56.0%
	Yes	117	44.0%

Stress status among nurses

Overall, from the analysis of the scores obtained on the PSS-10 scale (Cronbach alpha coefficient 0.943), the sample average was 19.78, which methodologically places the analyzed nursing population in a range of stress considered moderate.

Caring for COVID-19 positive patients seems to have had stressful effects among the Italian nurses of the mental health departments ($p = 0.05$), this data first highlighted in the t -test between the mean scores on the PSS- scale. 10 (see Table 2) was then confirmed by the logistic regression model illustrated in Table 3, in which having assisted COVID-19 positive patients, was found to be a predictor of higher stress levels (OR 2.13).

Comparison of the averages showed higher levels of stress in women than in men ($p < 0.01$), among nurses with age less than 30 years ($p < 0.01$), among the least experienced in mental health ($p < 0.01$) and among those who had already suffered from depressive disorders before the COVID-19 pandemic ($p = 0.04$).

It would appear that the setting in which nursing care was provided may also have played a key role in modifying stress levels, in particular, having worked in semi-residential facilities (RFs) was associated with higher stress scores than those who they worked in DMHDs rather than CMHCs and GHPUs ($p < 0.01$).

Logistic regression analysis confirmed having an age below 30 years (OR 1.505) as a significant predictor of higher stress levels, a phenomenon already observed in the comparison between the averages; on the contrary, being in possession of a higher qualification such as an MNS/Phd than a Regional School Diploma was a protective factor in increasing stress levels.

Depressive symptoms conditions among nurses

From the analysis of the scores obtained from the administration of the PHQ-9 scale (Cronbach's alpha coefficient 0.884), a sample mean of 9.95 was obtained, this score appears borderline compared to the scale, which classifies absent/sub-threshold depressive symptoms below the value 10, while mild depressive symptoms above this value.

Nurses who have served COVID-19 positive patients showed an average PHQ-9 score of 10.56 (as described in Table 4). This data ascribes subjects with mild depressive symptoms, from the comparison

Table 2
Socio-demographic characteristics of the total sample and mean differences on PSS-10. (Sample mean = 19.78, SD = 19.78).

		Mean (SD)	t/F	p			
Gender	F	21.16 (8.91)	3.6	<0.01			
	M	16.58 (10.52)					
Age (y)	<30	24.60 (8.74)	8.13	<0.01			
	>50	16.76 (9.08)					
	30–40	21.58 (8.68)					
	41–50	20.49 (10.13)					
Education level	Regional School Diploma	18.60 (10.11)	1.95	0.12			
	MNS/Phd	17.70 (8.65)					
	BNS	21.58 (9.85)					
Care setting	First level University Master	19.79 (8.82)	4.61	<0.01			
	Community Mental Health Centres (CMHCs)	17.92 (10.13)					
	Direction of Mental Health Departments (DMHDs)	15.21 (9.52)					
	General Hospital Psychiatric Units (GHPUs)	19.73 (9.46)					
	Residential facilities (RFs)	22.98 (8.52)					
	Experience in mental health settings (y)	<5			21.37 (9.98)	4.98	<0.01
	>20	18.24 (9.65)					
11–20	17.15 (9.28)						
Depressive episodes before the Covid-19 pandemic	No	18.98 (9.49)	-2.40	0.04			
	Yes	21.57 (9.76)					
Have you cared for Covid-19 positive patients?	No	18.32 (9.24)	-2.81	0.05			
	Yes	21.63 (9.84)					

In this study, the Cronbach alpha coefficient was found as 0.943.

with colleagues not exposed to care of COVID-19 positive patients it was found that the latter had a lower mean score on the PHQ-9 scale (9.15).

As was the case with stress, it would seem that having cared for COVID-19 positive patients may be a predictor of moderate/severe depressive symptoms (OR 2.015).

One of the most significant data is that relating to the 73 nurses (out of 111) who before the COVID-19 pandemic declared that they had never detected depressive episodes and who, by applying the PHQ-9 scale, reported scores compatible with symptoms depressants, it should be noted that 53% of these nurses had cared for COVID-19 positive patients.

From the logistic regression model (described in Table 5) it is also noted that female nurses (OR 2747) and with an age less than 30 years (OR 4,119) may be more at risk of developing moderate/severe depressive symptoms.

Table 3
Influence of different predictors on levels of stress.

					OR IC 95%	
		B	p	OR	Lower	Higher
Gender	F	0.409	0.239	1.505	0.762	2.973
	M			Ref.		
Age (y)	<30	1.726	0.004	5.620	1.710	18.470
	30–40	0.862	0.113	2.368	0.814	6.884
	41–50	0.603	0.133	1.828	0.832	4.014
	>50			Ref.		
Education level	Regional School Diploma			Ref.		
	BNS	−0.192	0.679	0.826	0.333	2.047
	First level University	−0.617	0.196	0.539	0.212	1.375
	Master					
Care setting	MNS/Phd	−1.326	0.049	0.266	0.071	0.997
	Direction of Mental Health Departments (DMHDs)			Ref.		
	Community Mental Health Centres (CMHCs)	−0.419	0.591	0.658	0.143	3.034
	General Hospital Psychiatric Units (GHPUs)	−0.735	0.348	0.480	0.103	2.226
	Residential facilities (RFs)	−0.127	0.873	0.880	0.185	4.191
Experience in mental health settings (y)	>20			Ref.		
	<5	−0.419	0.591	0.658	0.143	3.034
	5–10	−0.735	0.348	0.480	0.103	2.226
	11–20	−0.127	0.873	0.880	0.185	4.191
Depressive episodes before the Covid-19 pandemic	Yes	0.332	0.300	1.394	0.744	2.614
	No			Ref.		
Have you cared for Covid-19 positive patients?	Yes	0.759	0.022	2.137	1.114	4.098
	No			Ref.		
Constant		−1.821	0.032	0.162		

PSS score was the dependent variable in the multiple linear regression.

0 = Low/Moderate levels of stress (PSS score < 27);

1 = High levels of stress moderate/severe (PSS score > 26).

R² = 0.126.

Discussion

The COVID-19 pandemic has determined in the Italian mental health Departments the need to reorganize the operating procedures in order to limit the transmission of the virus and to guarantee a timely response to the needs of the users taken care of by the Departments (Castelpietra et al., 2021).

The care of fragile patients at high risk of contracting the virus (Starace & Ferrara, 2020) (or in some cases already positive), the growing care burden, the fear deriving from the risk of becoming infected (Shah et al., 2020) and as mentioned, the modification of the operative modalities could, as already noted in other settings (Altmayer et al., 2021; Bateman et al., 2020), have an important impact on the mental health of the nurses of the Italian mental health departments.

This cross-sectional study, conducted through the use of a web questionnaire, involved a total of 266 nurses belonging to the Italian

Table 4

Socio-demographic characteristics of the total sample and mean differences on PHQ-9.

(Sample Mean = 9.95, SD = 5.88).

		Mean (SD)	t/F	p
Gender	F	10.56 (5.5)	2.58	0.01
	M	8.55 (6.51)		
Age (y)	<30	12.23 (5.43)	4.03	<0.01
	>50	8.68 (5.85)		
	30–40	10.58 (5.13)		
	41–50	10.22 (6.23)		
Education level	Regional School Diploma	8.98 (6.40)	1.30	0.274
	MNS/Phd	9.9 (5.62)		
	BNS	10.68 (5.63)		
	First level University	10.28 (5.55)		
Care setting	Community Mental Health Centres (CMHCs)	9.23 (6.13)	1.2	0.295
	Direction of Mental Health Departments (DMHDs)	9.21 (5.71)		
	General Hospital Psychiatric Units (GHPUs)	9.89 (6.12)		
	Residential facilities (RFs)	11.06 (5.14)		
Experience in mental health settings (y)	<5	10.58 (5.85)	1.59	0.192
	>20	9.49 (6.18)		
	11–20	8.95 (6.10)		
	5–10	10.96 (5.08)		
Depressive episodes before the Covid-19 pandemic	No	9.35 (5.826)	−2.52	0.01
	Yes	11.30 (5.832)		
Have you cared for Covid-19 positive patients?	No	9.15 (5.63)	−2.52	0.01
	Yes	10.97 (6.07)		

In this study, the Cronbach alpha coefficient was found as 0.884.

mental health Departments, in order to analyze whether the COVID-19 pandemic affected their respective perceived levels of stress or presence of depressive symptoms.

The average score of the sample, evaluated by the PSS-10 scale, was 19.78, this score showed a general level of moderate stress.

Compared to other studies, generally conducted in intensive settings or totally dedicated to COVID-19 positive patients (Murat, Köse, & Savaşer, 2021), lower stress levels were found in the sample analyzed, while compared to studies conducted on samples of nurses that were not totally firstly, comparable results were obtained (Chatzittofis, Karanikola, Michailidou, & Constantinidou, 2021; Warchol-Biedermann et al., 2021).

Caring for COVID-19 positive psychiatric patients appeared to be a predictor of high stress levels (OR 2.137).

Indeed, these data, although limited in this study to nurses related to mental health services, seem to confirm what other studies (Dai, Hu, Xiong, Qiu, & Yuan, 2020; Ma, Rosenheck, & He, 2020; Murat et al., 2021) 23 previously pointed out that frontline nurses on COVID-19

Table 5
Influence of different predictors on levels of depression severity.

					OR IC 95%	
		B	p	OR	Lower	Higher
Gender	F	1.011	0.002	2.747	1.460	5.170
	M			Ref.		
Age (y)	<30	1.416	0.012	4.119	1.361	12.470
	30–40	0.447	0.345	1.563	0.618	3.954
	41–50	0.326	0.353	1.386	0.696	2.759
	>50			Ref.		
Education level	Regional School Diploma			Ref.		
	BNS	0.227	0.582	1.254	0.560	2.809
	First level University	0.184	0.648	1.202	0.545	2.652
	Master MNS/Phd	0.395	0.464	1.485	0.515	4.280
	Direction of Mental Health Departments (DMHDs)			Ref.		
Care setting	Community Mental Health Centres (CMHCs)	−0.087	0.897	0.917	0.247	3.407
	General Hospital Psychiatric Units (GHPUs)	0.075	0.910	1.078	0.291	3.991
	Residential facilities (RFs)	0.255	0.713	1.290	0.332	5.013
Experience in mental health settings (y)	>20			Ref.		
	<5	0.086	0.865	1.090	0.404	2.943
	5–10	0.405	0.397	1.499	0.587	3.829
	11–20	0.397	0.318	1.487	0.683	3.239
Depressive episodes before the Covid-19 pandemic	Yes	0.426	0.146	1.531	0.862	2.720
	No			Ref.		
Have you cared for Covid-19 positive patients?	Yes	0.700	0.020	2.015	1.118	3.632
	No			Ref.		
Constant		−2.272	0.003	0.103		

PHQ-9 score was the dependent variable in the multiple linear regression.

0 = Level of depression severity absent or mild (PHQ-9 score < 10);

1 = Level of depression severity moderate/severe (PHQ-9 score > 9).

$R^2 = 0.140$.

positive patients appear to be more exposed to higher stress levels than their peers.

In addition, younger (<30 years) and female nurses reported the highest scores in perceived stress levels, which appears to be confirmed by several studies (Li, Zhou, & Xu, 2021; Preti et al., 2020; Rossi et al., 2020; Shahrouf & Dardas, 2020; Zhu et al., 2020).

It should be noted that gender represents one of the main biological determinants of vulnerability to psychosocial stress factors: women, in fact, tend to be more sensitive to anxiety and are more likely to develop more lasting stress conditions over time (Bonati et al., 2021; Connor et al., 2020; Sareen et al., 2013).

Young nurses, in a situation that has seen an increase in the need for staff in Healthcare Trusts, have in many cases found themselves being quickly introduced into acute care settings or managing very complex patients, and this could have favored the increase in stress among these nurses, compared to older colleagues.

Nurses in residential/semi-residential (RFs) facilities and General Hospital Psychiatric Units (GHPUs) reported higher levels of stress than those serving in Mental Health Departments and Community Mental Health Centers (CMHCs); the lock-down and the important restrictions envisaged (interruption of visits, blocking of exits) to limit the spread of the coronavirus seem to be at the basis of these results.

Especially in RFs, patients remained hospitalized without the possibility of being able to leave the structure increasing their tension, it is assumed that the activity of nurses in these structures was very complex, at the same time in many cases RFs and GHPUs were transformed into units totally dedicated to patients with COVID-19 positive psychiatric pathologies.

The lower scores obtained by the nurses of the Departments Management could be explained by the fact that the latter may not have provided direct assistance to patients, as they tend to be involved in the reorganization of services and in the management of human resources.

According to Pappa et al. (2020), the COVID-19 pandemic has the potential to significantly affect the mental health of frontline healthcare workers; being able to monitor and intercept changes in the mood of nurses should be a priority for health authorities, the well-being of health professionals is a significant determinant of patient care, supporting staff can improve patient outcomes.

Already during and after the SARS epidemics (Khalid, Khalid, Qabajah, Barnard, & Qushmaq, 2016) and Ebola, some health workers had manifested mental distress, some had even been forced to resign from their jobs, and it must be assumed that the media echo and the rapid spread of news could increase the discomfort among health workers also for COVID-19.

From the analysis conducted using the PHQ-9 scale, as happened for the stress variable, the service provided to COVID-19 positive patients seems to be able to increase the risk of developing major depressive symptoms (OR 2.015), this data seems confirm what other studies (Dai et al., 2020; Di Tella, Romeo, Benfante, & Castelli, 2020; Ma et al., 2020) have determined, namely that being at the forefront of managing COVID-19 positive patients seem to have repercussions on depressive disorders, it is easy to understand that these nurses have found themselves working daily to keep patients alive and constantly exposed to the risk of becoming infected.

It is interesting to note that as happened for stress, the subjects who showed a higher prediction for major depressive symptoms were women (OR 2.747) and young nurses (OR 4.119). unipolar is twice as common (and more persistent) in women than in men (WHO, 2019) but in general this trend has also been found in other studies conducted among health professionals (WHO, 2019; Zhang et al., 2020).

30.8% of the nurses surveyed said they suffered from depressive disorders prior to the COVID-19 pandemic, despite having statistically higher scores on the PHQ-9 scale ($p < 0.01$) than their colleagues, would not show a statistically greater risk of exacerbating major depressive symptoms following the COVID-19 pandemic.

On the contrary, it was noted that about 65% of nurses who had never suffered from depressive disorders before the pandemic reported at least mild depressive symptoms during the measurement, it is interesting to highlight how about half of these nurses had provided their care to patients. COVID-19 positive.

Implications

In light of the results reported in this study, the need for careful monitoring of stress levels and psychological state emerges among nurses in the Italian mental health Departments, in particular certain classes of nurses (women, young people and frontline nurses) were more likely to exhibit high levels of stress and major depressive symptoms during this COVID-19 pandemic.

Nursing managers have a fundamental role in being able to intercept nurses who find themselves in a difficult condition and in guaranteeing them, support actions; in this sense, encouraging additional training

moments on mental health and assigning the most critical patients based on nursing skills could be solutions to reduce the emotional load, especially among younger nurses.

In addition, setting up psychological support groups, providing rest days or stimulating a work environment based on the sharing of emotions among the members of the team can be additional strategies that can be adopted to help nurses.

Regarding the transmission of COVID-19 in health facilities, it was found that the training of staff in this regard plays a fundamental role in improving mental health levels among nurses (Wu et al., 2020), promote training and updating on the main procedures for containing the virus, involving staff in defining the operating procedures can optimize the response capacity of mental health services to the needs of citizens in a period of significant changes and difficulty.

Limitations

The study was carried out solely by seeking information provided by professionals by filling in a questionnaire and did not include a clinical evaluation of the nurses interviewed, which is why it is not possible to be certain that what the respondents said corresponds to the real conditions of the nurses.

In addition, the calculation of the statistical power of the sample was not provided, it was preferred to choose a sample of convenience and to enroll this through the use of social networks, allowing nurses from all regions of Italy to participate, in order to have a general picture of the Italian situation.

Future studies on larger and medium-long term samples could be useful to provide generalizable outcomes to the nursing population of the Italian mental health Departments, moreover, the use of qualitative research could allow deepening more precisely the mental well-being of these nurses.

Conclusion

This study examined stress levels and the prevalence of depressive conditions among nurses in the Italian Departments of Mental Health during the COVID-19 pandemic using two validated scales.

The results showed a moderate level of stress and a prevalence of sub-threshold (borderline) depressive symptoms among responding nurses.

In this study, frontline nurses on COVID-19 positive patients appear to be at greater risk of reporting higher levels of stress or major depressive symptoms as do young or female nurses.

Nurses with higher education levels (MNS/PhD) appear to be less likely to develop high stress conditions, while a history of pre-pandemic depression is not predictive of an increased risk of depressive relapses during the COVID-19 pandemic.

Monitoring and managing the psychological well-being of nursing staff are to be considered among the priorities of mental health service managers and are part of a process that aims to increase individual and organizational well-being but above all to improve the outcomes resulting from assistance.

Declaration of competing interest

None declared.

Acknowledgment

The author thanks the research participants for their participation in this research study and the Società Italiana di Scienze Infermieristiche in Salute Mentale (S.I.S.I.S.M.) for advertising participation in this study through its official website.

Funding

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

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