

Article

Burnout Levels in Italian Nurses during the First and the Second Wave in the COVID-19 Outbreak: A Pilot Cohort-Data Comparison

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Abstract: (1) Background: Nurses show higher psychological distress associated with physical difficulties during the COVID-19 outbreak. To compare burnout levels among nurses engaged in the front line of patients with COVID-19 during the first wave and the second wave of the pandemic. (2) Methods: Two cohort online surveys were conducted thanks to the Google Modules function: the first one was administered from March 2020 to April 2020 and the second survey, which included the same questionnaire, was administered from September 2020 to October 2020. (3) Results: There were significant differences in the emotional exhaustion sub dimension ($p < 0.001$): The first wave group recorded higher levels than the second wave one. While, as regards to the values of the dimension of the depersonalization, the second wave group reported significantly higher values than the first wave group ($p = 0.006$). No significant difference was recorded for the personal accomplishment sub dimension ($p = 0.108$). By considering the gender variable, significant difference was reported in personal accomplishment sub dimension, as during the second wave, females recorded lower levels in personal accomplishment while males reported significantly higher levels in the same sub dimension than the first wave ($p = 0.012$); while no statistically significant differences were reported in burnout sub dimensions during the first and the second waves according to years of work experience. (4) Conclusions: The COVID-19 pandemic represents an important provocation for nurses all around the world and, at the same time, constitutes a learning lesson to improve better approaches for the subsequent waves. Several interventions could be introduced to moderate the mental health influence of the COVID-19 pandemic on nurses.

Keywords: burnout syndrome; COVID-19 outbreak; nurses

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1. Introduction

The coronavirus disease 19, recognized as COVID-19, pandemic has both removed and influenced existences all around the world, causing a novel arrangement of contests in the entire world [1]. In April 2021, there were 135,646,617 confirmed cases and 2,930,732 deaths from COVID-19 in the world [2]. The COVID-19 pandemic generated an exaggerated psychosocial consequence on people and health care workers, especially nurses employed in the direct line of care of patients suffering from COVID-19 [1–6]. Therefore, nurses are under intense and continuous psychological stress since they are particularly exposed to the care of SARS-CoV-2 infection, and they are overcome by fear for their own health, their families, and their patients [7,8]. In these conditions, nurses experience serious emotional and mental disorders that could cause burnout, which then leads to reduced individual nursing performance and errors in patient care [9–11]. These exceptional conditions could worsen mental health problems both during and after the pandemic [12,13]. While, the literature has highlighted the mental health consequences of the COVID-19 pandemic on the general population [14,15], very few evidence is focused on the relationship between the pandemic and burnout in health care workers, particularly in nurses [16–18]. Previous studies suggested the significance in recognizing factors linked to mental disorders in nurses and

the relevance of how prompt interventions might protect their mental health [3,5,10,16]. The literature has just evidenced that nurses report moderate to high levels of burnout syndrome, in all its three sub dimensions, respectively [14–20]. Therefore, burnout in nurses represents an important and common health problem, provoking meaningful negative consequences not only for nurses but also for patients, colleagues, and health care systems. Burnout is recognized as a psychological syndrome characterized by long-term response to interpersonal stressors, above all, on nursing activities [21,22]. Burnout is a complicated and multifactorial circumstance that involves emotional exhaustion, depersonalization, and reduced personal accomplishment [21,22]. Emotional exhaustion is a condition of experiencing emotionally deteriorating, energy decreasing, exhaustion, and tiredness as a result of increased stress derived from one's or both personal and professional experiences. The depersonalization sub dimension indicates the advance in negative behaviors toward patients, impatient and deprivation of idealism. The reduced personal accomplishment regards a decreased performance or practice of lower competence, and reduced ability to deal with stressors [22]. During the COVID-19 pandemic, higher values of burnout (roughly 27.3%) were reported all around the world: from Italy [23] to the USA [24], from Germany [25] to Saudi Arabia [26], by referring also to specific socio-demographic variables, such as gender, as females reported higher levels in all the three dimensions of burnout [1] and years of work experience, as nurses who have more years of work experience are more exposed to all risk factors associated with burnout syndrome and then, to develop it [27–29]. Additionally, high levels of burnout (emotional exhaustion, depersonalization, and reduced personal accomplishment) were recorded mostly among nurses employed in the intensive care unit (ICU) during the pandemic [30], also associated with high scores of anxiety and insomnia levels, too [29]. The rising trend was influenced by several factors, like: increased workload, deficiencies in personal protective equipment, individual and social stigma linked to the SARS-CoV-2 infection, fear of contagion [31,32].

Aim

The present study aimed to compare burnout levels in Italian nurses engaged in the front line of patients' care suffering from COVID-19 (ICU R.Ns, ED R.Ns, R.Ns working in isolation), during the first (from 11 February 2020 to 11 June 2020) and the second waves (from 14 September to 31 December 2020) [30] of the COVID-19 pandemic, by investigating any differences in burnout levels according to gender and years of work experience.

2. Materials and Methods

2.1. Study Design

An observational, multicenter, cross sectional online study was conducted into two different waves of the COVID-19 pandemic, thanks to the Google Modules function. Specifically, the first sample was collected during the first wave of the pandemic, as from March 2020 to April 2020 and then, the second group of participants was collected during the second wave of the pandemic, as from the end of September 2020 to October 2020.

2.2. Sampling Method

A non-probability sampling method was carried out, as nurses were chosen arbitrary, since the aim of the present research was only exploratory. Therefore, two samples of nurses were recruited online through some pages and nursing groups belonging to Facebook and Instagram pages. The questionnaire was directly addressed to Italian nurses engaged in COVID-19 patients' assistance. Each participant was able to participate through a link to the study, posted on these groups, with the permission of those responsible.

2.3. The Questionnaire

The questionnaire included two main sections. Specifically, the first part included socio-demographic characteristics, such as: gender (female and male) and years of work experience, divided into sub-groups, such as: less than 5 years, 6–10 years, 11–15 years,

16–20 years, 21–25 years, 26–30 years, and over 31 years. The second part of the questionnaire contained the Maslach Burnout Inventory (MBI) questionnaire, which included a total of 22 items assessing burnout scores in each of the three sub dimensions. Specifically, each item was associated with a Likert value ranging from 0, as never, to 6, as every day. By summing values belonging to items no. 1, 2, 3, 6, 8, 13, 14, 16, 20, the Emotional Exhaustion (E.E.) sub dimension was obtained. The literature showed that values over 21 identified the presence of the E.E. condition. Moreover, by summing scores of items n. 5, 10, 11, 15, 22, the Depersonalization (DEP.) sub-condition was evaluated. In this case, the literature showed that for values over 8, a depersonalization condition was performed. Finally, adding scores of items n. 4, 7, 9, 12, 17, 18, 19, 21, the condition of Personal Accomplishment (P.A.) was measured. As regards to personal accomplishment, evidence suggested that for values less than 28, a reduced personal accomplishment was indicated [28,29].

2.4. Validity and Reliability

In this study, an homogenous instrument was adopted to assess burnout levels among Italian nurses as the MBI, which contained 22 items that measure well the burnout level, and its consistency among responses of multiple users was validated also in the Italian language [28,29].

2.5. Data Assessment

All the data collected during the two waves of the COVID-19 pandemic were registered in an Excel datasheet and subsequently processed thanks to the SPSS IBM—version 20 program, by distinguishing participants in the “First Wave” and in the “Second Wave” of the COVID-19 pandemic, respectively. Socio-demographic characteristics, as gender and years of work experience were showed as categorical variables and presented as frequencies and percentages and also chi-square tests were calculated to assess any differences existed between them. Additionally, good burnout validity and reliability was registered thanks to Cronbach’s alpha values both in the first and the second waves, as: α -Cronbach–first wave = 0.729 and α -Cronbach–second wave = 0.759, respectively. Then, burnout sub dimensions were presented as continuous variables and showed as means ($\bar{x}$) and standard deviations (s.d.). Differences were assessed between the first and the second waves thanks to the t-test for independent sample. Finally, multivariate analyses were performed between burnout sub dimensions’ values both according to gender and work experience, during the two waves of the COVID-19 pandemic. All values p -values < 0.05 were considered as statistically significant.

3. Results

A total of 592 nurses were engaged in this study. Specifically, during the first wave of the pandemic, a total of 291 (49.15%) front line nurses were enrolled. Of these, 36.1% were females and 13% were males. In the second group of participants, the trend remained almost the same ($p = 0.212$): among a total of 301 participants recruited, 39.7% were females and 11.1% were males, respectively. By considering the work experience variable, most of the participants were employed less than 5 years, both in the first wave (21.5%) and in the second wave (14.4%), too ($p < 0.001$) (Table 1).

By considering burnout sub dimensions’ scores, during the first wave, nurses reported significantly higher scores in the emotional exhaustion sub dimension than during the second wave ($p < 0.001$). Meanwhile, depersonalization scores were significantly higher during the second wave than the first one ($p = 0.006$). Personal accomplishment sub dimension scores were not significantly different by considering the two waves of the COVID-19 pandemic ($p = 0.108$) (Table 2).

Table 1. Socio-demographic characteristics in nurses during the first and the second wave of the COVID-19 pandemic ($n = 592$).

Characteristics	First Wave ($n = 291$; 49.15%)	Second Wave ($n = 301$; 58.85%)	χ^2/p
Gender			0.198/0.212
Female	214 (36.1%)	235 (39.7%)	
Male	77 (13%)	66 (11.1%)	
Years of Work Experience			
Until 5 years	127 (21.5%)	85 (14.4%)	
Until 10 years	60 (10.1%)	42 (7.1%)	
Until 15 years	33 (5.6%)	42 (7.1%)	
Until 20 years	21 (3.5%)	32 (5.4%)	0.001 / < 0.001 *
Until 25 years	16 (2.7%)	37 (6.2%)	
Until 30 years	15 (2.5%)	29 (4.9%)	
Over 31 years	19 (3.2%)	34 (5.7%)	

χ^2 : Chi square test. * $p < 0.05$: statistical significance.

Table 2. Burnout sub dimensions between the first and the second wave of the COVID-19 pandemic.

Burn out Sub Dimensions (Reference Value)/ Waves	First Wave $\bar{x} \pm SD$	Second Wave $\bar{x} \pm SD$	t/p
Emotional Exhaustion (>21)	32.40 ± 7.92	27.75 ± 7.35	7.416 / >0.001 *
Depersonalization (≥ 8)	12.60 ± 5.24	13.78 ± 5.14	$-2.772 / 0.006$ *
Personal Accomplishment (≤ 28)	32.40 ± 7.92	31.43 ± 6.67	1.609 / 0.108

t: Independent t -test. $\bar{x} \pm SD$: Mean $\pm$ Standard deviation. * $p < 0.05$: statistical significance.

Moreover, by considering burnout sub dimensions during the first and the second wave according to gender (Table 3), no significant differences were reported in each sub dimensions of the burnout syndrome. The trend was the same also by referring to work experience, too (Table 3).

Table 3. Multivariate analysis between burnout sub dimensions (emotional exhaustion, depersonalization, personal accomplishment) according to gender and work experience during the first and the second waves of the COVID-19 pandemic.

Burnout sub Dimensions According to Waves/ Gender and Years of Work Experience	First Wave $\bar{x} \pm \text{s.d.}$	Second Wave $\bar{x} \pm \text{s.d.}$	F/p
Emotional Exhaustion According to:			
Gender			0.011/0.918
Female	33.38 $\pm$ 7.81	28.51 $\pm$ 6.88	
Male	29.69 $\pm$ 7.64	25.01 $\pm$ 8.30	
Work experience			1.817/0.094
Until 5 years	31.33 $\pm$ 7.48	27.49 $\pm$ 6.78	
Until 10 years	31.86 $\pm$ 7.84	29.14 $\pm$ 7.83	
Until 15 years	33.00 $\pm$ 8.00	28.17 $\pm$ 7.96	
Until 20 years	36.52 $\pm$ 7.32	28.37 $\pm$ 7.98	
Until 25 years	34.50 $\pm$ 8.63	26.08 $\pm$ 7.27	
Until 30 years	36.40 $\pm$ 9.73	28.65 $\pm$ 6.52	
Over 31 years	30.89 $\pm$ 7.63	26.59 $\pm$ 7.50	
Depersonalization according to:			
Gender			0.091/0.763
Female	12.53 $\pm$ 5.35	13.55 $\pm$ 5.20	
Male	12.78 $\pm$ 4.94	14.61 $\pm$ 4.87	
Work experience			1.125/0.346
Until 5 years	13.01 $\pm$ 5.36	15.01 $\pm$ 5.29	
Until 10 years	12.60 $\pm$ 4.47	15.33 $\pm$ 5.02	
Until 15 years	12.63 $\pm$ 6.11	14.71 $\pm$ 5.30	
Until 20 years	11.38 $\pm$ 4.39	11.53 $\pm$ 4.88	
Until 25 years	10.94 $\pm$ 4.90	12.00 $\pm$ 4.51	
Until 30 years	13.33 $\pm$ 5.70	12.24 $\pm$ 4.77	
Over 31 years	11.89 $\pm$ 6.05	13.00 $\pm$ 4.43	
Personal Accomplishment according to:			
Gender			0.108/0.743
Female	33.38 $\pm$ 7.81	31.47 $\pm$ 6.42	
Male	29.69 $\pm$ 7.64	31.30 $\pm$ 7.53	
Work experience			1.136/0.073
Until 5 years	31.09 $\pm$ 6.65	29.94 $\pm$ 5.80	
Until 10 years	32.45 $\pm$ 7.19	30.98 $\pm$ 8.08	
Until 15 years	34.54 $\pm$ 6.53	28.83 $\pm$ 6.38	
Until 20 years	33.57 $\pm$ 4.82	33.50 $\pm$ 6.31	
Until 25 years	35.44 $\pm$ 7.44	33.00 $\pm$ 6.79	
Until 30 years	32.27 $\pm$ 7.70	33.51 $\pm$ 6.91	
Over 31 years	33.52 $\pm$ 6.49	33.53 $\pm$ 5.34	

F: Multivariate analysis. * $p < 0.05$: statistical significance.

4. Discussion

The present study aimed to highlight any differences in burnout syndrome in Italian nurses directly involved in the care of patients affected by SARS-CoV-2 infection by considering the two waves of the pandemic, specifically, the first wave referring from March 2020 to April 2020 and the second wave, from September 2020 to October 2020, also according to gender and work experience. Data suggested that participants recorded significantly high levels in emotional exhaustion during the first wave ($p < 0.001$) and also significantly high depersonalization levels during the second wave ($p = 0.006$). No significant differences were registered in the personal accomplishment sub dimension between the two waves of the pandemic ($p = 0.108$) and also in all the three burnout sub dimensions by referring to gender and to work experience, too. Data seemed to be in agreement with the current literature, as high frequencies in nursing burnout were registered during the COVID-19 pandemic, characterized by high scores in emotional exhaustion, low values in personal accomplishment and depersonalization, respectively [33], due to their heavy stressful work environments [34]. According to the present findings, another study [35], which included data from 49 countries, reported high levels in emotional exhaustion and per-

sonal accomplishment and low levels in depersonalization sub dimensions among nurses employed in mental health [17], in primary health care [36], in gynecology, obstetric [18], pediatric [37], and emergency services [16] during the pandemic. Since, daily, nurses lived with strong emotions to being at high-risk for contagion as they worked in close contact with COVID-19 patients, they were afraid for the potential effects to become more susceptible to emotional exhaustion [38–40]. In this regard, Wu et al. [41] highlighted that the increase in the emotional exhaustion sub dimension may be due to growing workloads and challenging conditions resulting from the pandemic [42], especially during the first wave. Therefore, the present data were in agreement with the current literature [1,8,43]: nurses directly involved in the pandemic recorded high levels of burnout also in consequence to the high impact of workloads that the emergency condition provoked. These data had already been markedly explored during the Middle East Respiratory Syndrome outbreak [44] and were repeated during the COVID-19 pandemic, too. Considering burnout sub dimensions' values according to gender, the present findings showed that females reported lower personal accomplishment during the second wave than the first wave, while males reported an inverse trend ($p = 0.012$). These data were in disagreement with the study of Portero de la Cruz et al. [45], which reported higher levels of emotional exhaustion and depersonalization sub dimensions in females than in males. Additionally, several studies suggested that females were more affected in their emotional exhaustion dimension than their male colleagues, depending on whether their social roles managed a well work–life equilibrium [2,40,46]. This was also evident from the number of participants in this study, since both in the first wave and in the second one, male participants did not exceed 30% of the total. Although the present data did not show this trend, as both emotional exhaustion and depersonalization sub dimensions were similar in females and males, which differed from only in personal accomplishment sub dimension. In addition, in the current literature, data were discordant. For example, few studies [28,40,47] did not highlight any association between gender and nursing burnout, suggesting doubt in this relation. After exposure to exhausting experiences, females were more likely to be stressed than males [48–50]. In contrast to this evidence, a meta-analysis [42] including 57 studies found that males were more exposed than females to burnout development among nurses. Several factors could be considered in this trend, such as: age, job satisfaction and relating-position, clinical experience. On the other hand, the World Health Organization stated that females were more likely to be at risk to develop burnout than males [46,50,51]. In this regard, Xu et al. [52] found that female nurses directly involved in the care of COVID-19 patients reported higher levels of stress and depression. Murat et al. [53] suggested no statistically significant difference by comparing gender with stress, depression, personal achievement, and depersonalization sub dimensions of the burnout syndrome. This could depend on undetermined information about COVID-19. In contrast, Cañadas-De la Fuente et al. [18] reported higher burnout levels among male nurses. Conversely, it was seen that emotional exhaustion was higher in females than in males [2,40]. The reason why the results of this study were in disagreement to the current literature may be that the majority of the participants were females. Furthermore, considering the number of years of work experience, the present data did not report any significant difference between the first wave and the second wave. Therefore, data were in disagreement with the current literature [28,53,54], as younger nurses reported higher levels of psychological pressure than their older colleagues, as reported in the Liu et al. study [6], in which younger nurses were more likely to report burnout during the COVID-19 pandemic than older nurses and this might be related to the fact that younger nurses were less familiar both with infection control and protective measures management and less experienced in handling extreme events such as a pandemic.

Limitations

The results should be interpreted by also considering some limitations. First of all, the sampling characteristic of the study, as non-probabilistic, is without any assessment

in its sampling collection. Therefore, the present study could be presented as a “photo” of the burnout condition of participants, without any aspirations to generalize data collected. Additionally, the questionnaire was spread online, due to the pandemic condition, which could contribute to some potential bias selection. Furthermore, the sample was not representative of the entire Italian population and also only two socio-demographic characteristics were collected, such as gender and work experience, since literature evidenced redundant differences in burnout levels by considering these variables [2,55,56]. Finally, sampling information concerned only gender and work experience without considering other important variables, such as: income, workload, shift work social status, too.

However, future studies will consider other possible variables which will provide further differences in the nursing sample related to burnout syndrome.

5. Conclusions

Surely, the COVID-19 pandemic represents an important provocation for nurses all around the world and, at the same time, constitutes a learning lesson to improve better approaches for future waves. From the present data, it emerged that imminent interventions are better to introduce earlier in order to mitigate potential burnout disturbances among the nursing population. This study could contribute to promoting preventive and helpful interventions for more exposed nurses, prompt admission to mental health care services, available relax times, social help, in order to favor the well-being among nurses for a better response against the COVID-19 pandemic.

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Institutional Review Board Statement: The present study was presented and approved by the Ethics Committee of the Policlinic of Bari Hospital, Italy, with ID number 6404/2020. At the beginning of the questionnaire, a clear consent of the voluntary participation in the study was stated and only participants who voluntarily gave their consents in the participation were subsequently included in further analyses.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study. Written informed consent for publication was obtained from participating nurses.

Data Availability Statement: Data is contained within the article.

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Conflicts of Interest: The author declares no conflict of interest.

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