

Post-pandemic emotional well-being and coping strategies in Moroccan nursing students and professional nurses

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Abstract. Emotional well-being and effective coping mechanisms are essential aspects of healthcare practice, especially during a crisis such as the COVID-19 pandemic. Data were collected during the COVID-19 pandemic to evaluate emotional responses and coping strategies among nursing students and professional nurses. A total of 118 participants were included in the study, surveys included sociodemographic variables, the Positive and Negative Affect Schedule Scale (PANAS), and the Brief Coping Orientation to Problems Experienced Inventory (COPE). Statistical analyses were conducted to identify differences in emotional responses and coping strategies and to explore potential correlations between these variables. This study found no gender-based differences in emotional responses among nurses and nursing students. However, professional nurses exhibited more positive emotions ($M = 32.87$, $SD = 4.92$) and fewer negative emotions ($M = 18.90$, $SD = 4.52$) compared to students ($M = 30.44$, $SD = 7.04$ and $M = 22.24$, $SD = 5.75$, respectively). Women scored higher in denial ($M = 4.70$, $SD = 0.77$) but lower in behavioral disengagement ($M = 4.14$, $SD = 1.26$) and humor ($M = 3.90$, $SD = 1.20$) compared to men. Regarding coping strategies, professional nurses used self-distraction ($M = 5.53$, $SD = 1.36$), instrumental support ($M = 5.44$, $SD = 1.18$), venting ($M = 4.23$, $SD = 1.09$), and acceptance ($M = 5.75$, $SD = 1.54$) more than nursing students. Positive emotional responses were positively associated with approach coping for professional nurses ($r = 0.261$, $p < 0.05$) and for nursing students ($r = 0.423$, $p < 0.01$) and with avoidant coping for the entire sample ($r = 0.275$, $p < 0.01$) and nursing students ($r = 0.378$, $p < 0.05$). In the light of these results, it is essential to provide the necessary crisis support for both profiles. **Keywords.** Emotional regulation; Psychological Adaptation, SARS-Cov-2; Nurses.

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1 Introduction

A novel coronavirus emerged in China in December 2019 and rapidly spread worldwide [1]. By March 2020, the World Health Organization (WHO) had officially named the disease Coronavirus 2019 (COVID-19) and classified the outbreak as a global pandemic.

Facing this dramatic emergency, Morocco implemented more serious public health measures after the first reported case of COVID-19 on March 2, 2020, such as suspension of studies at all levels; strict confinement from March 20, 2020; wearing masks, practicing hand hygiene and social distancing in all public places to limit the spread of the virus [2]. Overall, with a total of 149,841 cases of COVID-19 contamination and 2,572 deaths, Morocco ranks first among Maghreb countries. In terms of morbidity and mortality, obesity, diabetes, renal failure and hypertension are associated with severe outcomes. Dyspnea, insomnia, lung damage and hypoxemia are the main predictors of mortality [3].

Against this backdrop of crisis, people's daily lives have been disrupted by restrictions on their freedom of movement and social interaction. However, it's crucial to acknowledge that healthcare professionals, especially those on the front lines, continued working without interruption, making them more vulnerable to the high risk of COVID-19 infection, psychological stress, and other mental health symptoms, as indicated by studies like those conducted by Lai et al. (2020) and Tian et al. (2020) [4-5].

Nurses played a vital role in reassuring, informing, and supporting patients, their families, and the community by adhering to the latest COVID-19 prevention guidelines [5].

For university students, the suspension of in-person classes by most higher education institutions forced a sudden shift to online learning, requiring major adjustments in their daily routines and study habits [6]. During this period, nursing students experienced a disruption in their clinical training [7]. The abrupt transition to distance education also led to social isolation from instructors and classmates, potentially intensifying the psychological effects of the pandemic [6].

Due to the shortage on healthcare professionals in Morocco, in addition to patient overload in the hospital system, Students in their final year of nursing studies were authorized to help out as auxiliary health staff, performing support tasks under the close supervision of experienced professionals, before they have completed their formal training. On top of this, these students must deal with the worry of eventual transmission of the virus to family members [8-5].

Previous pandemics have shown that the psychological consequences of quarantine can range from immediate concerns such as the fear of transmitting or contracting the virus within the family, to feelings of loneliness, confusion, irritability and frustration, as well as symptoms of depression, anxiety and sleep disorders [9].

Comparable findings were reported among healthcare professionals during the initial phase of the pandemic, with several studies indicating elevated levels of anxiety, depression, and post-traumatic stress [7].

COVID-19 not only results in emotional negative response for nurses and nursing student but also restricts their coping strategies. Coping is defined as a set of psychological responses to prevent or reduce threats, injuries, losses, and the discomfort they cause [10]. Coping can be classified into adaptive and maladaptive strategies [11]. Both problem-solving and seeking social support figure among effective and positive coping mechanisms [12]; they can help students cope effectively with stress, and prevent psychological disorders such as loneliness, anxiety and depression [13]. It also helps them achieve better academic results [14]. While use of avoidance strategies has been linked to lower academic performance [15].

Healthcare professionals adopted various coping strategies during the pandemic, including adherence to strict protective protocols, increased awareness of virus transmission and prevention, voluntary social isolation, maintaining a positive mindset, and seeking social support [16].

The psychological well-being of nurses during a pandemic is essential for their future health and high quality of care to this end, it is important before to assess nurses' emotional state in different coping strategies adopted during stressful periods. The aims of this study were (a) to compare both profiles in terms of distribution of emotional responses and coping strategies, (b) to investigate the correlation between emotional responses and coping strategies for each defined profile.

2 Material and Methods

This research was conducted as a quantitative, descriptive, and comparative study, in this study, we focused on collecting responses from nursing students and healthcare professionals during the period of April 2021 to June 2021 about their emotional reactions and coping strategies after the lockdown. We interviewed a random sample of 50 3rd-year nursing students at the Higher Institute of Nursing and Health Techniques Errachidia, and 70 healthcare professionals (where two were excluded based on missing values) representing various healthcare specialties at the Hôpital Régional Moulay Ali Cherif, Errachidia, Morocco.

We collected data for age, gender, city, education level and marital status. For professional nurses, information about their work environment was collected, such as year of employment, working department, seniority, number of working hours, and working on-call system (day, night, or both), and for students, information was collected on the option and semester for the sociodemographic variables. Emotional responses were assessed using the PANAS, a 20-item questionnaire measuring positive and negative affect on a 5-points Likert scale. Internal consistency for the PANAS was 0.72. Coping strategies were evaluated with the brief COPE questionnaire, which consists of 14 scales and 28 items. Respondents rated their coping strategy use on a 4-points scale, and total scores on each scale varied from 2 to 8, with higher scores indicating greater use of that strategy. The COPE questionnaire demonstrated an internal consistency of 0.78 in this study. Ethical and deontological rules were respected. All participation in this study was entirely voluntary. Consent was obtained in advance of participation. The participants had knowledge of the objectives and the interest of the survey and were informed that they were free to refuse to participate. The protection of anonymity and confidentiality of the data was guaranteed. The ethical standards were in line with the Helsinki Declaration of 2013 and the study country's legal requirements.

The data were entered in SPSS version 21® software for analysis. We counted the numbers and the percentages for the qualitative variable and calculated means, and standard deviations for the quantitative variable. Student t-test was applied to compare averages of variables that were normally distributed and significant at the 5% level (p -value < 0.05). The z score was calculated when the condition of normality was violated. Cohen's d was used to measure effect size (interpretation: less than .3 "small effect", .3 - .5 "medium effect", $> .5$ "large effect"). Pearson's linear correlation analysis was employed to assess the association between emotional reactions and coping strategies significant at the 5% level (p -value < 0.05).

3 Results

We included 118 complete responses in our analysis. The mean age of participants was 27.59 ± 8.98 years (ranging from 19 to 58 years); with a sex ratio (F/H) of 2.03. A majority (68.4%) were single, while 31.6% were married. Among the participants, 57.6% were professional nurses with an average of 8.87 years of experience, while 42.4% were nursing students. Two-thirds of the nurses worked day and night shifts, mostly in COVID-19 patient care units.

3.1 Comparative aspects of emotional responses by gender and nurse profile

Table 1 displays the emotional responses based on gender and nurse profiles; no difference was revealed based on emotions when comparing men and women. Based on emotional levels, considering the nurses' profiles, professional nurses experienced more positive emotional responses (32.87 ± 4.92 ; $z = -2.09$, $p = .040$) compared to nursing students (30.44 ± 7.04) with a medium effect size (.40). In terms of negative emotional responses, nursing students presented significant high negative emotional responses (22.24 ± 5.75 ; $Z = -3.41$, $p = .001$) when compared to professional nurses (18.90 ± 4.52) with a large effect size (.65).

Table 1. Comparison of emotional responses by gender and nurses profile:

		Gender		Nurses profiles	
		Women	Men	Professional nurse	Nursing student
Positive affect score	M(SD)	31.66 (6.11)	32.20 (5.85)	32.87 (4.92)	30.44 (7.04)
	s(p)	-.46 ^b (.644)		-2.09 ^b (.040)	
	Cohen's d	.09		.40	
Negative affect score	M(SD)	20.56 (5.30)	19.82 (5.39)	18.90 (4.52)	22.24 (5.75)
	s(p)	.71 ^b (.482)		-3.41 ^a (.001)	
	Cohen's d	.14		.65	

M: Mean – SD: Standard Deviation – S: Statistics (^a z score, ^b t-test) – p: p-value (signification)

3.2 Comparison of coping strategies by gender and nurse profile

Women showed significantly higher mean scores for denial ($4.70 \pm .77$; $z = -2.76$; $p = .006$), and significantly lower behavioral disengagement (4.14 ± 1.26 ; $z = -2.40$; $p = .016$) and humor (3.90 ± 1.20 ; $z = -2.43$; $p = .015$) compared to men ($4.23 \pm .96$, 4.74 ± 1.14 , 4.44 ± 1.21); respectively.

Self-distraction (5.53 ± 1.36 ; $z = -2.45$, $p = .014$), using instrumental support (5.44 ± 1.18 ; $z = -2.23$, $p = .026$), venting (4.23 ± 1.09 ; $z = -1.98$, $p = .048$), and acceptance (5.75 ± 1.54 ; $z = -2.57$, $p = .010$) all were significantly higher among professional nurses when compared to nursing students (4.90 ± 1.20 , 4.96 ± 1.32 , 3.84 ± 1.22 and 4.96 ± 1.62 ; respectively).

More professional nurses were avoidant when compared to nursing students ($z = -2.44$, $p = .016$); while no other significant difference was reported between gender and approach coping. For all significant differences, all effect sizes were between .34 and .54.

Table 2. Comparison of coping strategies domains by gender and nurse profile:

Coping domains		Gender		Nurses profiles	
		Women	Men	Professional nurses	Nursing students
Avoidant coping	M(SD)	27.85 (3.93)	27.71 (4.59)	28.60 (3.71)	26.60 (4.50)
	s(p)	.16 ^b (.873)		-2.44^b(.016)	
	Cohen's d	.03		.48	
Approach coping	M(SD)	28.00 (4.78)	28.10 (5.08)	28.60 (4.77)	27.26 (4.92)
	s(p)	-.11 ^b (.915)		-1.49 ^b (.139)	
	Cohen's d	.02		.28	
Self-distraction	M(SD)	5.22 (1.28)	5.40 (1.44)	5.53 (1.36)	4.90 (1.20)
	s(p)	-.54 ^a (.587)		-2.45^a(.014)	
	Cohen's d	.13		.49	
Active coping	M(SD)	5.37 (1.51)	5.36 (1.58)	5.56 (1.49)	5.10 (1.55)
	s(p)	-.17 ^a (.861)		-1.69 ^a (.091)	
	Cohen's d	.01		.30	
Denial	M(SD)	4.70 (.77)	4.23 (.96)	4.50 (.82)	4.60 (.92)
	s(p)	-2.76^a(.006)		-.71 ^a (.478)	
	Cohen's d	.54		.11	
Substance use	M(SD)	3.99 (.81)	4.26 (1.23)	4.19 (1.01)	3.92 (.90)
	s(p)	-.74 ^a (.459)		-1.34 ^a (.179)	
	Cohen's d	.26		.28	
Emotional support	M(SD)	3.56 (1.21)	3.77 (1.22)	3.54 (1.15)	3.74 (1.29)
	s(p)	-.99 ^a (.320)		-.68 ^a (.494)	
	Cohen's d	.17		.16	
Using Instrumental Support	M(SD)	5.34 (1.22)	5.03 (1.33)	5.44 (1.18)	4.96 (1.32)
	s(p)	-1.19 ^a (.235)		-2.23^a(.026)	
	Cohen's d	.24		.38	
Behavioral disengagement	M(SD)	4.14 (1.26)	4.74 (1.14)	4.40 (1.16)	4.26 (1.37)
	s(p)	-2.40^a(.016)		-.73 ^a (.464)	
	Cohen's d	.50		.11	
Venting	M(SD)	4.05 (1.12)	4.10 (1.25)	4.23 (1.09)	3.84 (1.22)
	s(p)	-.04 ^a (.965)		-1.98^a(.048)	
	Cohen's d	.04		.34	
Positive reframing	M(SD)	4.15 (1.23)	4.08 (1.32)	3.98 (1.35)	4.32 (1.10)
	s(p)	-.15 ^a (.881)		-1.42 ^a (.155)	
	Cohen's d	.05		.28	
Planning	M(SD)	4.34 (1.46)	4.1 (1.37)	4.32 (1.47)	4.18 (1.38)
	s(p)	-.84 ^a (.399)		-.54 ^b (.592)	
	Cohen's d	.17		.10	
Humor	M(SD)	3.90 (1.20)	4.44 (1.21)	4.12 (1.22)	4.02 (1.25)
	s(p)	-2.43^a(.015)		-.51 ^a (.610)	
	Cohen's d	.45		.08	
Acceptance	M(SD)	5.24 (1.59)	5.77 (1.61)	5.75 (1.54)	4.96 (1.62)
	s(p)	-1.62 ^a (.105)		-2.57^a(.010)	
	Cohen's d	.33		.50	

M: Mean – SD: Standard Deviation – S: Statistics (^a z score, ^b t-test) – p: p-value (signification)

3.3 Association between emotional responses and coping strategies

In the whole samples, nursing students and professional nurses revealed a significant positive correlation between the positive affect subscale and approach coping ($\rho = .365$, $p < .001$; $\rho = .423$, $p = .002$; $\rho = .261$, $p = .031$; respectively). Meanwhile, only the overall sample and nursing students revealed a positive association between the positive affect subscale and avoidant coping ($\rho = .275$, $p = .005$; $\rho = .378$, $p = .015$; respectively). Among nursing students, we also have statistically corroborated a positive correlation between avoidant coping and approach coping among the overall sample (for our study, $\rho = .686$; $p < .001$).

Table 3. Spearman correlation between emotional reactions and coping strategies among professional nurses and nursing students

	PAS			NAS		
	Total sample	Professional nurses	Nursing students	Total sample	Professional nurses	Nursing students
PAS	1	1	1			
NAS	.032	.037	.187	1	1	1
AvC	.275**	.161	.378*	-.147	-.176	.267
ApC	.365**	.261*	.423**	.097	.150	.177
	AvC			ApC		
	Total sample	Professional nurses	Total sample	Professional nurses	Total sample	Professional nurses
PAS						
NAS						
AvC	1	1	1	1	1	1
ApC	.686**	.635***	.686**	.635***	.686**	.635***

Significant correlation is displayed in bold (* $p < .05$, ** $p < .01$, *** $p < .001$)

PAS: Positive Affect Score, NAS: Negative Affect Score, AvC: Avoidant coping, ApC: Approach coping

4 Discussion

This study explored the differences in emotional regulation and coping strategies between professional nurses and nursing students during the COVID-19 pandemic. Individuals may react differently to stressors depending on their profile and the degree of intervention linked to the pandemic. Previously, it was supported that COVID-19 affected negatively the emotional state and mental health of students [17]. In detail, women showed more anxiety and fear when compared to men [18]. Our data could not support such results for gender, however, when compared by profile, professional nurses revealed high positive emotions and low negative emotions when compared to nursing students. This could be explained by the fact that at the time of data collection, nurses already got enough experience when treating the disease, almost all health professionals were vaccinated, and close family, especially elderly people, were vaccinated.

Negative emotions include disruption, distress, fear, guilt, hostility, irritability, nervousness, sadness and shame, all of which are highly exhibited by nursing students. This could be explained by the fact that nursing students could be concerned about their professional future, doubt about their chosen job, and fear getting infected or transmitting the

disease to close family and friends; such traits were previously supported among nursing students [19-20]. In addition, it was previously stated that nursing students during the pandemic had moderated levels of stress, and that age, gender and some variables such as worrying about getting infected, watching news and curfew, affected perceived stress level [21]. Although no stress evaluation was performed in our study, stress could be classified as consequence of negative affect.

Avoidant coping was higher among professional nurses compared to nursing students, while no significant difference was reported for approach coping. Typically, professional nurses are supposed to be more qualified to face crises and critical situations and have positive traits, which was not the case with the present results where they tend more to exhibit avoidant coping reflected by ignoring or withdrawing from stress-related situations [22]. Professional nurses reported significantly higher scores in expressing negative emotions (venting) and engaging in work or other activities as a means of distraction (self-distraction) compared to nursing students. However, some high subscales scores were reported for approach coping such as accepting the reality that has happened and learning to live with COVID-19 circumstances at work and seeking help and advice from others. In a study by Eslami Akbar et al., [23], Iranian nurses primarily relied on strategies such as situational control, help-seeking, preventive monitoring, self-regulation, avoidance, escape, and spiritual coping to manage stress. Similarly, consistent with the present findings, previous research has shown that seeking assistance or drawing on social support has long been a common approach among professional nurses for dealing with occupational stress [24–25]. It is worth noting, however, that these earlier studies were either qualitative in nature or conducted prior to the COVID-19 pandemic.

Moreover, women were more likely to cope with denial (refusing to believe that it has happened); for stressful situations than men; this was inconsistent with previous studies supporting that those maladaptive coping strategies are more displayed by men [26]. It could be explained by certain cultural stereotypes, where women can sometimes turn to denial in stressful situations. Significant high scores for an attempt to cope and make fun of the situation were reported for men; which also was inconsistent with previous studies associating behavioral disengagement (giving up trying to deal with it/the attempt to cope) to women, especially in stressful situations and when associated with greater emotional empathy [27]. Such difference in coping mechanisms for men and women was explained by the role of gender in society [28]; Research suggests that men tend to experience emotions more intensely, while women are generally more expressive, especially when it comes to negative emotions. Moreover, gender-related differences appear to be influenced by the type of emotion rather than its positive or negative nature [19].

Looking at the correlation, avoidant coping among professional nurses was not associated with positive affect, they adopt more approach coping. While for nursing students, positive affect presents a positive association with avoidant coping and approach coping. However, no association was revealed by negative affect and coping strategies for both profiles. Huang et al. [18] found that emotional reactions particularly anxiety, fear, and anger were positively associated with both problem-focused strategies (e.g., active coping, planning, seeking instrumental support) and emotion-focused strategies (e.g., emotional support, acceptance, positive reframing, religious coping, humor, substance use, distraction, self-blame, denial, disengagement, and venting). Their findings also revealed a correlation between problem-focused and emotion-focused coping, a pattern that aligns with our own results.

The present study was carried out for the first time in Morocco. The limited sample size prevents the results from being generalized even when opting for random sampling. The

small size of the sample is explained by the unavailability of nursing students during the study period (coinciding with the period of preparation for their end-of-study project) and that of professional nurses given their busy schedules taking into account the consequences of the pandemic. Moreover, contextual factors such as internship conditions, access to protective equipment, and whether participation was voluntary were not assessed, which may have influenced the emotional responses and coping strategies reported. These aspects will be explored in future research.

5 Conclusion

Despite its limitations, the present study highlights how emotional reactions and coping strategies vary between nursing students and professional nurses and to a limited extent, between genders. These findings can inform training programs, support systems and interventions aimed at improving the emotional well-being and coping skills of those in the nursing profession, especially during health crises. It is important to recognize that these findings provide valuable information, but that further research is needed to investigate more deeply the complex relationship between emotions, coping, gender, and professional experience in nursing.

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