Ansiedad y Estrés 28(3) (2022) 186-193

Ansiedad y Estrés

https://www.ansiedadyestres.es

Original

The role of emotion regulation strategies on healthcare workers' mental health during the COVID-19

Luz Sofía Vilte[a], Raquel Rodríguez-Carvajal[b], Gonzalo Hervás[a]

[a]*Universidad Complutense de Madrid;* [b]*Universidad Autónoma de Madrid*

ARTICLE INFO

Article history:
Received 5 October 2022
Accepted 14 November 2022
Available online 12 December 2022

Keywords:
Emotion regulation
Healthcare workers
COVID-19
Emotional overload
Work stress

A B S T R A C T

During COVID-19 pandemic, healthcare workers' mental health worsened, due to the severe risk factors they daily faced. Although several studies addressed the impact of this pandemic on their mental health, just a few of them focused on emotion regulation. Therefore, the aim of this study is to explore the role of emotion regulation strategies and the recovery process on health personnel's mental health during the first wave of the COVID-19 pandemic. A cross-sectional and web-based study was conducted with 100 health professionals working in Spain during the first wave of COVID-19 (April-May, 2020). The survey included demographics, depression, PTSD, and emotional exhaustion as symptomatology, and several emotion regulation strategies and recovery variables as predictive factors. Regression analyses highlighted rumination and self-criticism as the main positive predictors of symptomatology and negative affect. Relaxation turned out to be a negative predictor for depression and emotional exhaustion. However, greater use of distraction also seemed to contribute to higher levels of emotional exhaustion. Finally, acceptance, psychological detachment and self-compassion were significant and positive predictors of positive affect. These results may help to design interventions to prevent psychological problems among healthcare workers and enhance better mental health especially in critical contexts.

El papel de las estrategias de regulación emocional en la salud mental de los profesionales de la salud durante la COVID-19

Palabras clave:
Regulación emocional
Profesionales sanitarios
COVID-19
Sobrecarga emocional
Estrés laboral

R E S U M E N

Durante la pandemia de COVID-19, la salud mental de los trabajadores de la salud empeoró debido a los graves factores de riesgo con los que se enfrentaban a diario. Aunque varios estudios abordaron el impacto de esta pandemia en su salud mental, solo unos pocos se centraron en el papel de la regulación emocional. Por tanto, el objetivo de este estudio fue explorar el papel de las estrategias de regulación emocional y el proceso de recuperación en la salud mental del personal sanitario durante la primera ola de la pandemia de COVID-19. Se realizó un estudio transversal a través de un cuestionario web con 100 profesionales de la salud que trabajaban en España durante la primera ola de COVID-19 (abril-mayo de 2020). La encuesta evaluó datos demográficos, síntomas depresivos y de TEPT, agotamiento emocional, y varias estrategias de regulación emocional y variables de recuperación como factores predictivos. Los análisis de regresión mostraron que la rumiación y la autocrítica fueron los principales predictores positivos de sintomatología y afecto negativo. La relajación resultó ser un predictor negativo de depresión y agotamiento emocional. Sin embargo, un mayor uso de la distracción también pareció contribuir a niveles más altos de agotamiento emocional. Finalmente, la aceptación, el desapego psicológico y la autocompasión fueron predictores significativos y positivos del afecto positivo. Estos resultados pueden ayudar a diseñar intervenciones para prevenir problemas psicológicos entre los trabajadores de la salud y mejorar la salud mental especialmente en contextos críticos.

* Corresponding author
E-mail address: luzvilte@ucm.es (L. S. Vilte).

https://doi.org/10.5093/anyes2022a22

The impact of work-related stressors on healthcare workers' mental health has been widely studied due to its consequences. These professionals daily face a large number of work-related stressors inherent to their job, such as night shifts, high workload, time pressure, repeated and frequent exposure to potentially traumatic events, end-of-life care management, or making vital decisions of high ethical and emotional impact (Chuang et al., 2016; De Hert, 2020; Thielmann et al., 2022; Woo et al., 2020). The constant exposure to these risk factors without enough time to recover makes them more prone to develop some psychological problems than the general population, such as depression, burnout, or PTSD (Adam & Golu, 2021; De Hert, 2020; D'Ettorre et al., 2020; Karanikola et al., 2015). This is particularly severe among ICU and emergency professionals, who show a higher prevalence of these mental problems compared to other specialities (Karanikola et al., 2015; Naushad et al., 2019) because they experience a greater number of these risk factors in their daily work. And these data worsened when the COVID-19 pandemic rocked the healthcare systems around the world.

At the beginning of March 2020, the World Health Organization (WHO) declared COVID-19 a pandemic. During the first wave of this new disease, Spain was one of the more affected countries in the world, with more than 250.000 cases and more than 40.000 deaths reported in this period (INE, 2020; RNVE, 2020). Consequently, some measures were adopted to manage the situation, such as adapting many departments to ICUs or emergency rooms, for which reason most of the health professionals were transferred to frontline care and exposed to several risk factors in extreme conditions. For instance, they had to deal with an excessive workload with a lack of staff and appropriate personal protective equipment, assisting at the end-of-life without training or experience, making vital decisions about the few resources available, repeated exposure to death, or lack of contact with their relatives because of the fear of infecting them at home (Billings et al., 2021; D'Ettorre et al., 2021; Kang et al., 2020; Luceño-Moreno et al., 2020; Sun et al., 2021).

Due to working under these risky conditions could lead them to an emotional overload state, an impairment of their mental health was expected, as happened almost a decade ago with the SARS crisis in China (Wu et al., 2009). Scientific research addressed the psychological impact of the COVID-19 pandemic on healthcare workers and found a higher prevalence of psychological problems in this personnel than in the general population (Thakur & Pathak, 2021). Many studies reported high levels of adverse psychological outcomes regardless of their health occupations (i.e., physicians, nurses, ambulance personnel…), such as burnout, depression, anxiety, insomnia, PTSD, or perceived stress (D'Ettorre et al., 2021; Sun et al., 2021; Thakur & Pathak, 2021). For example, a study conducted in Spain observed elevated levels of medium to high emotional exhaustion (64.1%) and a prevalence of 51.3% for mild to severe depressive symptoms, 79.3% for mild to severe anxiety symptoms, and 56.6% for symptoms of posttraumatic stress disorder (Luceño-Moreno et al., 2020).

Although most studies have addressed the psychological consequences of the pandemic on mental health, some research has also focused on those protective factors that may have buffered its impact. For instance, several studies found that using maladaptive coping skills (e.g., avoidance) contributed to worsening psychological disorders, whereas positive coping skills (e.g., seeking social support or problem-solving) and resilience were related to lower levels of symptomatology (Bagheri Sheykhangafshe et al., 2021; Labrague, 2021).

However, there are other variables such as recovery experiences and emotion regulation strategies that have been less studied in this context. Regarding the first one, as recovery literature suggests (Sonnentag, 2012; Sonnentag et al., 2017; Sonnentag & Fritz, 2007), results obtained during the pandemic highlighted the importance of rest breaks and leisure time in healthcare personnel to reduce psychological distress at work, as long as psychological detachment could be achieved during this period (Sagherian et al., 2021; Wang et al., 2021). Nonetheless, despite the relevance of this process, only a few papers have addressed it during the COVID-19 pandemic with health professionals, so, more research needs to be conducted.

Concerning emotion regulation strategies, results from COVID-related research point out that strategies such as cognitive reappraisal, positive thinking, self-compassion or acceptance were associated with less psychological distress, PTSD, anxiety, and depressive symptoms (Bagheri Sheykhangafshe et al., 2021; García-Batista et al., 2021; Kotera et al., 2021; Shahsavarinia et al., 2022; Wang et al., 2021). On the other hand, strategies such as self-blaming, suppression, catastrophizing, or rumination seemed to exacerbate these psychological problems (Bagheri Sheykhangafshe et al., 2021; García-Batista et al., 2021; Wang et al., 2021). However, there is very little research on this topic in this critical context with healthcare personnel and assessing a large range of different emotion regulation strategies, so it remains still unclear which strategy would be better to implement in this situation. For instance, reappraisal seems to be especially efficient under uncontrollable stressors or in low-intensity emotional situations, whereas rumination may be more effective in high-controllable contexts (Kobylińska & Kusev, 2019; Socastro et al., 2022). So, given that the pandemic has led health professionals to a state of emotional exhaustion, it would be relevant to figure out which strategies may help them to buffer the impact and prevent psychological disorders in this specific emotional overload context.

Therefore, the present study aimed to explore the role of emotion regulation strategies and recovery experiences on healthcare workers' mental health, to identify risk and protective factors in an emotional overload situation such as the COVID-19 pandemic. Specifically, it is expected that adaptative strategies, such as recovery variables, acceptance, defusion and self-compassion, are negatively associated with symptomatology and negative affect, and positively related to positive affect. On the other hand, strategies such as rumination, suppression or self-criticism are expected to be positive predictors of symptoms and negative affect, and negatively associated with positive affect.

Method

Participants

The sample was comprised of 100 healthcare workers (76% females; Mage = 34.78, SD = 10.439, range = 21-63) that were working in Spain during the first wave of COVID-19 (79% in the Autonomous Community of Madrid). More than a half worked at hospitals (55%), whereas 29% worked at out-of-hospital services, 8% at primary care and another 8% at other facilities, such as medical call centres. Regarding their occupation, 44% were nurses, 18% were physicians, 37% were ER technicians and nursing assistants and 1 was a physiotherapist.

Design and procedure

The present cross-sectional and web-based study consisted of a short survey that took 15-20 minutes to complete. It included

informed consent, demographics, three types of symptoms (depressive, PTSD, and emotional exhaustion) and positive and negative affect as dependent variables and several emotion regulation strategies and recovery processes as independent variables. The sample was recruited on Qualtrics platform between the 5th of April and the 13th of May by a non-probability sampling method and before the recruitment, this study was approved by the Ethics Committee of the Complutense University of Madrid.

Measures

Demographics and job-related variables. The demographic form recorded age, gender, civil status, educational background, country, and region where they were working, type of work centre, and service and occupation.

Depressive symptoms. The Spanish version of Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001) was used due to its short length and its adequate psychometric properties (Diez-Quevedo et al., 2001), with $\alpha = 0.88$ in our sample. PHQ-9 evaluates criteria for major depression during the last two weeks with nine items scored on a four-point Likert scale from 0 (Not at all) to 3 (Nearly every day). Therefore, the total score ranges from 0 to 27, with five cut-off scores to discriminate the severity of the depressive symptoms into five categories: absence of symptoms (0-4), mild depression symptoms (5-9), moderate depression symptoms (10-14), moderately severe depression symptoms (15-19), and severe depression symptoms (20-27).

PTSD symptoms. The PTSD Checklist for DSM-5 (PCL-5; Weathers et al., 2013) was applied to assess the presence of PTSD symptoms according to DSM-5 in the past month. It is comprised of 20 items rated from 0 (not at all) to 4 (extremely) that determine a total severity score (0-80) with an optimal cut-off range of 31 to 33. In our sample, the Spanish adaptation showed a high internal consistency ($\alpha = 0.95$).

Emotional exhaustion. This variable was measured with the emotional exhaustion subscale from Maslach Burnout Inventory (MBI-GS; Maslach et al., 1996). This 5-item subscale assesses how often participants have experienced being emotionally drained during the last week with a 7-point Likert frequency scale from 0 (Never) to 6 (Every day). The Spanish adaptation has shown adequate psychometric properties (Moreno-Jiménez et al., 2001) and had high reliability ($\alpha = 0.93$) in this study.

Positive and negative affect. An extended version of the Positive and Negative Affect Schedule (Watson et al., 1988) was used. As usually recommended, we added six additional items to cover low-arousal emotions allowing a more inclusive assessment of affect (e.g., Joshanloo, 2017). This version consists of 26 items distributed in two subscales (positive and negative affect) with 13 items each, rated from 1 (very slightly or not at all) to 5 (extremely). Internal consistency was 0.92 for both subscales.

Recovery process. The psychological detachment and relaxation subscales from Recovery Experience Questionnaire (Sonnentag & Fritz, 2007) were selected to assess the mechanisms involved in the recovery process. The Spanish version of this self-report was used (Sanz-Vergel et al., 2010) and both subscales showed adequate reliability (greater than 0.70). Each subscale is comprised of 4 items rated from 1 (I do not agree at all) to 5 (Fully agree) with a total score ranging from 4 to 20, with several cut-points to indicate low to a high level of psychological detachment and relaxation, respectively.

Emotion regulation strategies. The following strategies were selected for this study: acceptance, suppression, reappraisal, distraction, rumination, defusion, and self-compassion. Each of them was measured by a single-item question, based on Dixon-Gordon et al. (2015), rated from 1 (not at all) to 10 (a lot), except for self-compassion. This variable was assessed with an adaptation of the Self-Compassion and Self-Criticism Scale (Falconer et al., 2015). Participants must rate from 1 (not at all) to 7 (highly) to which extent they deployed a warm, soothing, contemptuous, reassuring, and compassionate, critical, and harsh attitude toward themselves during the last week. Both subdimensions had an adequate internal consistency, with $\alpha = 0.70$ for self-compassion and $\alpha = 0.72$ for self-criticism.

Data analysis

Descriptive analyses (frequencies, mean, standard deviation) and correlations were conducted for symptomatology, affect and emotion regulation variables. Moreover, to examine the role of emotion regulation on symptomatology, hierarchical regressions were performed for depression, PTSD and emotional exhaustion as dependent variables, and recovery, emotion regulation strategies and self-compassion attitudes as possible predictors. As stated by Cohen (2001; also, Cohen & Cohen, 1983), the strongest predictor variables should be entered at earlier stages, in order to clarify the predictability associated with predictor variables entered later in the analysis over and above that contributed by predictor variables entered earlier in the analysis. So, according to the state of the art, the hierarchical regressions were run entering recovery processes in the first step, emotion regulation variables in the second one, and self-compassion and self-criticism attitudes in the final step. Additionally, hierarchical regressions for positive and negative affect were carried out with the same procedure and variables. All the analyses were performed with SPPS 27 statistical package.

Results

Descriptive and correlation analyses

Based on the established cut-points for the symptomatology scales and the recovery questionnaire, the frequencies of cases according to the severity level were calculated. Therefore, in addition to the descriptive statistics provided in Table 1, it was found that minimal to mild depression symptoms were present in 54% of the sample, 37% showed moderate to moderately severe symptoms and 9% had severe depression symptoms. Concerning PTSD symptoms, 25% of the participants had a score higher than 33, which suggests possible PTSD. Finally, about emotional exhaustion, there is a lack of cut-points for this variable, as long as it is not a disorder. However, 20% of the subjects presented a mean above 4 out of 6, which means they experienced emotional exhaustion quite often during the previous week. Moreover, concerning recovery variables, only 10% showed high levels of psychological detachment, whereas 55% had a medium level and 35% couldn't detach from work. Relating to relaxation, 39% experienced fully relaxing after work, 43% showed medium levels and only 18% couldn't relax in their leisure time.

Regarding correlations, depression, PTSD, and emotional exhaustion symptoms were positive and significantly correlated among them and with some maladaptive strategies, such as suppression, rumination and self-criticism (see Table 1). Conversely, symptoms were negative and significantly related to recovery variables and adaptative strategies, such as acceptance and self-compassion. However, there was a lack of significant correlations between reappraisal or defusion and any symptom.

Table 1
Descriptive statistics and correlations (n=100).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. PHQ-9	–														
2. PCL-5	.81**	–													
3. E. Exhaustion	.72**	.69**	–												
4. PANAS-PA	-.64**	-.50**	-.53**	–											
5. PANAS-NA	.75**	.83**	.66**	-.54**	–										
6. Ps. Detachment	-.54**	-.46**	-.44**	.59**	-.43**	–									
7. Relaxation	-.56**	-.45**	-.46**	.58**	-.43**	.73**	–								
8. Acceptance	-.31**	-.26**	-.27**	.43**	-.24*	0.20	.23*	–							
9. Suppression	.27**	.34**	0.19	-.21*	.32**	-.23*	-0.18	-0.13	–						
10. Reappraisal	.06	0.04	-0.06	0.15	0.08	0.16	0.19	0.17	.35**	–					
11. Distraction	.14	0.19	0.19	-0.02	.24*	0.04	0.14	0.06	.30**	.50**	–				
12. Rumination	.45**	.47**	.45**	-0.17	.50**	-.41**	-.24*	-0.15	.25*	0.06	0.18	–			
13. Defusion	-.07	-0.05	-0.17	.20*	-0.08	0.15	.24*	.41**	0.02	.30**	.24*	0.04	–		
14. Self-Compassion	-.50**	-.51**	-.50**	.65**	-.59**	.52**	.53**	.44**	-0.13	0.17	-0.04	-.29**	.14	–	
15. Self-Criticism	.55**	.54**	.43**	-.36**	.55**	-.29**	-.26**	-.23*	.36**	0.08	0.18	.33**	-.09	-.38**	–
M	9.56	21.39	2.49	39.69	33.32	10.93	13.80	6.65	4.24	5.14	5.50	5.34	5.42	13.65	9.60
SD	5.98	15.45	1.63	10.27	10.89	3.43	3.75	2.32	2.43	2.40	2.39	2.67	2.58	3.78	4.21
Range	0-27	0-71	0-6	19-64	15-62	4-18	4-20	1-10	1-10	1-10	1-10	1-10	1-10	5-21	3-20

Note. E. Exhaustion: Emotional Exhaustion; PANAS-PA: Positive Affect; PANAS-NA: Negative Affect; Ps. Detachment: Psychological Detachment.
*$p < .05$. **$p < .01$.

Hierarchical regression for depression, PTSD, and emotional exhaustion

Depressive symptoms. In the first step (see Table 2), recovery variables were entered and both explained a significant amount of variance in depression, $F(2, 97) = 26.11$, $p < .001$. However, in the second step, after emotion regulation strategies were entered, only relaxation remained as a significant predictor, along with acceptance and rumination, $F(8, 91) = 10.88$, $p < .001$. In the third step, although both self-compassion and self-criticism were included in the model, only the second one turned out to be a significant predictor. Moreover, relaxation and rumination still accounted for a significant amount of variance in depressive symptoms, whereas acceptance was no longer a predictor, $F(10, 89) = 12.10$, $p < .001$.

PTSD symptoms. As in the depression regression model, both recovery variables contributed to explain a significant amount of variance in the first step, $F(2, 97) = 15.47$, $p < .001$, but only relaxation, together with rumination, contributed in the second step $F(8, 91) = 8.01$, $p < .001$. However, in this case, recovery did not have a significant role once self-compassion and self-criticism were entered in the third model. Thus, Model 3 pointed out rumination and self-criticism as significant predictors of PTSD symptoms, $F(10, 89) = 9.48$, $p < .001$.

Emotional Exhaustion. Although both recovery variables were included in the first step, psychological detachment was not a significant predictor of emotional exhaustion. On the other hand, relaxation explained a significant amount of variance in the first model, $F(2, 97) = 15.02$, $p < .001$, and remained as a predictor in the two following steps. In the second step, once entered the emotion regulation strategies, distraction and rumination turned out to be significant predictors of emotional exhaustion, $F(8, 91) = 7.73$, $p < .001$. Finally, in the third step, together with relaxation, distraction and rumination, self-criticism also explained a significant amount of variance in emotional exhaustion, $F(10, 89) = 7.54$, $p < .001$.

Therefore, these results highlight the role of relaxation, rumination, and self-criticism as predictors of these symptoms. In addition, it also should be mentioned that acceptance and self-compassion had a p-value below .10 for depression and PSTD and emotional exhaustion, respectively.

Hierarchical regression for positive and negative affect

Positive affect. In the first step (see Table 3), psychological detachment and relaxation were significant predictors, $F(2, 97) = 31.72$, $p < .001$, and both still accounted for a significant amount of variance in the second step. In addition, in model 2, only acceptance turned out to be a significant predictor within the emotion regulation strategies, $F(8, 91) = 11.87$, $p < .001$. In the third step, after entering self-compassion and self-criticism, relaxation was no longer a predictor, and rumination significantly contributed to the model. Therefore, in addition to psychological detachment and acceptance, self-compassion also seemed to explain a significant amount of variance in positive affect, $F(10, 89) = 12.29$, $p < .001$. Regarding rumination, it was not significantly correlated with positive affect (see Table 1), so the significant result as a predictor in this model may be a statistical artefact.

Negative affect. Contrary to the previous case, none of the variables was significant in the first step. In the second step, relaxation, distraction and rumination turned out to be significant predictors of negative affect, $F(8, 91) = 8.207$, $p < .001$. However, only rumination still accounted for a significant amount of variance in the third step, along with self-compassion and self-criticism which turned out to be significant predictors too, $F(10, 89) = 12.103$, $p < .001$.

Discussion

Determining the most adaptive emotion regulation strategies may help to prevent psychological problems among healthcare professionals in present and future critical situations. Therefore, the aim of this study was to explore the role of different strategies and processes on depressive, PTSD, and emotional exhaustion symptoms among healthcare workers in an emotional overload context as it was the first wave of the pandemic.

Table 2
Regression models for depression, PTSD, and emotional exhaustion (n=100).

	Depressive symptoms				PTSD symptoms				Emotional Exhaustion			
Step and Predictors variables	B	SE	β	Adj. R^2	B	SE	β	Adj. R^2	B	SE	β	Adj. R^2
Step 1				.337***				.226***				.221***
Ps. Detachment	**-.474**	**.208**	**-.272***		**-1.229**	**.579**	**-.273***		-.107	.061	-.225	
Relaxation	**-.581**	**.190**	**-.364****		**-1.057**	**.530**	**-.256***		**-.129**	**.056**	**-.297***	
Step 2				.444**				.363***				.352***
Ps. Detachment	-.223	.205	-.128		-.322	.567	-.071		-.017	.060	-.035	
Relaxation	**-.656**	**.180**	**-.411*****		**-1.252**	**.497**	**-.304***		**-.147**	**.053**	**-.337****	
Acceptance	**-.522**	**.219**	**-.203***		-.913	.604	-.137		-.073	.064	-.104	
Suppression	.018	.213	.007		.883	.588	.139		-.005	.063	-.007	
Reappraisal	.270	.235	.108		-.124	.648	-.019		-.067	.069	-.098	
Distraction	.256	.225	.102		.970	.622	.150		**.179**	**.066**	**.261****	
Rumination	**.537**	**.192**	**.240****		**1.663**	**.531**	**.287****		**.186**	**.057**	**.305****	
Defusion	.139	.201	.060		.268	.555	.045		-.052	.059	-.083	
Step 3				.529***				.461***				.398*
Ps. Detachment	-.180	.192	-.103		-.081	.530	-.018		.005	.059	.011	
Relaxation	**-.561**	**.172**	**-.352****		-.846	.475	-.205		**-.112**	**.053**	**-.256***	
Acceptance	-.367	.219	-.142		-.210	.603	-.032		-.012	.067	-.017	
Suppression	-.164	.202	-.067		.507	.559	.080		-.029	.062	-.043	
Reappraisal	.296	.218	.119		.049	.601	.008		-.050	.067	-.074	
Distraction	.139	.211	.056		.552	.582	.085		**.145**	**.065**	**.211***	
Rumination	**.393**	**.180**	**.176***		**1.289**	**.497**	**.223***		**.159**	**.056**	**.260****	
Defusion	.156	.187	.067		.213	.516	.036		-.060	.058	-.094	
Self-Compassion	-.094	.151	-.059		-.820	.418	-.201		-.079	.047	-.184	
Self-Criticism	**.461**	**.116**	**.324*****		**1.051**	**.319**	**.286****		**.071**	**.036**	**.184***	

Note. Adj. R^2: Adjusted R^2; Ps. Detachment: Psychological Detachment.
*$p < .05$. **$p < .01$. ***$p < .001$.

Prior research has pointed out the strong role of rumination and self-criticism as maladaptive strategies, not only for symptomatology but also for negative affect (e.g., Aldao et al., 2010). We found that both rumination and self-criticism were significant predictors of

Table 3
Regression models for positive and negative affect (n=100).

	Positive Affect				Negative Affect			
Step and Predictors variables	B	SE	β	Adjusted R2	B	SE	β	Adjusted R2
Step 1				.383***				.196***
Ps. Detachment	**1.049**	**.344**	**.351****		-.777	.416	-.245	
Relaxation	**.893**	**.315**	**.326****		-.727	.381	-.250	
Step 2				.468**				.368***
Ps. Detachment	**1.092**	**.344**	**.365****		-.095	.398	-.030	
Relaxation	**.768**	**.302**	**.280***		**-.901**	**.349**	**-.310***	
Acceptance	**1.443**	**.367**	**.327*****		-.473	.424	-.101	
Suppression	-.227	.357	-.054		.401	.413	.090	
Reappraisal	.327	.394	.076		.095	.455	.021	
Distraction	-.567	.378	-.132		**.927**	**.436**	**.203***	
Rumination	.523	.323	.136		**1.372**	**.373**	**.337*****	
Defusion	-.211	.337	-.053		-.130	.390	-.031	
Step 3				.533**				.529***
Ps. Detachment	**.881**	**.328**	**.294****		.189	.349	.060	
Relaxation	.466	.294	.170		-.466	.313	-.160	
Acceptance	**.902**	**.373**	**.204***		.295	.397	.063	
Suppression	-.190	.346	-.045		.193	.368	.043	
Reappraisal	.163	.372	.038		.309	.396	.068	
Distraction	-.308	.360	-.072		.520	.384	.114	
Rumination	**.654**	**.308**	**.170***		**1.090**	**.328**	**.267****	
Defusion	-.095	.319	-.024		-.249	.340	-.059	
Self-Compassion	**.856**	**.259**	**.315****		**-1.077**	**.275**	**-.374*****	
Self-Criticism	-.225	.197	-.092		**.677**	**.210**	**.262****	

Note. Ps. Detachment: Psychological Detachment.
*$p < .05$. **$p < .01$. ***$p < .001$.

depressive and PTSD symptoms as well as negative affect. These results are according to previous literature, given that both variables are related to a wide number of psychological problems (Werner et al., 2019). Moreover, rumination has shown not only to predict negative affect but also to moderate it (Watkins & Roberts, 2020), by intensifying negative mood on days with more unpleasant events only when it was used (Genet & Siemer, 2012). In the same line, self-criticism, besides being associated with depression and other psychopathology (Werner et al., 2019), also seems to be a moderator for PTSD, intensifying its symptoms among healthcare workers during the pandemic (Zerach & Levi-Belz, 2022).

In addition, distraction stood out as the third maladaptive strategy for emotional exhaustion in its final regression model, and for negative affect in the second step. This result was unexpected due to distraction seems to be more effective in high-intensity emotional contexts (Kobylińska & Kusev, 2019), as this was the case. Wolgast and Lundh (2017) found that distraction when paired with acceptance seems to be adaptive while when paired with avoidance the opposite is true. Thus, it may turn out that distraction works well in short and high-intensity emotional situations but not in long and cumulative complex contexts, as the COVID-19 pandemic, when emotional suppression is a problem (e.g., Low et al., 2021).

Regarding the adaptative strategies, only relaxation turned out to be a significant predictor of symptomatology. So, keeping the ability to relax seems to be a protective factor against depressive symptoms and emotional exhaustion in this cumulative context. Thus, implementing rest breaks may be an effective preventive action to consider (e.g., Sagherian et al., 2021).

Acceptance and psychological detachment showed negative and significant correlations with symptomatology and negative affect, as was expected (Wang et al., 2021; Wang et al., 2021). However, it was not a significant predictor once self-criticism and self-compassion were included in the model, except for positive affect. Although more research is needed, one explanation might be that acceptance is one of the mechanisms by which self-compassion and self-acceptance impact mental health. Nevertheless, this role as a predictor of positive affect and even well-being has been also found in previous research (Gaudiino & di Stefano, in press; Lindsay et al., 2018; Lindsay & Creswell, 2019).

Self-compassion also turned out to be a significant predictor not only of positive affect (i.e., positively related) but also of negative affect (i.e., negatively related). It is interesting to note that in contrast to the results obtained in the symptomatology regression analyses, self-compassion explained a large amount of variance in both positive and negative affect, over and above the recovery and emotional regulation variables. Thus, self-compassion seems to play a key role in affective processes (Zessin et al., 2015), meanwhile, self-criticism emerged as the predictor of mental health syndromes related to situations of emotional overload (Kotera et al., 2018). Nevertheless, acceptance and detaching from work also seem to be key abilities to increase positive affect, and the last one, also to buffer negative affect, even in this emotional overload situation (e.g., Wang et al., 2021).

It is also important to note some limitations. First, this is a self-report cross-sectional study, so no causal relations can be established. Further, there are other strategies or variables (e.g., catastrophizing or working engagement) not included in the present research that may be considered. Thus, it would be convenient to replicate the present study with a longitudinal design in other critical situations, such as ICUs or catastrophes, and with a larger sample.

According to the literature, there is no evidence of a better or preponderant emotion regulation strategy over others (Matthews et al., 2021; Tamir, 2021). Instead of this, it seems that the efficacy of each strategy depends on different variables, such as the objective pursued, the effort that takes to deploy the strategy, or the situation (Aldao, 2013; Matthews et al., 2021; Tamir, 2021). In this specific emotional overload context, less relaxation, and more rumination and self-criticism stand out as the main predictors of depression, PTSD and emotional exhaustion in this healthcare worker sample. On the other hand, acceptance, psychological detachment, and self-compassion seem to play a key role in upholding well-being by boosting positive affect. Therefore, a decrease in rumination and self-criticism should be sought to prevent symptoms, whereas self-compassion, psychological detachment, and acceptance should be increased to promote well-being.

Regarding rumination, despite its relevance as a persistent mechanism that exacerbates symptoms, research about the effectiveness of psychological treatments for this factor is still reduced (Watkins & Roberts, 2020). However, Rumination Focused-CBT (RFCBT; Watkins et al., 2011), metacognitive therapy (Hjemdal et al., 2019) and mindfulness-based interventions (Cladder-Micus et al., 2019) have shown promising evidence to reduce rumination. So, any of these techniques might be included in future interventions to help manage rumination. Moreover, mindfulness has demonstrated to be effective to enhance acceptance and psychological distance (Lindsay & Creswell, 2019), which will contribute to increase positive affect. Concerning self-criticism, self-compassion-related interventions, besides enhancing well-being, seem to stand out as an effective tool to reduce self-criticism (Wakelin et al., 2022).

Finally, in addition to the interventions aimed at professionals, organizational factors might also be modified. Specifically, rest breaks at work may be improved (in number and conditions) and organizational announcements and communication may be limited during employees' leisure time to facilitate relaxation and work-nonwork boundary control (Sagherian et al., 2021).

In conclusion, these results shed light on the role of emotion regulation processes in emotional overload contexts; and may help design psychological intervention programs and promote healthy job conditions that enhance mental health, not only in critical contexts but also in their daily work.

References

Adam, A. R., & Golu, F. T. (2021). Prevalence of depression among physicians: A comprehensive meta-analysis. *Romanian Medical Journal, 68*(3), 327–337. https://doi.org/10.37897/rmj.2021.3.1

Aldao, A. (2013). The Future of Emotion Regulation Research: Capturing Context. *Perspectives on Psychological Science, 8*(2), 155–172. https://doi.org/10.1177/1745691612459518

Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30,* 217–237). https://doi.org/10.1016/j.cpr.2009.11.004

Bagheri Sheykhangafshe, F., Hajialiani, V., & Hasani, J. (2021). The Role of Resilience and Emotion Regulation in Psychological Distress of Hospital Staff During the COVID-19 Pandemic: A Systematic Review Study. *Journal of Research & Health, 11*(6), 365–374. https://doi.org/10.32598/jrh.11.6.1922.1

Billings, J., Ching, B. C. F., Gkofa, V., Greene, T., & Bloomfield, M. (2021). Experiences of frontline healthcare workers and their views about support during COVID-19 and previous pandemics: a systematic review and qualitative meta-synthesis. *BMC Health Services Research, 21*(1), 1–17. https://doi.org/10.1186/s12913-021-06917-z

Chuang, C.-H., Tseng, P.-C., Lin, C.-Y., Lin, K.-H., & Chen, Y.-Y. (2016). Burnout in the intensive care unit professionals: A systematic review. *Medicine, 95*(50), e5629.

Cladder-Micus, M. B., Becker, E. S., Spijker, J., Speckens, A. E. M., & Vrijsen, J. N. (2019). Effects of Mindfulness-Based Cognitive Therapy on a Behavioural Measure of Rumination in Patients with Chronic, Treatment-Resistant Depression. *Cognitive Therapy and Research, 43*(4), 666–678. https://doi.org/10.1007/s10608-019-09997-8

Cohen, B. H. (2001). *Explaining psychological statistics (2nd ed.).* New York: Wiley.

Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences (2nd ed.).* Hillsdale, NJ: Erlbaum.

De Hert, S. (2020). Burnout in healthcare workers: Prevalence, impact and preventative strategies. *Local and Regional Anesthesia, 13,* 171–183. https://doi.org/10.2147/LRA.S240564

D'Ettorre, G., Ceccarelli, G., Santinelli, L., Vassalini, P., Innocenti, G. Pietro, Alessandri, F., Koukopoulos, A. E., Russo, A., D'Ettorre, G., & Tarsitani, L. (2021). Post-traumatic stress symptoms in healthcare workers dealing with the covid-19 pandemic: A systematic review. *International Journal of Environmental Research and Public Health, 18*(2), 1–16. https://doi.org/10.3390/ijerph18020601

D'Ettorre, G., Pellicani, V., & Ceccarelli, G. (2020). Post-traumatic stress disorder symptoms in healthcare workers: A ten-year systematic review. *Acta Biomedica, 91*(12-S), 1–10. https://doi.org/10.23750/abm.v91i12-S.9459

Diez-Quevedo, C., Rangil, T., Sánchez-Planell, L., Kroenke, K., & Spitzer, R. L. (2001). Validation and Utility of the Patient Health Questionnaire in Diagnosing Mental Disorders in 1003 General Hospital Spanish Inpatients. *Psychosomatic Medicine, 63*, 679–686. https://doi.org/10.1097/00006842-200107000-00021

Dixon-Gordon, K.L., Aldao, A., & Reyes, A.D. (2015). Emotion regulation in context: Examining the spontaneous use of strategies across emotional intensity and type of emotion. *Personality and Individual Differences, 86,* 271-276. https://doi.org/10.1016/j.paid.2015.06.011

Falconer, C. J., King, J. A., & Brewin, C. R. (2015). Demonstrating mood repair with a situation-based measure of self-compassion and self-criticism. *Psychology and Psychotherapy: Theory, Research and Practice, 88*(4), 351–365. https://doi.org/10.1111/papt.12056

García-Batista, Z. E., Guerra-Peña, K., Kandany, V. N., Marte, M. I., Garrido, L. E., Cantisano-Guzmán, L. M., Moretti, L., & Medrano, L. A. (2021). COVID-19 pandemic and health worker stress: The mediating effect of emotional regulation. *PLoS ONE, 16*(11), 1–13. https://doi.org/10.1371/journal.pone.0259013

Gaudiino, M., & di Stefano, G. (in press). To detach or not to detach? The moderating effect of psychological detachment on the relations between heavy work investment and well-being. *Current Psychology.* https://doi.org/10.1007/s12144-021-01958-3

Genet, J. J., & Siemer, M. (2012). Rumination moderates the effects of daily events on negative mood: Results from a diary study. *Emotion, 12*(6), 1329–1339. https://doi.org/10.1037/a0028070

Hjemdal, O., Solem, S., Hagen, R., Kennair, L. E. O., Nordahl, H. M., & Wells, A. (2019). A Randomized Controlled Trial of Metacognitive Therapy for Depression: Analysis of 1-Year Follow-Up. In *Frontiers in Psychology* (Vol. 10). https://doi.org/10.1016/j.cbpra.2016.06.006

Joshanloo, M. (2017). Factor structure and criterion validity of original and short versions of the Negative and Positive Affect Scale (NAPAS). *Personality and Individual Differences, 105,* 233-237. https://doi.org/10.1016/j.paid.2016.09.060

Kang, L., Li, Y., Hu, S., Chen, M., Yang, C., Yang, B. X., Wang, Y., Hu, J., Lai, J., Ma, X., Chen, J., Guan, L., Wang, G., Ma, H., & Liu, Z. (2020). The mental health of medical workers in Wuhan, China dealing with the 2019 novel coronavirus. *The Lancet Psychiatry, 7*(3), e14. https://doi.org/10.1016/S2215-0366(20)30047-X

Karanikola, M., Giannakopoulou, M., Mpouzika, M., Kaite, C. P., Tsiaousis, G. Z., & Papathanassoglou, E. D. E. (2015). Dysfunctional psychological responses among Intensive Care Unit nurses: A systematic review of the literature. *Revista Da Escola de Enfermagem, 49*(5), 847–857. https://doi.org/10.1590/S0080-623420150000500020

Kobylińska, D., & Kusev, P. (2019). Flexible emotion regulation: How situational demands and individual differences influence the effectiveness of regulatory strategies. In *Frontiers in Psychology* (Vol. 10, Issue FEB). Frontiers Media S.A. https://doi.org/10.3389/fpsyg.2019.00072

Kotera, Y., Gilbert, P., Asano, K., Ishimura, I., Sheffield, D. (2018). Self-criticism and self-reassurance as mediators between mental health attitudes and symptoms: Attitudes toward mental health problems in Japanese workers. *Asian Journal of Social Psychology, 22,* 183-192. https://doi.org/10.1111/ajsp.12355

Kotera, Y., Ozaki, A., Miyatake, H., Tsunetoshi, C., Nishikawa, Y., & Tanimoto, T. (2021). Mental health of medical workers in Japan during COVID-19: Relationships with loneliness, hope and self-compassion. *Current Psychology, 40*(12), 6271–6274. https://doi.org/10.1007/s12144-021-01514-z

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: validity of a brief depression severity measure. *Journal of General Internal Medicine, 16*(9), 606–613. https://doi.org/10.1046/j.1525-1497.2001.016009606.x

Labrague, L. J. (2021). Psychological resilience, coping behaviours and social support among health care workers during the COVID-19 pandemic: A systematic review of quantitative studies. *Journal of Nursing Management, 29*(7), 1893–1905. https://doi.org/10.1111/jonm.13336

Lindsay, E. K., Chin, B., Greco, C. M., Young, S., Brown, K. W., Wright, A. G. C., Smyth, J. M., Burkett, D., & Creswell, J. D. (2018). How mindfulness training promotes positive emotions: Dismantling acceptance skills training in two randomized controlled trials. *Journal of Personality and Social Psychology, 115*(6), 944–973. https://doi.org/10.1037/pspa0000134

Lindsay, E. K., & Creswell, J. D. (2019). Mindfulness, acceptance, and emotion regulation: perspectives from Monitor and Acceptance Theory (MAT). *Current Opinion in Psychology, 28,* 120–125. https://doi.org/10.1016/j.copsyc.2018.12.004

Low, R. S., Overall, N. C., Chang, V. T., Henderson, A. M., & Sibley, C. G. (2021). Emotion regulation and psychological and physical health during a nationwide COVID-19 lockdown. *Emotion, 21*(8), 1671. https://doi.org/10.1037/emo0001046

Luceño-Moreno, L., Talavera-Velasco, B., García-Albuerne, Y., & Martín-García, J. (2020). Symptoms of posttraumatic stress, anxiety, depression, levels of resilience and burnout in Spanish health personnel during the COVID-19 pandemic. In *International Journal of Environmental Research and Public Health, 17*(15), 1–29. https://doi.org/10.3390/ijerph17155514

Maslach, C., Jackson, S., & Leiter, M. (1996). Maslach Burnout Inventory - Human Services Survey. *MBI Manual, January 1996.*

Matthews, M., Webb, T. L., Shafir, R., Snow, M., & Sheppes, G. (2021). Identifying the determinants of emotion regulation choice: a systematic review with meta-analysis. *Cognition and Emotion, 35*(6), 1056–1084. https://doi.org/10.1080/02699931.2021.1945538

Moreno-Jiménez, B., Rodríguez-Carvajal, R., & Escobar Redonda, E. (2001). La evaluación del burnout profesional. Factorialización del MBI-GS. Un análisis preliminar. *Ansiedad y Estrés, 7*(1), 69–78.

Naushad, V. A., Bierens, J. J. L. M., Nishan, K. P., Firjeeth, C. P., Mohammad, O. H., Maliyakkal, A. M., Chalihadan, S., & Schreiber, M. D. (2019). A Systematic Review of the Impact of Disaster on the Mental Health of Medical Responders. *Prehospital and Disaster Medicine, 34*(6), 632–643. https://doi.org/10.1017/S1049023X19004874

Red Nacional de Vigilancia Epidemiológica. (2020). Análisis de los casos de COVID-19 notificados a la RENAVE Informe COVID-19 nº 33. 29 de mayo de 2020. In *Isciii.*

Sagherian, K., McNeely, C. A., & Steege, L. M. (2021). Did rest breaks help with acute fatigue among nursing staff on 12-h shifts during the COVID-19 pandemic? A cross-sectional study. *Journal of Advanced Nursing, 77*(12), 4711–4721. https://doi.org/https://doi.org/10.1111/jan.14944

Sanz-Vergel, A. I., Sebastián, J., Rodríguez-Muñoz, A., Garrosa, E., Moreno-Jiménez, B., & Sonnentag, S. (2010). Adaptación del «Cuestionario de Experiencias de Recuperación» a una muestra española. *Psicothema, 22*(4), 990–996.

Shahsavarinia, K., Amiri, P., Mousavi, Z., Gilani, N., Saadati, M., & Soleimanpour, H. (2022). Prediction of PTSD related to COVID-19 in emergency staff based on the components of self-compassion and perceived social support. *BMC Psychiatry, 22*(1), 1–10. https://doi.org/10.1186/s12888-022-04017-8

Socastro, A., Everaert, J., Boemo, T., Blanco, I., Rodríguez-Carvajal, R., & Sanchez-Lopez, A. (2022). Moment-to-Moment Interplay Among Stress Appraisals and Emotion Regulation Flexibility in Daily Life. *Affective Science.* https://doi.org/10.1007/s42761-022-00122-9

Sonnentag, S. (2012). Psychological Detachment From Work During Leisure Time: The Benefits of Mentally Disengaging From Work. *Current Directions in Psychological Science, 21*(2), 114–118. https://doi.org/10.1177/0963721411434979

Sonnentag, S., & Fritz, C. (2007). The Recovery Experience Questionnaire: Development and Validation of a Measure for Assessing Recuperation and Unwinding From Work. *Journal of Occupational Health Psychology, 12*(3), 204–221. https://doi.org/10.1037/1076-8998.12.3.204

Sonnentag, S., Venz, L., & Casper, A. (2017). Advances in recovery research: What have we learned? What should be done next? *Journal of Occupational Health Psychology, 22*(3), 365–380. https://doi.org/10.1037/ocp0000079

Sun, P., Wang, M., Song, T., Wu, Y., Luo, J., Chen, L., & Yan, L. (2021). The Psychological Impact of COVID-19 Pandemic on Health Care Workers: A Systematic Review and Meta-Analysis. *Frontiers in Psychology, 12,* 626547. https://doi.org/10.3389/fpsyg.2021.626547

Tamir, M. (2021). Effortful Emotion Regulation as a Unique Form of Cybernetic Control. *Perspectives on Psychological Science, 16*(1), 94–117. https://doi.org/10.1177/1745691620922199

Thakur, B., & Pathak, M. (2021). Burden of Predominant Psychological Reactions Among the Healthcare Workers and General Population During COVID-19 Pandemic Phase: A Systematic Review and Meta-Analysis. *Indian Journal of Community Medicine, 46*(4). https://doi.org/10.4103/ijcm.IJCM_1007_20

Thielmann, B., Schnell, J., Böckelmann, I., & Schumann, H. (2022). Analysis of Work Related Factors, Behavior, Well-Being Outcome, and Job Satisfaction of Workers of Emergency Medical Service: A Systematic Review. *International Journal of Environmental Research and Public Health, 19*(11), 6660. https://doi.org/10.3390/ijerph19116660

Wakelin, K. E., Perman, G., & Simonds, L. M. (2022). Effectiveness of self-compassion-related interventions for reducing self-criticism:

A systematic review and meta-analysis. *Clinical Psychology & Psychotherapy, 29*(1), 1–25. https://doi.org/https://doi.org/10.1002/cpp.2586

Wang, H., Xu, G., Liang, C., & Li, Z. (2021). Coping with job stress for hospital nurses during the COVID-19 crisis: The joint roles of micro-breaks and psychological detachment. *Journal of Nursing Management, n/a*(n/a). https://doi.org/https://doi.org/10.1111/jonm.13431

Wang, Q., Fang, Y., Huang, H., Lv, W., Wang, X., Yang, T. T., Yuan, J. M., Gao, Y., Qian, R. L., & Zhang, Y. H. (2021). Anxiety, depression and cognitive emotion regulation strategies in Chinese nurses during the COVID-19 outbreak. *Journal of Nursing Management, 29*(5), 1263–1274. https://doi.org/10.1111/jonm.13265

Watkins, E. R., Mullan, E., Wingrove, J., Rimes, K., Steiner, H., Bathurst, N., Eastman, R., & Scott, J. (2011). Rumination-focused cognitive–behavioural therapy for residual depression: phase II randomised controlled trial. *British Journal of Psychiatry, 199*(4), 317–322. https://doi.org/10.1192/bjp.bp.110.090282

Watkins, E. R., & Roberts, H. (2020). Reflecting on rumination: Consequences, causes, mechanisms and treatment of rumination. *Behaviour Research and Therapy, 127*, 103573. https://doi.org/10.1016/j.brat.2020.103573

Watson, D., Clark, L., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology, 54*(6), 1063–1070. https://doi.org/10.1037/0022-3514.54.6.1063

Weathers, F.W., Litz, B.T., Keane, T.M., Palmieri, P.A., Marx, B.P., & Schnurr, P.P. (2013). The PTSD Checklist for *DSM-5* (PCL-5). Scale available from the National Center for PTSD at www.ptsd.va.gov

Werner, A. M., Tibubos, A. N., Rohrmann, S., & Reiss, N. (2019). The clinical trait self-criticism and its relation to psychopathology: A systematic review – Update. *Journal of Affective Disorders, 246,* 530–547). https://doi.org/10.1016/j.jad.2018.12.069

Wolgast, M., & Lundh, L. G. (2017). Is distraction an adaptive or maladaptive strategy for emotion regulation? A person-oriented approach. *Journal of Psychopathology and Behavioral Assessment, 39*(1), 117-127. https://doi.org/10.1007/s10862-016-9570-x

Woo, T., Ho, R., Tang, A., & Tam, W. (2020). Global prevalence of burnout symptoms among nurses: A systematic review and meta-analysis. *Journal of Psychiatric Research, 123,* 9–20. https://doi.org/10.1016/j.jpsychires.2019.12.015

Wu, P., Fang, Y., Guan, Z., Fan, B., Kong, J., Yao, Z., Liu, X., Fuller, C. J., Susser, E., Lu, J., & Hoven, C. W. (2009). The psychological impact of the SARS epidemic on hospital employees in China: exposure, risk perception, and altruistic acceptance of risk. *Canadian Journal of Psychiatry, 54*(5), 302–311. https://doi.org/10.1177/070674370905400504

Zerach, G., & Levi-Belz, Y. (2022). Moral Injury, PTSD, and Complex PTSD Among Israeli Health and Social Care Workers During the COVID-19 Pandemic: The Moderating Role of Self-Criticism. *Psychological Trauma: Theory, Research, Practice, and Policy.* https://doi.org/10.1037/tra0001210

Zessin, U., Dickhäuser, O., & Garbade, S. (2015). The Relationship Between Self-Compassion and Well-Being: A Meta-Analysis. *Applied Psychology: Health and Well-Being, 7*(3), 340–364. https://doi.org/10.1111/aphw.12051