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Assessing post-traumatic stress disorder among healthcare workers in COVID-19 hospitals in Ho Chi Minh City, Vietnam

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ABSTRACT

The COVID-19 pandemic, a worldwide health emergency has had extensive effects not just on the economy but also on mental well-being specifically among healthcare professionals. This study focuses on examining the extent and symptoms of post-traumatic stress as well as the causes associated with it, the techniques employed to respond and the effectiveness of coping mechanisms among healthcare professionals who are providing care to COVID-19 patients in certain hospitals located in Ho Chi Minh City, Vietnam. This research used a mixed-methods approach combining qualitative and quantitative research techniques. This included documentary analysis, surveys, mathematical and statistical analysis and in-depth interviews. The sample consisted of 638 healthcare workers aged between 21 and 63 working at Cho Ray Hospital and the COVID-19 Resuscitation Unit. The results suggest that a majority of healthcare professionals display indications of post-traumatic stress disorder (PTSD) ranging from occasional mild episodes occurring once a month to more severe occurrences exceeding 17 times per month. The research findings indicate that coping techniques show high individualization. While certain healthcare professionals may exhibit "normal" levels of post-traumatic stress disorder (PTSD), effectively managing stress through rest, relaxation and personal time, others with varying degrees of PTSD necessitate professional therapeutic assistance to mitigate the risk of self-harm. This study highlights the pressing necessity for the provision of focused mental health assistance to healthcare personnel in light of the current epidemic.

Contribution/Originality: This research contributes valuable insights into the mental health challenges healthcare workers face during the COVID-19 pandemic emphasizing the need for individualized support and risk mitigation strategies.

1. INTRODUCTION

The socio-economic landscape has been significantly affected by the COVID-19 pandemic leading to the implementation of rigorous measures such as lockdowns, travel restrictions, closures of educational institutions and workplaces, prohibitions on gatherings and adherence to health recommendations encompassing mask-wearing, hand hygiene, surface sanitation and social distancing. As a result, the increase in the number of patients has led to crises in physical and emotional health. Research has shown a threefold increase in mental health problems by the

end of 2020 in comparison to the period before the pandemic at the end of 2019. The vulnerable populations encompass healthcare professionals, minors, older adults, individuals with pre-existing mental disorders, COVID-19 patients and individuals who are suspected to have contracted the virus (Brooks et al., 2020).

Healthcare professionals who deliver care and services to individuals who are ill whether through direct or indirect means (Joseph & Joseph, 2016) face heightened vulnerability to mental health challenges under the ongoing epidemic. According to several meta-analytic studies by Serrano-Ripoll et al. (2020), Nguyen et al. (2021) and Quang et al. (2021) it has been estimated that a significant proportion of healthcare workers ranging from 20% to 40% exhibit symptoms of psychosis. These symptoms encompass depression, anxiety, post-traumatic stress disorder (PTSD) and insomnia (Brooks et al., 2020). Nguyen et al. (2024) found that resilience acts as a mediator in the relationship between stress and burnout among Vietnamese health care workers.

The phenomenon of post-traumatic stress disorder (PTSD) among healthcare professionals within the COVID-19 pandemic in conjunction with associated conditions including burnout and moral harm has attracted considerable scholarly interest. The COVID-19 epidemic has intensified the issue of burnout among healthcare workers since they face added stress due to heightened workloads and the difficulties associated with using personal protection equipment. Kisely et al. (2020) examined the repercussions of pandemics on healthcare professionals highlighting difficulties such as heightened job demands and apprehension regarding the spread of the disease. Moreover, the fast evaluation conducted by Kisely et al. (2020) revealed that some risk factors for psychological distress among healthcare workers include being younger, having less experience, having dependent children or having an infected family member. Protective aspects were identified as clear communication, proper personal protective equipment (PPE), rest and support. This research will use the Collectivist Coping Styles Inventory (CCS) (Heppner et al. 2006) which is based on Eastern philosophy to evaluate the coping mechanisms employed by healthcare professionals in Vietnam. The project aims to investigate the factors that contribute to mental health outcomes in response to traumatic experiences examining both protective and risk factors.

2. METHODS

2.1. Participants

Participants were recruited using convenience sampling from two hospitals in Ho Chi Minh City: Cho Ray Hospital and the COVID-19 Resuscitation Hospital. The sample consisted of 638 full-time healthcare workers ranging in age from 21 to 63 years with work experience varying from 1 to 42 years. The gender distribution within the sample was 39.5% male (n = 252) and 60.5% female (n = 386). Survey questionnaires were distributed to participants through the hospitals' social work department allowing healthcare workers to complete them during their breaks. Participation in the survey was voluntary with social workers providing guidance on how to complete the questionnaires. The data collection period spanned from June 2022 to August 2022.

2.2. Measures

The Post-Traumatic Stress Disorder Symptom Scale Interview (PSSI) (Foa, Riggs, Dancu, and Rothbaum (1993)) was employed to measure the occurrence and severity of DSM-IV post-traumatic stress symptoms related to a traumatic event specifically focusing on the COVID-19 pandemic outbreak in Ho Chi Minh City from May 2021 to October 2021. The PSSI includes 17 semi-structured items evaluated based on the frequency of symptom occurrence within a one-month period. Responses are rated on a 5-point scale: 0 = not at all, 1 = once per week or past month, 2 = two to four times in the past month, 3 = two to four times per week, 4 = five or more times per week. These items are categorized into three primary symptom clusters: (1) Traumatic re-experience (items 1-5) with a diagnostic PTSD score of 3. (2) Avoidance (items 6-12) with diagnostic PTSD scores of 9. (3) Arousal (items 13-17) with a diagnostic PTSD score of 6. The overall PTSD severity is determined by the total score across all items ranging from 0 to 68. Diagnosis requires at least one symptom from the re-experience cluster, three from the

avoidance cluster and two from the arousal cluster, totaling a diagnostic threshold score of 18. Severe PTSD is indicated when all 17 items are present. Reliability analysis yielded a Cronbach's alpha of 0.946 for the PTSD symptom scale indicating high internal consistency. Each factor demonstrated high reliability: Traumatic re-experience (α = 0.938), avoidance (α = 0.920) and arousal (α = 0.923). The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.941 supporting the suitability of factor analysis. Eigenvalues exceeded 1.020 validating the retention of factors in the analysis. Factor loadings above 0.5 indicate high quality with the observed variables in this study ranging from 0.681 to 0.826, thereby confirming their statistical significance for assessing PTSD symptoms (Hair, Anderson, Tatham, & Black, 1998). The Collectivist Coping Styles (CCS) inventory developed and validated by Heppner et al. (2006) involving over 3,000 Taiwanese college students was used . This inventory reflects a stable five-factor structure suitable for an Asian context comprising acceptance, reframing and striving, family support, religion and spirituality, avoidance and detachment and private emotional outlets. This structure aligns with the coping strategies of Vietnamese healthcare workers particularly during the pandemic. The exploratory factor analysis (EFA) conducted on the Collectivist Coping Styles Inventory (CCS) scale after the exclusion of items C3.11 and C3.12 due to inadequate factor loadings (below 0.5) yielded significant results. The Kaiser-Meyer-Olkin (KMO) measure was robust at 0.952 and Bartlett's test of sphericity was significant ($p < .001$) indicating that the data was suitable for factor analysis. An eigenvalue of 1.054 led to the extraction of five factors from 28 observed variables accounting for 68.378% of the total variance which exceeds the 50% threshold typically considered satisfactory. The factor loadings ranged from 0.504 to 0.822, all above the acceptable limit of 0.5 aligning with the original theoretical framework without the emergence of new factors. Consequently, the EFA confirmed that the remaining 28 observed variables satisfactorily met the criteria for factor analysis with no further exclusions necessary at this point (Hair et al., 1998).

Consequently, all observed variables were retained for further factor analysis. The research team employed mathematical statistical methods through SPSS software to analyze statistical indicators for the quantitative data.

3. RESULTS

3.1. Post-Traumatic Stress Disorder (PTSD) of Healthcare Workers during COVID-19 in Ho Chi Minh City

The COVID-19 pandemic has had enduring psychological and societal ramifications particularly impacting the mental well-being of healthcare professionals who have been at the forefront of the pandemic. Specifically, these individuals have been susceptible to experiencing and manifesting symptoms of post-traumatic stress disorder (PTSD). According to Holmes et al. (2020) healthcare professionals face heightened risks of contamination, patient attrition, the burden of making challenging treatment retention decisions and the disruption of established support systems. The following table presents the findings about the average score and standard deviation of post-traumatic stress disorder (PTSD) indicators among healthcare professionals.

The analysis of the dataset revealed that half of the healthcare workers exhibited symptoms of Post-Traumatic Stress Disorder (PTSD) with frequencies ranging from experiencing symptoms "once a month" to "severe occurrences of 5 or more times per week" or "more than 17 times in the past month." Within the Posttraumatic Stress Syndrome Inventory (PSSI) which assesses three primary clusters namely traumatic re-experience, avoidance and arousal symptom cluster was found to have the highest mean score (M = 0.97, SD = 0.93) followed by avoidance (M = 0.84, SD = 0.85) and re-experience (M = 0.81, SD = 0.87) respectively as shown in Table 1.

Table 1. Mean score and standard deviation of PTSD indicators of healthcare workers.

PTSD indicators	M	SD
Traumatic re-experience	0.81	0.87
Avoidance	0.84	0.85
Arousal	0.97	0.93

Note: M= Mean; SD= Standard deviation.

Table 2 presents the indicators of traumatic re-experience among healthcare workers evaluated through their responses to specific prompts on a scale that includes not at all, once a month, once a week or less or 2-4 times per month, 2-4 times per week or 5-16 times per month and 5 times or more per week or 17 times per month. The data reveals varying levels of engagement with these traumatic re-experience indicators. The first indicator, " unwanted upsetting memories about the trauma had an average (M) of 0.93 and a standard deviation (SD) of 1.01 indicating a relatively low level of occurrence but with some variability among healthcare workers. The distribution shows that 40.30% of respondents never experienced this while a small fraction (2.40%) reported the highest frequency of occurrence. For the second indicator, "having intense negative feelings like fear, horror, anger, guilt or shame," the average response was slightly lower (M = 0.85) with an SD of 1. This reflects a somewhat lesser engagement with this symptom with 45.5% not experiencing these feelings at all and 2.5% experiencing them at the highest frequency mentioned. The third indicator, "reliving the traumatic event or feelings as if they were actually happening again had a slightly higher mean (M = 0.97) with an SD of 0.83 suggesting that this symptom is as prevalent as unwanted memories but with less variability among participants. The percentage of healthcare workers not experiencing this at all was 45% and a smaller proportion (1.9%) experienced it with the greatest frequency.

Table 2. Indicators of traumatic re-experience among healthcare workers: Frequency and intensity.

Indicators	Level of choice					M	SD
	Not at all	Once a month	Once a week, less or 2-4 times per month	2-4 times per week or 5 -16 times per month	5 times or more per week or more than 17 times per month		
Unwanted upsetting memories about the trauma.	257	238	83	45	15	0.93	1.01
	40.3%	37.3%	13.0%	7.1%	2.4%		
Having intense negative feelings like fear, horror, anger, guilt or shame.	290	221	75	36	16	0.85	1.00
	45.5	34.6	11.8	5.6	2.5		
Reliving the traumatic event or feelings as if they were happening again.	287	231	70	38	12	0.83	0.97
	45.0	36.2	11.0	6.0	1.9		

Note: M = Mean; SD= Standard deviation.

Table 3 presents data on individuals' reported frequencies of experiencing feelings of loss of interest in activities feeling disconnected from others and doubts about the feasibility of plans related to family, career and economic stability. Participants were asked to rate the frequency of these experiences on a scale ranging from "not at all" to "5 times or more per week or more than 17 times per month." For the indicator "losing interest in or not participating in activities you used to do," the mean score was 1.02 (SD = 1.05) indicating a low frequency of these feelings among participants. The majority reported experiencing these feelings "not at all" (37%) or "once a month" (37.9%) with a smaller percentage reporting a more frequent experience. The second indicator, "feeling distant or cut off from others " had a mean score of 0.85 (SD = 1.00). Again, a significant portion of participants reported seldom experiencing these feelings with the highest percentages indicating they felt this way "not at all" (42.9%) or "once a month" (34.80%). Regarding "feeling your future plans or hopes (for family, children, career or economy) will not come true," the mean response was slightly lower at 0.83 (SD = 0.97) suggesting a general optimism or at least a lack of pervasive concern among the respondents about their future plans not materializing. The response distribution followed a similar pattern to the other indicators, with the most common responses being "not at all" (44.7%) and "once a month" (33.4%).

Table 3. Indicators of avoidance among healthcare workers: Frequency and intensity.

Indicators	Level of choice					M	SD
	Not at all	Once a month	Once a week, less or 2 -4 times per month	2-4 times per week or 5 -16 times per month	5 times or more per week or more than 17 times per month		
Losing interest in or not participating in activities you used to do.	236	242	90	48	22	1.02	1.05
	37.0%	37.9%	14.1%	7.5%	3.4%		
Feeling distant or cut off from others.	274	222	79	41	22	0.85	1.00
	42.9%	34.8%	12.4%	6.4%	3.4%		
Feeling your future plans or hopes (For family, children, career or economy) will not come true.	285	213	76	41	23	0.83	0.97
	44.7%	33.4%	11.9%	6.4%	3.6%		

Note: M= Mean; SD= Standard deviation.

The data indicates that a significant portion of the population occasionally struggles with falling or staying asleep with mean responses (M = 1.11, SD = 1.14) suggesting a relatively low but notable frequency of sleep issues. Approximately 36.4% of participants reported not experiencing sleep problems at all while 4.7% reported frequent sleep disturbances (5 times or more per week). Responses regarding irritability or aggression towards others (M = 1.1, SD = 1.07) indicate a relatively low frequency of these behaviors among the surveyed population. However, a significant number of respondents (39.5%) reported experiencing such feelings once a month highlighting a moderate level of irritability in the community. Concentration issues were reported with the lowest mean score among the three indicators (M = 0.99, SD = 1.06) suggesting these are less frequent concerns for the participants. The majority of responses were clustered in the lower frequency categories with 39% of participants indicating no trouble concentrating and only a small fraction (3.1%) experiencing this issue very frequently as shown in Table 4.

Table 4. Indicators of arousal among healthcare workers: Frequency and intensity.

Indicators	Level of choice					M	SD
	Not at all	Once a month	Once a week, less or 2 -4 times per month	2-4 times per week or 5 -16 times per month	5 times or more per week or more than 17 times per month		
Having trouble falling or staying asleep.	232	222	91	63	30	1.11	1.14
	36.4%	34.8%	14.3%	9.9%	4.7%		
Acting more irritable or aggressive with others.	274	222	79	41	22	1.10	1.07
	33.2%	39.5%	14.9%	8.8%	3.6%		
Having trouble concentrating (On conversations and work.)	249	233	84	52	20	0.99	1.06
	39.0%	36.5%	13.2%	8.2%	3.1%		

Note: M= Mean; SD= Standard deviation.

3.2. Coping Strategies of Healthcare Workers during the COVID-19 Pandemic

Table 5 outlines the different coping mechanisms that healthcare workers resort to in response to stress or challenges encountered in their work environment. Acceptance, reframing and striving are the most commonly used coping strategies with a mean score of 2.03 (SD = 1.28). This suggests that healthcare workers often acknowledge the reality of their situations but attempt to view their challenges in a different light or strive to overcome them indicating a proactive approach to stress management. Family support follows with a mean score of 1.73 (SD = 1.23) highlighting the importance of social support from family members in managing work-related stress. This suggests that emotional and practical support from family is a significant source of resilience for healthcare workers. Religion and spirituality has a mean score of 1.27 (SD = 1.36) showing that some healthcare

workers turn to their faith or spiritual practices as a way to cope with the demands of their profession. This strategy might provide a sense of solace, purpose and strength in facing the challenges of their work. Avoidance and detachment are noted with a mean score of 1.39 (SD = 1.26) indicating a strategy where individuals distance themselves from the sources of stress or avoid dealing with them directly. Although less prevalent than other strategies, it represents a coping mechanism that some healthcare workers might employ temporarily. Private emotional outlets with a mean score of 1.37 (SD = 1.16) suggest that engaging in activities or practices that allow for the private expression of emotions is another strategy used by healthcare workers. This can include activities like journaling, art or any other form of personal hobby that allows for emotional release.

Table 5. Indicators of coping strategies of healthcare workers.

Coping strategies of healthcare workers	M	SD
Acceptance, reframing and striving	2.03	1.28
Family support	1.73	1.23
Religion-spirituality	1.27	1.36
Avoidance and detachment	1.39	1.26
Private emotional outlets	1.37	1.16

Note: M, Mean; SD, Standard deviation.

3.3. Correlation between PTSD Symptoms and Coping Strategies of Healthcare Workers during COVID-19

Table 6 displays the results of a study examining the relationship between various coping strategies and post-traumatic stress disorder (PTSD) symptoms among a sample of 103 participants. Acceptance, reframing and striving show a moderate positive correlation with PTSD symptoms (r = 0.179), explaining 2.3% of the variance in PTSD symptom severity (R^2 = 0.023). Although the relationship is positive indicating that higher use of this coping strategy is associated with more severe PTSD symptoms, the explanation power is relatively low. Family support has a moderate positive correlation with PTSD symptoms (r = 0.189) accounting for 2.6% of the variance (R^2 = 0.026). This suggests that seeking support from family is slightly more correlated with PTSD symptom severity than acceptance strategies, though it still explains a small fraction of the variance. Religion and spirituality are significantly associated with PTSD symptoms (r = .0239, $p < 0.05$) with 4.8% of the variance in PTSD symptoms explained (R^2 = 0.048). This indicates a stronger relationship between reliance on religion or spirituality and the severity of PTSD symptoms compared to the previous strategies. Avoidance and detachment show a significant and positive correlation with PTSD symptoms at a lower level (r = 0.161, $p < 0.05$) with 1.6% of the variance explained (R^2 = 0.016). This suggests a modest but significant relationship where higher use of avoidance and detachment is related to more severe PTSD symptoms. Private emotional outlets demonstrate a strong and significant positive correlation with PTSD symptoms (r = 0.267, $p < 0.01$) and account for 6.2% of the variance in symptom severity (R^2 = 0.062**). This indicates that engaging in private emotional outlets is significantly associated with higher PTSD symptom severity and it explains a greater proportion of the variance in symptoms compared to other strategies.

Table 6. Pearson correlations and regression between coping strategies and PTSD symptoms of healthcare workers.

Variables	PTSD		
	N	r	R^2
Acceptance, reframing and striving	103	0.179	0.023
Family support	103	0.189	0.026
Religion-spirituality	103	0.239	0.048*
Avoidance and detachment	103	0.161*	0.016
Private emotional outlets	103	0.267**	0.062**
General coping strategy	103	0.250*	0.053*

Note: N=sample ; r=correlation ; R=regression ; *, $p<0.05$; **, $p<0.01$.

General coping strategy reflects a significant and positive correlation with PTSD symptoms ($r = 0.250$, $p < 0.05$) with 5.3% of the variance explained ($R^2 = 0.053$*). This category perhaps aggregates various coping strategies showing a substantial relationship with PTSD symptom severity.

The findings presented in Table 6 elucidate the relationship between various coping strategies and PTSD symptoms among healthcare workers involved in the study. Notably, the coping strategy of using private emotional outlets was found to be most significantly influenced by PTSD symptoms with a coefficient of determination (R^2) of 0.062. This indicates that PTSD symptoms account for 6.2% of the variability in this coping strategy leaving 93.8% of the variation to be explained by factors outside the model and random error. Conversely, the strategy of "avoidance and detachment" showed the least impact from PTSD symptoms with R^2 value of 0.016. This suggests that PTSD symptoms explain only 1.6% of the changes in this coping mechanism with the vast majority (98.4%) of the variation attributable to other factors or random error. These findings suggest a relatively minimal impact of PTSD symptoms on the coping strategies employed by healthcare workers in the study. Additionally, the results indicate the presence of other factors influencing the choice of coping strategies among healthcare workers during the COVID-19 pandemic. According to research by Hou et al. (2022) negative coping and fatigue were significantly associated with all three PTSD symptom clusters ($P < 0.001$) encompassing re-experiencing, avoidance and hyperarousal. Furthermore, fatigue was identified as a mediating factor in the relationship between negative coping and PTSD symptoms among healthcare workers with a mediated effect (ab) of 0.09, a standard error (SE) of 0.03 and a 95% bootstrap confidence interval ranging from 0.04 to 0.14. Therefore, it is recommended that healthcare institutions prioritize the identification and support of workers prone to negative coping strategies such as withdrawal, distraction and blaming others and implement measures to manage workloads effectively to mitigate fatigue.

4. DISCUSSION

The observed patterns of coping among healthcare workers during the COVID-19 pandemic may be attributable to the unique challenges and risks associated with their frontline roles including the threat of infection, work overload and the emotional burden of patient care amidst high mortality rates (Dutheil, Mondillon, & Navel, 2020; Maiorano, Vagni, Giostra, & Pajardi, 2020; Vagni, Maiorano, Giostra, & Pajardi, 2020a, 2020b). Additional stressors such as high workloads, social isolation and limited initial knowledge about the virus have also contributed to acute stress symptoms potentially escalating to chronic PTSD in this demographic (Dutheil et al., 2020). Traumatic re-experience, a primary PTSD symptom often presents as vivid sensory and emotional recollections that appear disconnected from their temporal context with intrusive memories serving as reminders of the trauma's onset or intensification. Such memories can be fragmented and challenging to recall in sequence, complicating the processing and integration of the traumatic event (Ehlers, Hackmann, & Michael, 2004).

This variability in the manifestation of traumatic re-experience symptoms among healthcare workers indicates a broad spectrum of trauma impact within this group with a significant proportion experiencing these symptoms frequently. The standard deviations reported highlight the individual differences in trauma response severity among healthcare professionals. Ehlers et al. (2004) further suggest that the deliberate recollection of traumatic events by individuals with PTSD often excludes subsequent information that could modify initial impressions or predictions made during the trauma. Carr (2003) emphasized that recurrent intrusive memories lead to intense anxiety which individuals attempt to mitigate through memory suppression and avoidance of trauma-related situations. Such behaviors underscore the avoidance aspect of PTSD which can include memory lapses concerning the trauma, emotional numbing and a reluctance to discuss the trauma (Rothschild, 2000). Despite the tendency for the surveyed healthcare workers to experience negative states infrequently as indicated by low mean scores across various indicators, there remains a significant minority for whom these issues are a persistent concern. This underscores the need for accessible mental health support and interventions tailored to their specific needs.

The data reveals the complexity of coping strategies among healthcare workers highlighting the importance of internal mechanisms, like acceptance and reframing with external supports such as family and spirituality in stress management. The variation in standard deviations across these strategies suggests individual differences in their effectiveness pointing to the need for personalized mental health support. All examined coping strategies were positively correlated with PTSD symptoms. The relationship varied in strength and significance. Notably, strategies such as private emotional outlets and religion and spirituality showed a stronger association with PTSD symptom severity indicating a reliance on these strategies among individuals with higher PTSD symptom levels. These findings underscore the importance of further research into how coping strategies impact PTSD symptom management and recovery.

Despite the minimal overall impact of PTSD symptoms on healthcare workers' coping strategies during the COVID-19 pandemic, correlations and regressions between coping strategies and PTSD symptoms revealed that acceptance, reframing, striving, family support, religion and spirituality had mitigating effects on PTSD symptoms. It is crucial to identify healthcare workers who employ negative coping strategies in response to traumatic events as prolonged PTSD symptoms can lead to significant mental health issues, necessitating professional support and treatment from psychiatrists and psychotherapists.

The findings of our study indicate a pressing necessity to comprehend and suggest approaches for managing mental health within the framework of the COVID-19 pandemic. Ensuring the preservation of accessibility to mental health care within the ongoing pandemic is a pressing imperative. It is imperative to acknowledge and highlight the necessity for additional research in order to enhance comprehension of the enduring effects on mental health. Efficient measures to safeguard the mental well-being of critical workers are expected to be intricate and diverse, targeting modifiable risk factors that need to be addressed at several levels. Nevertheless, existing research has primarily focused on the various therapeutic approaches employed by healthcare practitioners to tackle individuals' mental health concerns. There is a lack of research examining the causal association between coping methods and mental health issues. Hence, it is imperative to evaluate the extent to which a specific coping technique contributes to favourable transformations in the mental well-being of healthcare professionals, both within the realm of a study conducted in Vietnam and in the broader context of worldwide research.

5. CONCLUSION

The research found that most healthcare workers have experienced PTSD symptoms once a month, five or more times a week or more than 17 times per month. Healthcare personnel faced the greatest obstacle in addressing PTSD symptoms due to arousal which resulted in social isolation, increased mortality rates, mental health crises, and economic crises due to COVID-19. After the pandemic trauma, these healthcare workers will mostly accept, reframe and strive for positive action. Healthcare personnel also undervalue avoidance and detachment and seeks religion and spiritual help. However, these coping techniques do not closely correlate with PTSD symptoms which suggests healthcare professionals' PTSD symptoms did not change during the epidemic when adopting trauma coping measures.

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