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A Comparison of COVID-19-related Post-traumatic Stress, Self-efficacy, and Mental Health in Three Arab Countries

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Abstract In this study, we assessed differences in mental health, coronavirus disease 2019 (COVID-19)-related symptoms of post-traumatic stress disorder (PTSD), and self-efficacy in three Arab countries: Syria, Saudi Arabia, and Oman. We also explored the effect of COVID-19-related PTSD symptoms and self-efficacy on mental health. An online survey was conducted with 2,162 respondents (1,186 women and 976 men), of whom 984 were Syrian, 732 were Saudi, and 446 were Omani. We developed two tools to measure the psychological aspects of self-efficacy and PTSD as they relate to COVID-19 and assessed participants' mental health status. Significant differences were found among the three groups, with Syrians showing the lowest scores on mental health and self-efficacy and the highest on PTSD symptoms. Multiple regression analysis showed that COVID-19-related PTSD symptoms of hyperarousal, avoidance/numbness, and self-efficacy were good predictors of some mental health aspects. While most previous studies on COVID-19 have examined only its negative psychological effects, the current study focused on the positive aspects such as well-being and self-efficacy. This study emphasizes the importance of psychological factors associated with the pandemic, in addition to deriving new research questions and hypotheses. We compared relatively large samples from 3 different countries. It is important to gather comparative data on the psychological aspects of COVID-19 to plan specific psychological preventive programs for promoting mental health and reducing the negative psychological effects of the pandemic.

Keywords Mental health, Post-traumatic stress disorder, Intrusive re-experiencing, Avoidance/numbness, Hyperarousal, Self-efficacy, Distress, Well-being, COVID-19, Comparative study

1. Introduction

The spread of unreliable information related to the coronavirus disease 2019 (COVID-19), the impact of the disease itself, and the strict measures adopted by governments to curb the spread of the virus have caused confusion and serious mental health problems among the global population. The COVID-19 pandemic has been a traumatic event owing to limited availability of resources to cope with this crisis, the multiple effects of the disease itself, and the strong feelings of fear associated with the virus, regardless of preventive measures. Consequently, this crisis has led to avoidance behaviors, distancing measures, and semi-obsessive behaviors resulting from isolation [1].

The strict containment measures adopted to prevent the spread of infection have led to decreased social interaction, business losses and closures, mass hysteria, and the worsening of phobias and obsessive behaviors [2,3,4]. The prevalence of psychiatric disorders such as anxiety, post-traumatic stress disorder (PTSD), obsessive-compulsive disorder, and depression has increased [5,6,7]. Studies have examined coping strategies and perceived social support for symptoms of depression and anxiety during the COVID-19 pandemic [8,9].

In the long term, staying at home can lead to an increase in symptoms related to delirium PTSD [10,11] and other psychological disorders [12]. This implies that the pandemic has caused serious direct and indirect effects [13]. Additionally, difficulties in reaching out to psychological services have been reported, as these services are either unavailable or inaccessible because of social distancing [14]. However, mental health is not a top priority in most Arab countries, which explains the limited services to treat psychological problems.

Self-efficacy, which relates to an individual's competence and future behavior, is an important variable influencing beliefs when confronted with psychosocial risks and the management of preventive measures [15,16,17]. Preventive measures against the spread of COVID-19 include social

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distancing, wearing a mask, and washing one's hands frequently [18]. High self-efficacy leads to more effective enactment of preventive measures and improvement in mental health. When individuals' self-efficacy expectancies decrease, they may abandon these preventive measures altogether [19,20]. Yildirm and Güler [19] found that higher levels of COVID-19-related self-efficacy and protective behaviors predicted better mental health.

According to the American Psychiatric Association [21], PTSD is "a psychiatric disorder that may occur in people who have experienced or witnessed a traumatic event" (n.p.). Individuals who encounter real or imagined life-threatening events exhibit intense fear, intrusive thoughts, hypertonia, and avoidance of things that remind them of the event [22]. The effects of PTSD can impact individuals' quality of life, life satisfaction, well-being, and level of distress. Individuals with PTSD experience an increase in anxiety, depressive feelings, insecure reactions, tension, stress, hyperarousal, impaired concentration, and, in some cases, even violence and substance abuse. PTSD may also cause individuals to neglect ordinary interests over time. Moreover, intrapersonal, and interpersonal relationships are affected [23,12,5]. It is estimated that the COVID-19 pandemic has doubled the number of stressors that existed previously [24,25].

During the COVID-19 pandemic in Beijing, the prevalence of PTSD ranged between 4-41%, and there has been a 7% increase in major depressive disorder [26]. Mowbray [26] found that, throughout the pandemic, the risk of developing psychological disorders was higher for women, economically disadvantaged individuals, those who experience high levels of interpersonal conflict, those who use social media excessively, or for those with decreased social support or resilience. Chamberlain, Grant, Trender, and Hellyer [27] conducted a study of PTSD symptoms in the UK on a sample of 13,049 suspected or confirmed COVID-19 survivors. Although PTSD symptoms differed widely across groups, the rate of PTSD symptoms was higher among individuals who required home care or hospitalization with or without ventilator support. They noted that the main symptom of PTSD reported was intrusive imagery; that is, visual intrusions that are very clear, detailed, or disturbing, and are frequently linked to real or fictional events [28]. In a cross-sectional study on a Saudi sample of 1,374 participants [29], the overall prevalence of PTSD was calculated using three methods. First, cut-off scores of 45 or above on the PTSD checklist-specific (PCL-S) indicated a prevalence of 22.63%. Second, a classification was created based on DSM-V symptom criteria for PTSD, according to the number of symptoms, where prevalence reached 24.82%. Third, the overall prevalence was calculated by combining the two previous methods, resulting in a prevalence rate of 19.65%. The prevalence of PTSD symptoms was also higher among people who tested positive or were suspected of having COVID-19. We noted that only few studies have investigated the prevalence of PTSD among the general population; therefore, there is a need for more exploratory studies.

In the wake of the COVID-19 pandemic, there has been an increase in mental health studies in some countries (e.g., [30,1,13,31]). Most of these studies have been exploratory and have been conducted with various populations, including health care workers [32,5] and residents from areas of high and low risk of infection [30-331] .Li *et al.* [5] dymeasured the degree of secondary psychological trauma among health care workers, especially front-line workers. Yeen and Ning's [34] study showed that the prevalence of general anxiety, depression symptoms, and low quality of sleep was 35.1%, 20.1%, and 18.2%, respectively. Another study showed no differences in psychological distress assessed using the General Health Questionnaire 12 (GHQ-12) between two provinces in India, one with low infection rates and one with high infection rates [35].

1.1. Research Aims and Objectives

With the rapid spread of COVID-19, physiological health, psychosocial, and economic problems resulting from the pandemic continue to increase. In consideration of the reports issued by formal and non-formal organizations on the economic and psychosocial consequences of the pandemic, it is necessary to monitor the resulting psychological effects.

The present study investigated variables influencing mental health negatively (i.e., PTSD symptoms) and positively (i.e., self-efficacy). Self-efficacy is an important factor in coping with the psychological and physical effects of COVID-19 [36,37,38]. To identify effective psychological strategies for coping with the effects of the pandemic, data were collected from individuals belonging to different cultural and socioeconomic backgrounds. Therefore, the research objectives of our study are as follows:

- To explore differences in general mental health, PTSD symptoms, and self-efficacy among individuals from Syria, Oman, and Saudi Arabia.
- To explore the effects of COVID-19-related PTSD symptoms and self-efficacy expectancies on mental health.

1.2. Study Contributions

- The study will provide comparative data on the psychological effects of the COVID-19 pandemic.
- It will assist decision makers in evaluating conditions based on confirmed results. This will support evidence-based decisions related to the provision of mental health services.
- Future: researchers can use our data for comparative studies in broader cultural contexts.

1.3. Research Hypotheses

Based on study goals, the following hypotheses were formulated:

- No significant differences exist in mental health, PTSD, and self-efficacy among Syrian, Saudi, and Omani individuals.
- COVID-19-related PTSD symptoms and self-efficacy do not influence mental health.

2. Methodology

2.1. Study Design

This study used a cross-sectional design, which we believe facilitates complex research questions that support exploration of the phenomena of interest in greater detail and the planning of specific preventive measures. Cross-sectional design allows us to clarify the differences between groups and the associations between variables [39].

2.2. Sampling and Participants

The data were collected via an online survey between March and June 2020. In total, 2,269 registrations were obtained from residents of three Arab countries: Syria, Saudi Arabia, and Oman. After removing extreme values to achieve moderate data distribution, data from 2,162 individuals were included in the final analysis. The sample comprised 976 men (age: M = 40.25, *SD* = 11.12) and 1,186 women (age: M = 33.0, *SD* = 10.55), including students, teachers, and officials, as well as self-employed and retired individuals. None of the participants reported symptoms of COVID-19 at the time of the survey. The survey included questions regarding the COVID-19 status of the respondents and their relatives. Participants were recruited through social media via snowball sampling. The participants were informed of the objectives of the study and were told that participation was voluntary and intended for scientific research. The study was not financially supported by any additional grants.

The number of male respondents in the Saudi sample was double that in the Syrian and Omani samples. In the case of women, the number of respondents from Syria was significantly higher than that from Saudi Arabia and Oman.

3. Measures

3.1. General Well-Being Scale

In the present study, the General Well-Being Scale developed by Heubeck and Neil [40] was used. It contains 20 items with two subscales measuring well-being and distress, respectively. The mental health index can be derived from a high score in well-being and a low score for distress.

The scale assesses the mental state of the respondent in the recent past. It has a reliability coefficient (Cronbach's Alpha) of 0.93 [41,42]. This instrument is available in 14 languages, each using different items (e.g., [41,43,44,45]).

In the current study, two items specific to the COVID-19 situation were added, one to each subscale: i) "During the past month, how long have you felt in light of the COVID-19 crisis, that your relationships are dominated by love, affection, and mutual compassion between you and those around you to the fullest?", and ii) "During the past month, how long have you had negative thoughts (dark thoughts) about what is going on in the world due to COVID-19?" Thus, the scale we used comprised 22 items: 11 items measuring distress and 11 measuring psychological well-being. All items were rated on a 6-point Likert scale from 1 = "all of the time/always" to 6 = "none/never." In our study, Cronbach's alpha was 0.93 for the full scale, 0.90 for the distress subscale, and 0.83 for the well-being subscale. These values are similar to those found in other studies [41,43,44].

The COVID-19-related Post-traumatic Stress Disorder Scale

This instrument was designed based on the Davidson Trauma Scale (DTS) [46,47,48]. The DTS contains 17 items measuring three aspects: intrusive re-experiencing, avoidance/numbness, and hyperarousal. The scale has good psychometric properties, with an internal consistency of α = 0.90 [46,49,48].

In the current study, we adapted DTS items to the context of the COVID-19 pandemic. All items were rated on a 6-point Likert scale where 1 = "all of the time/always" and 6 = "none/never." Items include the following: "During the last month, how many times did you recall images, memories, and ideas related to the risk of COVID-19?" In our study Cronbach's alpha was 0.89 for the full scale, 0.81 for the intrusive re-experiencing subscale, 0.80 for the avoidance/numbness scale, and 0.87 for the hyperarousal subscale. We consider these values to support our use of the PTSD scale.

3.2. The COVID-19 Self-efficacy Scale

This scale was based on the General Self-efficacy Scale by Schwarzer and Jerusalem [16], which is available in various languages, including Arabic [50,51,52]. The scale used in this study contained ten items regarding the respondent's beliefs regarding their ability to handle various situations. All items were rated on a 5-point Likert scale where 1 = "never" and 5 = "always." All items were positively pooled; higher values indicated high self-efficacy. Items were adapted to the context of COVID-19. For example, "Regardless of the difficulties, I am capable of finding the appropriate means to protect myself from contracting COVID-19." The reliability coefficient for this scale was 0.84 in the current study, which is a reasonably good level of internal consistency.

3.3. Analysis

Statistical analysis was performed using SPSS-25 software. Statistical analysis included the following steps:

1. Analyzing the internal consistency and stability parameters of the tools used.
2. Calculating averages and standard deviations.
3. Analyzing significant differences in the subscale scores using a one-way analysis of variance (ANOVA) between the Syrian, Saudi, and Omani samples.
4. Analyzing Pearson's correlation coefficients to identify and describe associations between post-traumatic stress symptoms, mental health, and self-efficacy.
5. Conducting stepwise regression analysis to calculate the model's accuracy in predicting mental health.

4. Results

4.1 Differences in Mental Health

A one-way ANOVA was conducted to explore the differences in mental health among the three groups (Table 1). There were significant differences between the three samples with respect to overall mental health and its two dimensions, well-being, and distress. The overall size effect for mental health and well-being was big, and the size effect for psychological distress was middle. Further, a post-analysis (Games-Howell test) was carried out to further elaborate the nature of the differences. (Table 2).

Table 1. Differences between the three sample groups on the mental health variable

		df	SS	MS	F	P	η	η^2
Mental health	Between groups	2	63563.661	31781.831	133.640	.000	0.332	0.11
	Within groups	2159	513447.175	237.817				
	Total	2161	577010.836					
Well-being	Between groups	2	25362.492	12681.246	167.226	.000	0.366	0.13
	Within groups	2159	163723.028	75.833				
	Total	2161	189085.521					
Distress	Between groups	2	8903.020	4451.510	67.894	.000	0.243	0.05
	Within groups	2159	141555.696	65.565				
	Total	2161	150458.716					

Table 2. Post-test analysis of differences in mental health among the three groups

Dependent Variable	(I) Nationality	(J) Nationality	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Mental health	Syrian	Saudi	-10.18634*	.76744	.000	-11.9867	-8.3860
		Omani	-11.86361*	.83778	.000	-13.8302	-9.8970
	Saudi	Syrian	10.18634*	.76744	.000	8.3860	11.9867
		Omani	-1.67726	.88656	.142	-3.7582	.4036
	Omani	Syrian	11.86361*	.83778	.000	9.8970	13.8302
		Saudi	1.67726	.88656	.142	-.4036	3.7582
Well-being	Syrian	Saudi	-6.04838*	.43055	.000	-7.0584	-5.0383
		Omani	-7.89689*	.48562	.000	-9.0370	-6.7568
	Saudi	Syrian	6.04838*	.43055	.000	5.0383	7.0584
		Omani	-1.84851*	.51913	.001	-3.0670	-.6300
	Omani	Syrian	7.89689*	.48562	.000	6.7568	9.0370
		Saudi	1.84851*	.51913	.001	.6300	3.0670
Distress	Syrian	Saudi	4.13796*	.40547	.000	3.1868	5.0891
		Omani	3.96672*	.42993	.000	2.9576	4.9758
	Saudi	Syrian	-4.13796*	.40547	.000	-5.0891	-3.1868
		Omani	-.17124	.45236	.924	-1.2330	.8905
	Omani	Syrian	-3.96672*	.42993	.000	-4.9758	-2.9576
		Saudi	.17124	.45236	.924	-.8905	1.2330

*The mean difference is significant at the 0.05 level.

As noted in Table 2, the mental health scores of the Syrian sample significantly differed from both the Saudi and Omani samples (P = 0.05). Syrian participants exhibited the lowest levels of mental health, while those from Oman reported the highest levels. There were no significant differences observed between the Saudi and Omani sample on overall mental health scores. Syrians had the lowest well-being scores, which differed significantly from both the Saudi and

Omani participants. Additionally, there was a significant difference in well-being scores between the Omani and Saudi samples, with the former displaying higher scores. In contrast, participants from Syria indicated a high and significant level of distress, compared with Saudi and Omani participants. Distress was lowest among Saudi participants. We reject the null hypothesis regarding the differences between the Syrians compared with the Saudis and Omanis, respectively, but not regarding the differences between Saudis compared to Omanis. There were no significant differences in the overall degree of mental health or psychological distress in the Saudis and Omanis. As for well-being, the null hypothesis is rejected. This means that we accept the null hypothesis which says that there are no differences among Syrians, Saudis, and Omanis in well-being.

4.2. Differences in COVID-19-related PTSD Symptoms

Table 3 presents the results of the one-way ANOVA conducted to explore differences in COVID-19-related PTSD symptoms between the three sample groups. A significant difference was reported among the three groups (P = 0.05) regarding their overall PTSD score and the three subscales' scores. The ETA square coefficient ranged between 0.01 and 0.0, which indicates a weak impact size. The post-test analysis is shown in Table 4.

4.3. Overall PTSD Scores

The Syrian sample had higher overall PTSD scores than the Saudi and the Omani samples. The Syrian sample differed significantly from the other two samples. Consequently, the null hypothesis was rejected regarding the differences in the PTSD scores between Syrians versus Saudis or Omanis, respectively. The differences between Saudis and Omanis were not significant. There were no significant differences in the overall scores for the mental health items or the well-being subscale between Saudis and Omanis. The differences between the Syrians on versus the Saudis or Omanis, respectively, in terms of self-efficacy expectations were significant. There were no differences in self-efficacy between Saudis and Omanis. The hypothesis was partially confirmed in this context.

The intrusive re-experiencing subscale

The Omani sample had the highest score on this subscale, followed by the Syrian and the Saudi samples. The differences between the Syrian and Saudi samples, and between the Omani and Saudi samples were significant. The difference between the Syrian and the Omani sample was not significant.

4.4. The Avoidance/Numbness Subscale

The highest level of avoidance/numbness was found among Syrian respondents, followed by the Omani and the Saudi respondents. The scores of Syrian participants differed significantly from both the Omani and Saudi groups (P = 0.05). Further, there was no significant difference found between the Saudis and Omanis in their levels of avoidance/numbness.

4.5. The Hyperarousal Subscale

Syrian participants scored higher on the hyperarousal subscale, than the Saudi or Omani participants. Omani participants had the lowest scores on this subscale. Significant differences were observed between Syrian and Saudi participants, as well as between Syrian and Omani participants. However, the differences between the Omani and Saudi groups were not significant. We reject the null hypothesis regarding the differences between Syrians, Saudis, and Omanis for the PTSD total score. Regarding the subscales, there were no statistically significant differences between Syrians and Omanis on the "intrusive thoughts" subscale.

Table 3. Differences between the three sample groups on COVID-19-related symptoms of post-traumatic stress disorder

		df	SS	MS	F	P	η	η^2
PTSD	Between groups	2	10573.207	5286.604	27.619	.000	0.158	0.02
	Within groups	2159	413261.237	191.413				
	Total	2161	423834.444					
Intrusive reexperiencing	Between groups	2	591.547	295.773	14.574	.000	0.115	0.01
	Within groups	2159	43816.206	20.295				
	Total	2161	44407.753					
Avoidance/ numbness	Between groups	2	2187.368	1093.684	27.624	.000	0.158	0.02
	Within groups	2159	85479.731	39.592				
	Total	2161	87667.099					
Hyperarousal	Between groups	2	1591.235	795.617	29.316	.000	0.163	0.02
	Within groups	2159	58593.939	27.139				
	Total	2161	60185.173					

Note: PTSD = post-traumatic stress disorder

Table 4. Post-test analysis of differences in post-traumatic stress disorder symptoms among the three groups

Dependent Variable	(I) Nationality	(J) Nationality	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
PTSD	Syrians	Saudis	4.96520*	.68034	.000	3.3692	6.5612
		Omanis	2.91540*	.76825	.000	1.1120	4.7188
	Saudis	Syrians	-4.96520*	.68034	.000	-6.5612	-3.3692
		Omanis	-2.04979*	.79905	.028	-3.9254	-.1742
	Omanis	Syrians	-2.91540*	.76825	.000	-4.7188	-1.1120
		Saudis	2.04979*	.79905	.028	.1742	3.9254
Intrusive re-experiencing	Syrians	Saudis	1.01383*	.21704	.000	.5047	1.5230
		Omanis	-.24006	.25978	.625	-.8499	.3698
	Saudis	Syrians	-1.01383*	.21704	.000	-1.5230	-.5047
		Omanis	-1.25388*	.26449	.000	-1.8748	-.6330
	Omanis	Syrians	.24006	.25978	.625	-.3698	.8499
		Saudis	1.25388*	.26449	.000	.6330	1.8748
Avoidance/numbness	Syrians	Saudis	2.24540*	.31282	.000	1.5116	2.9792
		Omanis	1.40589*	.34141	.000	.6045	2.2073
	Saudis	Syrians	-2.24540*	.31282	.000	-2.9792	-1.5116
		Omanis	-.83951	.35914	.051	-1.6825	.0035
	Omanis	Syrians	-1.40589*	.34141	.000	-2.2073	-.6045
		Saudis	.83951	.35914	.051	-.0035	1.6825
Hyperarousal	Syrians	Saudis	1.70597*	.25829	.000	1.1000	2.3119
		Omanis	1.74957*	.28633	.000	1.0774	2.4217
	Saudis	Syrians	-1.70597*	.25829	.000	-2.3119	-1.1000
		Omanis	.04360	.30331	.989	-.6683	.7555
	Omanis	Syrians	-1.74957*	.28633	.000	-2.4217	-1.0774
		Saudis	-.04360	.30331	.989	-.7555	.6683

*. The mean difference is significant at the 0.05 level.

Table 5. Differences between the three sample groups on COVID-19 related self-efficacy

		df	SS	MS	F	P	η	η^2
Self-efficacy	Between Groups	2	4226.480	2113.240	31.782	.000	0.169	0.02
	Within Groups	2159	143554.620	66.491				
	Total	2161	147781.101					

Table 6. Post-test analysis of differences in self-efficacy among the three groups

Dependent Variable	(I) Nationality	(J) Nationality	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Self-efficacy	Syrians	Saudis	-2.96112	.40436	.000	-3.9098	-2.0124
		Omanis	-2.50511	.46102	.000	-3.5876	-1.4226
	Saudis	Syrians	2.96112	.40436	.000	2.0124	3.9098
		Omanis	.45600	.50722	.641	-.7346	1.6466
	Omanis	Syrians	2.50511	.46102	.000	1.4226	3.5876
		Saudis	-.45600	.50722	.641	-1.6466	.7346

*. The mean difference is significant at the 0.05 level.

4.6. Differences in COVID-19 Related Self-Efficacy

As shown in Table 5, there were significant differences among the three groups (P = 0.05) regarding self-efficacy. The effect size (ETA) analysis showed a coefficient of 0.02 (Table 6); Syrian participants scored lowest on self-efficacy, while Omani participants scored highest. There were significant differences between the Syrian and Saudi samples, as well as between the Syrian and Omani samples (P = 0.05).

4.7. Matrix of the Correlations between Variables

Pearson's coefficients were calculated for the correlation between variables for each of the three samples. The differences in the correlation coefficients in the three separate samples were so small that they required each correlation matrix table to be presented separately. Table 7 shows the correlation matrix for the entire sample. The correlations were significant between all variables at the 0.01 level. Consequently, the correlations between the mental health subscales (distress and well-being) and the PTSD subscales (intrusive re-experiencing, avoidance/numbness, and hyperarousal) were relatively high. There was a positive correlation between mental health and self-efficacy, and a negative correlation between mental health and COVID-19-related PTSD symptoms. Additionally, the correlation coefficient for mental health and self-efficacy was higher than the correlation coefficient between COVID-19-related self-efficacy and PTSD symptoms.

Furthermore, the correlation between distress scores and overall PTSD scores appeared to be very strong. Distress was found to correlate positively with intrusive re-experiencing and was more strongly and positively correlated to avoidance/numbness and hyperarousal. In general, distress appeared to be a very important factor that co-occurred with COVID-19-related PTSD.

4.8. Results of the Linear Regression Analysis

A linear regression analysis was conducted to identify the extent to which COVID-19-related PTSD symptoms and self-efficacy could predict participants' mental health scores.

To avoid any overlap, the total score for PTSD was excluded from the analysis and only the scores on the three subscales (hyperarousal, avoidance/numbness, and intrusive re-experiencing) were considered. Table 8 indicates the findings from the stepwise regression analysis. The value of the correlation coefficients (R) ranged from 0.721 (correlation between hyperarousal and mental health) to 0.749 (correlation between mental health and hyperarousal, avoidance/numbness, intrusive re-experiencing, and self-efficacy). The amount of explained variance, or the goodness-of-fit measure (R^2), was between 0.519 and 0.561, with all the predictors being significant at P = 0.01.

Further, the one-way ANOVA of the interaction between variables showed that all values were significant (P = 0.01), which indicates that the model exhibited good predictive validity (Table 9). Additionally, the values of the unstandardized regression coefficients for each of the three PTSD dimensions and self-efficacy were significant (P = 0.01) (Table 10).

Table 7. Correlation matrix for the study sample

		1	2	3	4	5	6	7
1	**Mental health**	1						
2	Well-being	.932**	1					
3	Distress	-.914**	-.704**	1				
4	**PTSD**	-.683**	-.552**	.718**	1			
5	Intrusive re-experiencing	-.399**	-.302**	.442**	.790**	1		
6	Avoidance/numbness	-.620**	-.519**	.633**	.908**	.570**	1	
7	Hyperarousal	-.721**	-.579**	.762**	.879**	.551**	.713**	1
8	**Self-efficacy**	.220**	.278**	-.118**	-.160**	-.172**	-.126**	-.126**

**Correlation is significant at the 0.01 level (2-tailed).

Table 8. Stepwise regression analysis to determine whether dimensions of post-traumatic stress disorder scale and self-efficacy can predict level of mental health

Model	R	R^2	Adjusted R^2	Std. Error of the estimate	Change statistics				
					R^2 Change	F Change	df1	df2	Sig. F Change
1	.721[a]	.519	.519	11.33014	.519	2334.832	1	2160	.000
2	.737[b]	.543	.542	11.05756	.023	108.805	1	2159	.000
3	.747[c]	.558	.557	10.87712	.015	73.226	1	2158	.000
4	.749[d]	.561	.560	10.83436	.004	18.065	1	2157	.000

Note: Dependent variable = Mental health
a. Predictors: (Constant), Hyperarousal
b. Predictors: (Constant), Hyperarousal, Avoidance/numbness
c. Predictors: (Constant), Hyperarousal, Avoidance/numbness, Self-efficacy
d. Predictors: (Constant), Hyperarousal, Avoidance/numbness, Self-efficacy, Intrusive re-experiencing

Table 9. One-way analysis of variance for the interaction of variables

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	299727.218	1	299727.218	2334.832	.000[b]
	Residual	277283.618	2160	128.372		
	Total	577010.836	2161			
2	Regression	313030.784	2	156515.392	1280.084	.000[c]
	Residual	263980.052	2159	122.270		
	Total	577010.836	2161			
3	Regression	321694.220	3	107231.407	906.347	.000[d]
	Residual	255316.616	2158	118.312		
	Total	577010.836	2161			
4	Regression	323814.736	4	80953.684	689.652	.000[e]
	Residual	253196.100	2157	117.383		
	Total	577010.836	2161			

a. Dependent Variable: Mental health
b. Predictors: (Constant), Hyperarousal
c. Predictors: (Constant), Hyperarousal, Avoidance/numbness
d. Predictors: (Constant), Hyperarousal, Avoidance/numbness, Self-Efficacy
e. Predictors: (Constant), Hyperarousal, Avoidance/numbness, Self-Efficacy, Intrusive re-experiencing

Table 10. The values of the regression coefficients, "t" values, significance levels, and the regression constants (B) and (Beta-Values)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	St. Error	Beta		
1	(Constant)	112.094	.580		193.330	.00
	Hyperarousal	-2.232-	.046	-.72-	-48.320-	.00
2	(Constant)	116.885	.729		160.369	.00
	Hyperarousal	-1.754-	.064	-.56-	-27.295-	.00
	Avoidance/numbness	-.555-	.053	-.21-	-10.431-	.00
3	(Constant)	108.433	1.221		88.838	.00
	Hyperarousal	-1.726-	.063	-.55-	-27.263-	.00
	Avoidance/numbness	-.532-	.052	-.20-	-10.148-	.00
	Self-efficiency	.244	.029	.12	8.557	.00
4	(Constant)	107.098	1.256		85.293	.00
	Hyperarousal	-1.794-	.065	-.57-	-27.573-	.00
	Avoidance/numbness	-.602-	.055	-.23-	-10.993-	.00
	Self-efficiency	.258	.029	.11	9.020	.00
	Intrusive re-experiencing	.276	.065	.07	4.250	.00

5. Discussion and Limitations

Results of the current study should be viewed from the perspective of the social, economic, and environmental conditions of all three societies. This may initially limit interpretation of the results until sufficient data can be collected from other ongoing studies.

The study revealed significant differences between the Syrian, Saudi, and Omani respondents on the three variables. The Syrian sample reported the lowest scores on mental health and self-efficacy and the highest on PTSD symptoms. Additionally, Omani participants scored the highest on mental health. PTSD symptoms were lowest in the Saudi sample, which was offset by a higher level of self-efficacy (see Figure 1).

The mental health scores for the Syrian sample can be explained by the humanitarian crisis that Syrians have been facing for almost a decade. Due to the war, individual and health resources for Syrians have been reduced to a minimum. Syrians continue to face multiple social, psychological, economic, and political risks that have resulted in the deterioration of their quality of life; this, in turn, would have affected their response to the COVID-19 pandemic. Thus, it seems that the Syrian participants were facing an additional threat and did not have the necessary resources to deal with the COVID-19 pandemic, thereby resulting in lower self-efficacy.

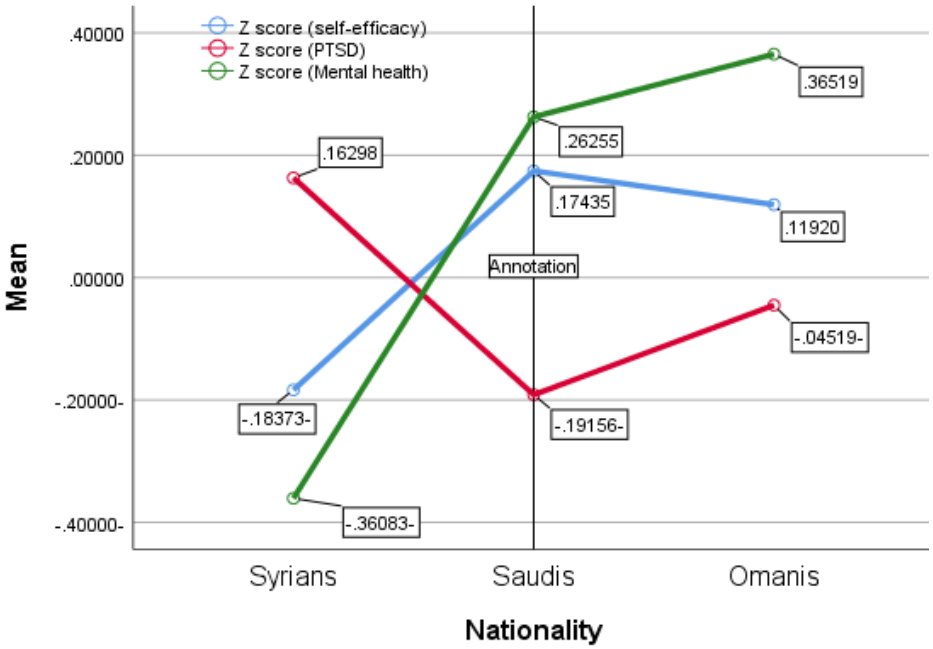

Figure 1. Represents the total values for mental health, symptoms of PTSD, and self-efficacy obtained by each of the three groups

COVID-19-related self-efficacy would be dependent on the information available to the individual and the extent to which they perceive that they have control of their lives. The availability of vaccines and confidence in the containment measures enacted against COVID-19 play a major role in this regard. For Syrians, the results should be interpreted based on the individuals' access to information, locus of control, and confidence in government policies, which are currently diminished due to the ongoing humanitarian crisis. In contrast, Omani and Saudi participants' higher levels of mental health can be explained by the quality of life in these two countries, as well as the timely actions their governments took to control the spread of the virus. Additionally, other factors (such as COVID-19-related self-efficacy) could have played a role in controlling the spread. Self-efficacy was highest among Saudi participants, followed by those from Oman. Previous studies have reported high levels of self-efficacy in Omani and Saudi samples [53,54,52,55,56,57]. As mentioned earlier, this could be explained by the comparatively higher quality of life in these countries, as well as the role of the state in promoting fulfillment of personal and social needs. This requires further investigation. However, Saudis' and Omanis' appraisal of self-efficacy might not be based on realistic estimates of their skills. For example, there was a very sharp increase in the number of COVID-19 cases between March and June, with the number of infected cases in Oman increasing from 93 on March 27, 2020, to 1,067 on July 26, 2020. Similarly, in Saudi Arabia, there were 70 cases on March 20, 2020, according to official data, and 2,201 cases by July 2020 [58]. Self-efficacy expectations can be an important factor in establishing preventive measures. A realistic assessment of self-efficacy helps individuals to take suitable preventive measures. More research, however, is needed in this area [59].

There is no reliable data on the number of COVID-19 cases in Syria. The data published by the authorities are misleading; that is, the actual numbers might be higher than those officially published. Prevalence rates are high due to the media blackout and lack of adequate health care [60]. While social media monitoring provides high estimates of infection cases, these reports have been inconsistent. This, however, further reinforces the results of this study for the Syrian sample. The absence of transparency, poor infrastructure, lack of interest in health promotion, and lack of personal resources lead to reduced COVID-19-related self-efficacy and decreased mental health.

Additionally, we found a significantly negative association between COVID-19-related PTSD symptoms and mental health. The correlation between COVID-19-related self-efficacy and mental health was significant, but not as high as the correlation for PTSD. Further, the stepwise linear regression analysis showed that mental health levels could be predicted by PTSD symptoms. It is evident that increased awareness of the danger of COVID-19, combined with circulation of conflicting information, has led individuals to experience fear and anxiety.

Intrusive re-experiencing did not affect mental health. This can be explained by the fact that such intrusive mental activity includes repetitive trauma experiences. Since none of the respondents in the study reported having experienced any symptoms of COVID-19, intrusive re-experiencing did not seem to play an important role in COVID-19 related distress. Further studies should be conducted with individuals who have experienced COVID-19 symptoms to investigate whether intrusive re-experiencing has any influence on mental health.

The study was conducted between March and June 2020; thus, it was limited in its scope. This implies that further developments during the pandemic must also be considered. That is, the increase or decrease in the spread of the infection in each country, the information available regarding the virus, the progress of scientific research in the discovery of new vaccines and treatment, and the closure of socioeconomic activity in each country need to be considered. While all these factors influence the extent of distress, well-being, quality of life, the stress response of the individual, the individual's COVID-19-related self-efficacy, and the available psychosocial and health care resources, play a major role in coping with the negative effects of the pandemic.

6. Conclusions

The current study contributes comparative preliminary data related to a multifaceted crisis in three Arab societies. In this respect, this study is one of many similar ones conducted worldwide.

COVID-19 has posed an unprecedented challenge affecting the quality of life of individuals and has led to an increase in mental health problems worldwide. The consequences of the pandemic continue to manifest in different ways. Since this crisis requires intensive study and exploration, this study aimed to examine the impact of COVID-19 on mental health in three Arab countries.

This study had two main goals: First, to examine the similarities between the effects of the COVID-19 crisis and the typical responses to stress and trauma in three societies. Second, to identify the extent to which the study population was confident of their skills in dealing with current and future threats related to COVID-19 PTSD and self-efficacy, which have implications for individuals' mental health. Therefore, our findings can be used to guide awareness and counseling campaigns or to develop interventions to reduce the psychological impact of COVID-19.

PTSD and self-efficacy have implications for individuals' mental health. Therefore, our findings can be used to guide awareness and counseling campaigns or to develop interventions to reduce the psychological impact of COVID-19. Additionally, this study can be useful in informing further research focusing on measuring the same variables among COVID-19 patients or survivors. It is expected that various future studies will be conducted to clarify the psychological effects resulting from the spread of COVID-19 in a wider and deeper manner. There were differences between the three samples, especially in the Syrian population. These differences were explained against the background of the political situation in Syria. This indicates the need to conduct intensive psychological and social interventions in Syria to enhance community health. As for the Omani and Saudi populations, there is a need to emphasize that preventive measures must remain in place, because the crisis is expected to continue for a long time. Those responsible for planning health policies should consider psychological factors when planning preventive and curative health measures.

However, some limitations should be considered: the participants were technology users, which raises the question of the generalizability of the results. There is a need to reach people who do not have access to social media.

We agree with Knolle, Ronan, and Murray [13] in that when comparing different countries, there are many limitations with regard to the interpretation of the results obtained by the questionnaires, and there are many factors that are difficult to explain. However, this does not preclude the use of our results in making comparisons and developing research questions and hypotheses.

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