ORIGINAL RESEARCH

Psychological Impact of COVID-19, Isolation, and Quarantine: A Cross-Sectional Study

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Purpose: The COVID-19 pandemic has resulted in mandatory isolation and quarantine. The objective of this study was to describe and compare the psychological impacts of COVID-19 isolation and quarantine.

Methods: This was a cross-sectional retrospective study. Participants were Bahrainis aged >18 years who had undergone either isolation or quarantine. Eligible participants were identified from the COVID-19 contacts (quarantine) and cases (isolation) database of Bahrain. Validated questionnaires for self-reported depression (Center for Epidemiological Studies — depression [CES-D]), posttraumatic stress (Impact of Event Scale — revised [IES-R]), and perceived stigma (Stigma Scale [SS]) were administered.

Results: Mean CES-D, IES-R, and SS scores were 16.76±5.65, 13.50±14.67, and 25.29 ±7.99, respectively. In sum, 40% (205 of 502) of participants showed clinically significant depression, and <20% (98 of 502) had indications of some posttraumatic distress, with greater depression and distress in those isolated than those quarantined. Perceived stigma was reported by 53.4% (268 of 502) of participants, more prominent among those quarantined. Depression and posttraumatic stress scores were significantly higher in females, college students, those with a history of mental health conditions, knowing a COVID-19 fatality, and experiencing social conflict. Age was a significant variable correlated with all three scales, with younger participants indicating more distress, depression, and stigma. Duration of segregation was significantly correlated with CES-D, score showing more depressive symptoms as the duration of isolation increased. Significant predictors were age, sex, history of mental illness, and COVID-19 status.

Conclusion: Isolated and quarantined individuals reported depression, perceived stigma, and to a lesser extent distress. Psychological interventions identifying and targeting people with different-severity psychological burdens are in urgent need.

Keywords: COVID-19, psychological impact, isolation, quarantine, Bahrain

Introduction

On 30 January 30, 2020, the WHO director-general declared COVID-19 a public health emergency of international concern. To prevent the spread of the virus, individuals testing positive for the disease should be placed in isolation, ("separation of ill or infected persons from others").[1] Discharge required clinical recovery with two negative sequential RT-PCR results within 24 hours, which was later updated to 10 days after symptom onset plus a minimum of 3 days without symptoms for symptomatic patients and 10 days after a positive test for asymptomatic patients.[2] In addition to isolation, quarantine ("separation of persons who are not ill, but who may have been exposed to an infectious agent or disease"),[1]

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measures were introduced. Individuals identified as contacts (eg, providing direct care without the use of personal protective equipment, having face-to face-contact within 1 m >15 minutes) of laboratory-confirmed cases required 14 days of quarantine from the last time they were exposed to the patient.[3]

Although isolation and quarantine have distinct meanings in practice, they both involve the separation of an individual from their loved ones, normal activities, and routines for the purpose of infection prevention. The psychological impact of quarantine and isolation was exacerbated by the harmful effect of limited physical activity and changes in dietary practices.[4] Such changes may result in dramatic and long-lasting psychological impact. A study on quarantined and isolated individuals with severe acute respiratory syndrome (SARS) and H1N1 reported posttraumatic stress symptoms, confusion, and anger. Stressors included longer quarantine, infection fears, frustration, boredom, inadequate supplies, inadequate information, financial loss, and stigma.[5] In a study on health-care workers who had survived the Middle East respiratory syndrome coronavirus (MERS-CoV) epidemic in Saudi Arabia in 2015, participants explained a variety of painful experiences of rejection and avoidance by their colleagues and neighbors postrecovery.[6] Similar avoidance was reported by SARS survivors, along with perceived barriers to service access and employment[7] and well beyond the initial outbreak.[8] Stigma, including being shunned, insulted, marginalized, and rejected in the domains of work, interpersonal relationships, use of services, and schooling was also reported.[9] In the context of the current pandemic, reports from China have showed rates of up to 30% for anxiety,[10] 17% depression,[11] and 35% trauma-related distress symptoms.[12] Similar rates have also been reported in Italy following implementation of lockdown measures.[13] Furthermore, reports from India and Bangladesh have described suicidal behaviors (eg, suicidal ideation, suicide attempts, and actual suicide) for various reasons.[14,15]

In the context of the current COVID-19 outbreak, the Bahraini containment strategy includes the rapid identification of laboratory-confirmed cases, isolation, and management. In parallel, comprehensive contact-tracing measures are conducted using the BeAware Bahrain app, which notifies individuals of close contact with suspected cases, facilitates COVID-19 testing, enables close vigilance of self-isolation/quarantine, and provides relevant and accurate information from a reputable source.[16] The

containment strategy includes the International COVID-19 Repatriation Programme, with repatriates clinically segregated from the general population to complete quarantine and testing before being formally admitted to the country.[2] The objective of this study was to describe and compare the psychological effects of COVID-19 between those placed into isolation and those placed into quarantine.

Methods
Study Design and Participants
This was a cross-sectional retrospective study. Participants were Bahrainis aged >18 years who had undergone either isolation or quarantine. Eligible participants were identified from the COVID-19 contacts (quarantine) and cases (isolation) database of Bahrain. Two groups of participants were identified and recruited: "early", which comprised the first confirmed cases diagnosed between February 24 and March 20, 2020, and "late", which included all cases and contacts diagnosed August 1–5, 2020. We included all patients registered in the database if they fit the inclusion criteria. Trained medical residents conducted the survey via telephone in August 2020. Participation was voluntary and participant data anonymized.

Outcomes
We used three scales to assess the psychological impact of participants, which specifically focused on depression, posttraumatic stress, and perceived stigma. The Center for Epidemiological Studies — depression (CES-D) Scale[17] was used as a measure of any depressive symptoms as a result of COVID-19 isolation or quarantine. This scale is composed of 20 self-report items, each on a Likert scale of 0–3. Possible scores are 0–60. A score >16 has been shown to identify persons with depressive symptoms similar in severity to levels observed among depressed patients.[17,18] The higher the score, the greater the presence of more symptomatology.

To assess post-traumatic stress, the Impact of Event Scale — revised (IES-R)[19] was employed. This is a self-report measure designed to assess distress resulting from a traumatic life event and is composed of 22 items, each on a Likert scale of 0–4 (0 not at all, 1 a little bit, 2 moderate, 3 quite a bit, 4 extreme). The maximum score is 88. A score of 24–32 indicates clinical concern for posttraumatic stress disorder (PTSD). Those with scores this high who do not have full PTSD will have partial PTSD or at least some of the symptoms.[20] A score of 33–38 is the cutoff for probable diagnosis of PTSD,[21]

and ≥39 enough to suppress the immune system's functioning, even 10 years after an impact event.[22]

The Stigma Scale (SS) 20 was used to examine perceived stigma because of isolation or quarantine. This 15-item scale uses a four-point Likert scale from strongly disagree (0) strongly agree (3). It assesses the key causes (fear of casual transmission, willingness to interact with affected individuals, and moral values of blame, shame, responsibility, guilt, punishment, and judgment) and consequences (negative feelings and emotional reactions toward affected individuals, isolation, discrimination, and disclosure) of stigma.[23] Participants are classified as having/not having perceived stigma using the mean of the stigma variable as the cutoff point. Designed for tuberculosis, the scale was adapted in this study to the sociocultural context of Bahrain and COVID-19.

These scales are widely used, and have been translated into many different languages, including Arabic. The reliability and validity of the CES-D and IES-R have been demonstrated in previous research for various languages, including Arabic.[24,25] Cronbach's α coefficient was used to test the reliability and internal consistency of the scales in this study.

Statistical Analysis

Descriptive and inferential analyses were conducted, and means ± SD) are presented for continuous data and n (%) for categorical data for all participants, isolated and quarantined. Overall IES-R, CES-D, and SS scores are reported as means ± SD for each scale band for all participants, and for COVID-19 status, (isolated and quarantined). CES-D scores are split into >16 and ≤16. IES-R scores are grouped as <24, 24–32, 33–38, and ≥39. For the SS, negative items were reverse-scored, then standardized scores of 0–50 obtained from the raw scores using the formula $(SS_{raw} \times 50)/(n \times 3)$, where n is the number of items in the scale and 3 the maximum score per item. Normality tests were used to determine if the data set were well modeled by a normal distribution, and as a result parametric testing was used. ANOVA and independent t-tests were used to compare means where appropriate. Pearson's correlation coefficient was used to test the association between continuous variables. $P < 0.05$ was considered indicate statistically significant. Multivariate linear regression analysis was used to access predictors of IES-R, CES-D, and SS scores.

Results

Of 1,106 eligible subjects, 502 responded and consented to participation, 24 refused, 436 did not answer or had invalid contact numbers, and 144 did not meet the inclusion criteria. The mean age of participants was 40±14.71 years, half were female (50.2%, 252 of 502), most married (78.5%, 394 of 502), most had high school education or above (81.9%, 411 of 502), approximately a third unemployed (33.7%, 169 of 502), 20.7% (116 of 502)employed in the public sector, and 23.1% (104 of 502) employed in the private sector (Table 1). Mean duration of segregation for all participants was 18.06 ±14.00 and 22.25±16.40 days for those in isolation, and 11.79±4.67 days for those in quarantine. In sum, 72.7% (365 of 502) of all participants were nonsmokers, and 44.6% (224 of 502) had comorbidities. Less than 3% (14 of 502) had a history of mental conditions.

The mean CES-D score for all participants was 16.76 ±5.65: 40.8% (205 of 502) scored >16, a score shown to identify persons with depressive symptoms similar in severity to levels observed among depressed patients, while 45.50% (137 of 301) of participants who were isolated met the cutoff of ≥16 or more compared to 33.8% (68 of 201) of participants quarantined (Table 2). The mean IES-R score for all participants was 13.50±14.67, with 19.6% (98 of 502) scoring ≥24, indicating minimum clinical concern for 17. The mean SS score for all participants was 25.29 ±7.99, with 53.4% (268 of 502) scoring above the determined cutoff (>25). More than 60% (129 of 201) of participants quarantined exceeded the cutoff compared to 46% of those placed in isolation (Table 2). Demographic variables that had statistically significant associations with CES-D score were sex and occupation. IES-R scores were significant for sex, occupation, and education. Education was also significantly associated with SS scores (Table 3).

Clinical variables that had statistically significant associations with CES-D scores were smoking status, history of mental conditions, place of segregation, transmitting the infection to another person, having difficulty returning to work, experiencing social conflict, knowing someone who had died due to COVID-19, and COVID-19 status (Table 4). For IES-R scores, significant variables were history of mental conditions, experiencing social conflict, and knowing someone who had died due to COVID-19. Variables that were statistically significantly associated with SS scores were place of segregation, transmitting the infection to someone else, experiencing social conflict, and COVID-19 status.

Table 1 Demographics and clinical data for participants and COVID-19 status: isolated and quarantined

		Total (n=502) n (%)	Isolated (n=301) n (%)	Quarantined (n=201) n (%)	*P*
Age, mean (SD)		40.41 (14.47)	41.10 (14.64)	39.36 (14.18)	0.187
Duration of segregation (days), mean (SD)		18.06 (14)	22.25 (16.4)	11.79 (4.67)	<0.001
Sex	Females	252 (50.2%)	151 (50.2%)	101 (50.2%)	0.986
	Males	250 (49.8%)	150 (49.8%)	100 (49.8%)	
Marital Status	Single	93 (18.5%)	54 (17.9%)	39 (19.4%)	0.975
	Married	394 (78.5%)	238 (79.1%)	156 (77.6%)	
	Divorced	7 (1.4%)	4 (1.3%)	3 (1.5%)	
	Widowed	8 (1.6%)	5 (1.7%)	3 (1.5%)	
Education	Elementary or below	22 (4.4%)	15 (4%)	7 (3.5%)	0.204
	Middle	69 (13.7%)	42 (14%)	27 (13.4%)	
	High	195 (38.8%)	126 (41.9%)	69 (34.3%)	
	Undergraduate	159 (31.7%)	90 (29.9%)	69 (34.3%)	
	Postgraduate	57 (11.4%)	28 (9.3%)	29 (14.4%)	
Occupation	Retired	93 (18.5%)	58 (19.3%)	35 (17.4%)	0.289
	Employed (public)	116 (23.1%)	60 (19.9%)	56 (27.9%)	
	Employed (private)	104 (20.7%)	62 (20.6%)	42 (20.9%)	
	Self-employed	14 (2.8%)	11 (3.7%)	3 (1.5%)	
	Unemployed	169 (33.7%)	106 (35.2%)	63 (31.3%)	
	Student	6 (1.2%)	4 (1.3%)	2 (1%)	
Smoking status	Smoker	98 (19.5%)	55 (18.3%)	43 (21.4%)	0.135
	Nonsmoker	365 (72.7%)	217 (72.1%)	148 (73.6%)	
	Ex-smoker	39 (7.8%)	29 (9.6%)	10 (5%)	
Comorbidities	Yes	224 (44.6%)	134 (44.5%)	90 (44.8%)	0.955
	No	278 (55.4%)	167 (55.5%)	111 (55.2%)	
History of mental conditions	Yes	14 (2.8%)	9 (3%)	5 (2.5%)	0.738
	No	488 (97.2%)	292 (97%)	196 (97.5%)	

Age was a significant variable correlated with all three scales, with younger participants displaying greater distress, depression, and stigma (Table 5). Duration of segregation was significantly correlated with CES-D scores, with more depressive symptoms as the duration of isolation increased. Multivariate linear regression analysis was used to test if demographics and clinical variables significantly predicted CES-D, IES-R, and SS scores (Table 6). Results indicated that they explained 11.4% of the variance in CES-D scores. Significant predictors were age, sex, history of mental illness, and COVID-19 status. Further, predictors explained 8.6% and 4.6% of variations in IES-R and SS scores, respectively.

Reliability of the CES-D, IES-R, and SS was tested, and showed Cronbach's α=0.72, 0.90, and 0.83 respectively.

Table 2 Mean of CES-D, IES-R, and SS scores for all participants by COVID-19 status: isolated and quarantined

	All (n=502)	Isolated (n=301)	Quarantined (n=201)
CES-D, mean (SD)	16.76 (5.65)	17.26 (5.94)	16.01 (5.10)
≤16, n (%)	297 (59.2%)	164 (54.5%)	133 (66.2%)
>16, n (%)	205 (40.8%)	137 (45.5%)	68 (33.8%)
IES-R, mean (SD)	13.50 (14.67)	14.31 (15.51)	12.28 (13.24)
<24, n (%)	404 (80.5%)	238 (79.1%)	166 (82.6%)
24–32, n (%)	37 (7.4%)	23 (7.6%)	14 (7.0%)
33–38, n (%)	24 (4.8%)	14 (4.7%)	10 (5.0%)
≥39, n (%)	37 (7.4%)	26 (8.6%)	11 (5.5%)
SS, mean (SD)	25.29 (7.99)	24.23 (8.06)	26.87 (7.63)
≤25, n (%)	234 (46.6%)	162 (53.8%)	72 (35.8%)
>25, n (%)	268 (53.4%)	139 (46.2%)	129 (64.2%)

Table 3 Associations between demographics and scale scores (ANOVA and *t*-tests)

		CES-D, mean (SD)	*P*	IES-R, mean (SD)	*P*	SS, mean (SD)	*P*
Sex	Male	15.38 (4.62)	<0.001	10.83 (12.48)	<0.001	24.81 (8.10)	0.184
	Female	18.13 (6.22)		16.15 (16.15)		25.76 (7.87)	
Occupation	Retired	16.13 (16.13)	0.033	12.40 (12.57)	<0.001	24.89 (9.30)	0.931
	Employed (public)	17.36 (5.87)		15.88 (16.79)		25.39 (7.58)	
	Employed (private)	15.61 (4.57)		10.32 (10.97)		25.61 (7.73)	
	Self-employed	15.35 (5.42)		9.64 (12.60)		26.03 (4.68)	
	Unemployed	17.60 (6.09)		14.41 (15.59)		25.07 (8.00)	
	Student	18.00 (6.89)		34.16 (23.01)		27.96 (4.57)	
Education	Elementary or below	15.22 (4.28)	0.052	6.95 (10.13)	0.014	20.75 (8.00)	0.045
	Middle	15.79 (5.05)		11.71 (13.30)		24.57 (8.88)	
	High	17.45 (6.20)		15.34 (15.69)		25.99 (7.80)	
	Undergraduate	16.99 (5.61)		14.25 (14.91)		25.10 (8.30)	
	Postgraduate	15.56 (4.50)		9.84 (11.95)		26.04 (5.88)	
Marital status	Single	16.68 (5.59)	0.628	14.52 (15.32)	0.867	25.81 (7.15)	0.533
	Married	16.76 (5.64)		13.31 (14.52)		25.22 (8.11)	
	Divorced	15.28 (4.64)		13.14 (15.92)		26.34 (10.99)	
	Widowed	19.00 (7.78)		11.12 (15.46)		21.66 (8.68)	

Discussion

This was a cross sectional retrospective cohort study involving 502 participants selected randomly from the Ministry of Health database to explore the impact of COVID-19 isolation and quarantine. We used validated and translated tools to measure depression, distress, and perceived stigma associated with the pandemic. About 40% of participants showed clinically significant depression, with those isolated exhibiting greater depression than those quarantined. Less than 20% had indications of distress, with greater distress in those isolated than those quarantined. Distress and diagnosis of PTSD were also more pronounced in

Table 4 Associations between clinical variables and scale scores (ANOVA and *t*-tests)

		CES-D, ean (SD)	*P*	IES-R, mean (SD)	*P*	SS, mean (SD)	*P*
Smoking status	Smoker	15.65 (4.26)	0.040	12.07 (13.08)	0.410	24.70 (8.11)	0.315
	Nonsmoker	16.91 (5.85)		13.66 (14.75)		25.60 (7.85)	
	Ex-smoker	18.15 (6.37)		15.61 (17.49)		23.87 (8.88)	
History of mental conditions	Yes	24.07 (8.97)	<0.001	26.71 (18.78)	<0.001	29.20 (9.64)	0.063
	No	16.55 (5.39)		13.12 (14.38)		25.18 (7.92)	
Place of segregation	Home	16.06 (4.95)	0.008	12.57 (14.17)	0.255	26.09 (7.31)	0.010
	Isolation facility	17.61 (5.90)		14.06 (14.19)		25.09 (7.40)	
	Hospital	18.08 (7.15)		15.51 (16.34)		22.85 (9.81)	
	ICU	16.85 (4.18)		19.14 (19.20)		25.23 (13.14)	
Having transmitted COVID-19	Yes	18.71 (5.84)	0.003	14.81 (16.10)	0.300	24.52 (7.10)	<0.001
	No	16.84 (5.91)		14.17 (15.37)		24.15 (8.34)	
	NA	16.01 (5.10)		12.28 (13.24)		26.87 (7.63)	
Difficulty returning to work	No	16.27 (4.89)	0.004	12.70 (14.04)	0.380	25.54 (7.70)	0.893
	Yes, but returned	19.06 (8.99)		14.81 (13.86)		24.72 (9.04)	
	NA	16.89 (5.87)		13.91 (15.27)		25.08 (8.26)	
	Yes, but lost job	23.66 (6.77)		22.16 (12.89)		26.48 (4.73)	
Social conflict or breakups	Yes	20.81 (6.71)	<0.001	21.27 (19.03)	<0.001	28.22 (8.50)	0.020
	No	16.44 (5.44)		12.88 (14.11)		25.06 (7.91)	
Knowing a fatality due to COVID-19	No	16.32 (5.26)	<0.001	12.86 (14.38)	0.029	25.16 (8.07)	0.428
	Yes	18.91 (6.91)		16.67 (15.71)		25.92 (7.58)	
COVID-19 status	Isolated	17.26 (5.94)	0.015	14.31 (15.51)	0.129	24.23 (8.06)	0.001
	Quarantined	16.01 (5.10)		12.28 (13.24)		26.87 (7.63)	
Recruitment status	Early	16.66 (5.52)	0.731	13.51 (13.97)	0.781	25.41 (8.99)	0.991
	Late	16.83 (5.74)		13.50 (15.13)		25.21 (7.26)	

Table 5 Correlations between age, duration of isolation and scale scores

	Age, (*r*)	*P*	Duration of Segregation, (*r*)	*P*
CES-D	−0.097	0.030	0.165	<0.001
IES-R	−0.184	<0.001	0.056	0.206
SS	−0.149	0.001	−0.082	0.065

participants that had undergone isolation. Perceived stigma was more prominent among those quarantined than those placed in isolation. This is higher than that reported among the general population in Bahrain during the pandemic, with about a third reporting depressive and stress symptoms,[26] but similar to ta study on the general

Table 6 Effect of sociodemographic characteristics on indices of mental health*

	CES-D (adjusted R^2=0.114)		IES-R (adjusted R^2=0.086)		SS (adjusted R^2=0.046)	
	Coefficient (95% CI)	P	Coefficient (95% CI)	P	Coefficient (95% CI)	P
Age	−0.055 (−0.093 to −0.016)	0.006	−0.223 (−0.325 to −0.121)	<0.001	−0.078 (−0.135 to −0.021)	0.007
Sex	2.700 (1.631 to 3.770)	<0.001	5.297 (2.477 to 8.116)	<0.001	0.898 (−0.671 to 2.467)	0.261
Education	−0.067 (−0.522 to 0.387)	0.771	−0.352 (−1.551 to 0.846)	0.564	0.271 (−0.396 to 0.938)	0.426
Occupation	−0.186 (−0.535 to 0.163)	0.296	−0.343 (−1.263 to 0.578)	0.465	−0.058 (−0.570 to 0.454)	0.825
Marital status	0.373 (−0.755 to 1.501)	0.516	0.688 (−2.285 to 3.661)	0.650	0.126 (−1.528 to 1.780)	0.881
History of mental illness	−7.019 (−9.898 to −4.140)	<0.001	−13.467 (−21.056 to −5.877)	0.001	−4.422 (−8.645 to −0.199)	0.040
COVID-19 status	−1.333 (−2.290 to 0.375)	0.006	−2.341 (−4.865 to 0.184)	0.069	2.462 (1.058 to 3.867)	0.001

Note: *Values are unstandardized coefficients from multivariate regression.

population from Saudi Arabia, both studies utilizing a snowball social media–sampling technique.[27]

Social stigma and discrimination have been described in detail in other infectious respiratory diseases, such as tuberculosis, SARS, and MERS-CoV.[28] Stigmatizing language, eg, "tuberculosis suspect," has been criticized by activists, as well as "COVID-19 suspect."[29] COVID-19 cases and close contacts have been compared to criminals.[29] Stigma toward those who have recovered from COVID-19, undergoing treatment, or presumed to be affected has been well described in the literature, especially in developing countries.[30]

Although most reports have indicated that men with COVID-19 have a poorer prognosis, there is an increasing body of evidence to confirm that the psychological impact is more profound in women.[26,27,30,31] This agrees with our results, which showed that females exhibited more psychological depression and distress. College students were the most affected among occupational categories in this study. Although the number of college students that participated in this study was low, this result is consistent with other studies reporting that the mental health of college students has been significantly affected during the COVID-19 pandemic.[26,27,32,33] Concerns of personal health, health of family members, and finance, particularly for those impacted by prolonged closure of employers, have been reported.[34] The added impact of quarantine has led to high occurrence of distress, depression, anxiety, stress, and even self-reported suicidal thoughts.[33] Loss of income, poor-quality housing, history of psychiatric follow-up, symptoms compatible with COVID-19, low levels of physical activity, not living with family, weak sense of integration, low quality of social relations, and receiving low-quality information were associated with all mental health issues.[33] Consistently with a recent systematic review, our findings suggested that people with preexisting mental conditions are at highest risk of psychological distress and should be targeted for psychological assessment and appropriate intervention.[31] Based on the results of this study and others, female college students with mental health conditions may be particularly vulnerable to psychological impact due to isolation and quarantine. Given the immediate and long-lasting effects, such groups must be the focus of psychological screening, intervention, and future research.

Not surprisingly, hospital isolation was more depressing than home isolation. The opposite, however, was true for stigmatization. It is evident from the literature that those with infectious disease have fears of infecting others during quarantine.[5] Fear of infecting others or becoming infected, potentially exacerbated by ignorance of infection transmission, may have resulted in avoidance within the home beyond required social distancing measures. Such experiences of avoidance from family members, as opposed to trained healthcare professionals, may have led to feelings of great hurt and shame, increasing the burden of stigma. Other contributing factors were losing one's job, experiencing social conflict or breakup, transmitting the infection to others, or knowing someone who had died due to the disease. Duration between isolation/quarantine and interview did not have a significant effect on psychological outcomes, which could reflect the long-lasting effect of segregation. In one study, alcohol abuse and dependence symptoms were reported among quarantined individuals 3 years after the SARS outbreak.[35]

One of the strengths of this study was the use of generic validated tools to measure depression, distress, and perceived stigma, which objectified outcome assessment and allowed fair comparisons. The three scales showed high reliability and internal consistency of α=0.7–0.9. Further, this is one of the few studies in the region describing the psychological impact of COVID-19 for cases (isolated) and contacts (quarantined) at two times of segregation. However, this study is not without limitations. Due to the escalating nature of this pandemic, we were unable to compare psychological outcomes immediately after quarantine/isolation (baseline) and months later among the same cohort. Instead, we recruited two groups at two stages of segregation and compared outcomes. These selected periods might not be representative of the whole period. Another limitation was that we did not capture psychological effects related to travel for religious purposes, which was perceived as a threat in terms of spreading the infection, ultimately resulting in government-led repatriation.

Conclusion

This study identified high-risk populations and risk factors of higher psychological distress that could be used for risk stratification and the design of effective psychological interventions at both clinical and community levels. Additionally, the findings underscore the importance of implementation and rollout of psychological services and intervention programs. Like most countries, Bahrain is currently prioritizing medical resources for the containment of COVID-19 and the treatment of patients with COVID-19, and hence there may be limited resources available for psychological services and interventions. Therefore, improving knowledge, awareness, and self-coping strategies are critical in this situation. In conclusion, the COVID-19 pandemic has caused unprecedented psychological impact among the general population. Psychological interventions identifying and targeting people with different-severity psychological burdens are urgently needed.

Data Sharing Statement

The data sets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Ethics Approval and Consent to Participate

The study was conducted in accordance with the Declaration of Helsinki and approved by the National COVID-19 Research and Ethics Committee and the Royal College of Surgeons in Ireland — Medical University of Bahrain's ethics committee. All participants were adequately informed about the study and consented to participation. Participation was voluntary and data anonymous and dealt with confidentially.

Author Contributions

All authors made substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data, took part in drafting the article or revising it critically for important intellectual content, agreed to submit to the current journal, gave final approval to the version to be published, and agree to be accountable for all aspects of the work.

Disclosure

The authors declare that they have no competing interests.

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