

COVID-19 Linked Social Stigma Among Arab Survivors: A Cross-Sectional Experiences from the Active Phase of the Pandemic

Norah Abdullah Bazek Madkhali¹, AbdulRahman Ameri², Zakariya Yaqoob Al-Naamani³, Bushra Alshammari⁴, Mohammed Abdullah Bazek Madkhali⁵, Arshad Jawed¹, Faten Alfaifi¹, Amani Ali Kappi¹, Shafiul Haque⁶

¹Department of Nursing, College of Nursing, Jazan University, Jazan, 45142, Saudi Arabia; ²Mohammed bin Nasser Hospital, MOH, Jazan, Saudi Arabia; ³Armed Forces Medical Services School (AFMSS), Muscat, Oman; ⁴Department of Medical-Surgical Nursing, College of Nursing, University of Hail, Hail, Saudi Arabia; ⁵Al Tuwal General Hospital, MOH, Jazan, Saudi Arabia; ⁶Research and Scientific Studies Unit, College of Nursing, Jazan University, Jazan, 45142, Saudi Arabia

Correspondence: Norah Abdullah Bazek Madkhali, Department of Nursing, College of Nursing, Jazan University, Jazan, 45142, Saudi Arabia, Email nalrabeey90@gmail.com; namadkhali@jazanu.edu.sa

Objective: This study aimed to explore the magnitude and variability of the disease-linked stigma among COVID-19 survivors and their experiences of social stigma, coping strategies, contextual challenges, and preferences for support.

Methods: An Arabic version of the social stigma survey questionnaire was designed and validated to obtain socio-demographic characteristics and quantitative measures of stigma encountered by the survivors. 482 COVID-19 survivors completed the survey, and the data were analyzed using descriptive statistics and thematic analysis.

Results: The results of this study revealed the prevalence of high levels of both perceived external stigma and enacted stigma among participants. Enacted and Internalized stigma were associated with survivors' educational background/ status. The participants suggested three levels of support: organizational, social, and personal. Establishing an online stigma reduction program and national psychological crisis interventions at the organizational level. It is crucial to assist coping mechanisms and societal reintegration techniques at the social level.

Conclusion: These results provide valuable insights for holistic health policy formation and preparedness strategies for future pandemics, helping survivors promote health and reintegrate into society, where stigma reduction and psychological crisis interventions are underdeveloped.

Keywords: COVID-19, survivor, stigma, SARS-CoV-2, pandemic, Saudi Arabia

Introduction

Coronavirus disease (COVID-19), caused by SARS-CoV-2, originated in Wuhan, China, and has triggered huge global attention since December 2019.¹ The disease spread quickly across the globe, becoming a pandemic. Saudi Arabia also witnessed a huge surge in COVID-19 cases since January 2020 and reported 841,469 confirmed cases of COVID-19, with 9,646 deaths until May 2023.² Since the first reported case of COVID-19 and the surge from mid-2020 to the fall of 2023, there have still been around 4,000 active cases in the country.² Patients infected with SARS-CoV-2 may develop severe and even fatal acute respiratory distress syndrome (ARDS) or acute respiratory failure, leading to their admission into intensive care units (ICUs) in hospitals.³ The horrendous death caused by COVID-19 has resulted in grief, stress, anxiety, depression, and traumatic symptoms for most people, particularly the families of COVID-19-infected patients.³ Moreover, the survivors of this dreaded disease possibly faced discrimination and social stigma owing to the rapid virus spread and unpredictability caused by the pandemic.⁴ One of the consequences in the context of health was the social stigmatization of people who have been affected by COVID-19. Social stigma is a negative association with a person, group, or location with certain

characteristics or a specific disease.⁵ Such stigma can severely and detrimentally affect survivors' emotional, mental, and physical well-being. People stigmatized because of infectious diseases may face rejection from partners, families, and friends, as well as dismissal from work and a regression in the quality of healthcare they receive, which can lead to alienation, depression, or anxiety.⁶ Social stigma leads to prejudice, social exclusion, discrimination, marginalization, and even racism because of negative attitudes and beliefs due to COVID-19.⁷ Moreover, stigma causes further negative experiences and feelings when sufferers need access to various amenities and healthcare services. As a result, people often feel accused, humiliated, irrelevant, isolated, excluded from society, and discriminated against.⁸ Prejudice and discrimination, which are undesirable and detrimental for any society, when expressed against those with stigmatizing characteristics, are called Enacted Stigma, while feelings of being accused, humiliated, and irrelevant due to having the stigmatizing characteristic are called Internalized Stigma.⁹ During the COVID-19 epidemic, women reported increased levels of worry and anxiety as well as more disruptions in their lives than men. The significant consequences of gender disparities in reaction to the COVID-19 pandemic give gender inequality in COVID-19 responses.¹⁰ The proportion of women over males was more significant in the areas where the health crisis has had a more noticeable and impactful presence, with implications for the general population, especially women's physical, mental, and social health.¹¹

Although many studies have reported psychological (anxiety, depression, stress/ distress/ fear) impacts of COVID-19 from around the globe, only scanty studies reported the social stigma among COVID-19 patients and their experiences or coping/ societal re-integration strategies, including Arabian countries. Fortunately, few reports addressed the social stigma prevalent among healthcare workers worldwide, including Saudi Arabia, but none discussed the coping strategies and preferences of support.^{12–14} The shame and contempt levels caused by contagious diseases are determined by the level of awareness available about the disease and its treatment options currently available.⁸ The uncertainty and unpredictable course surrounding COVID-19, the perceived risk of contracting the infection, the lack of FDA-approved treatments, the high fatality rate, especially among patients with chronic illnesses, and the novelty (with almost no or limited information about its origin and pathogenicity) of the disease. This caused adverse psychological reactions, including maladaptive behavior, contributing to widespread fear of COVID-19 and avoidance behavior among individuals.¹² While the COVID-19 global emergency is officially over,¹⁵ the COVID-19 pandemic and its stigmatization will likely continue for many years.¹⁶ People were thus likely to be labeled, stereotyped, discriminated against, and treated differently because of an actual or perceived association with the contagious disease. The fear that COVID-19 survivors can transmit SARS-CoV-2 even after hospital discharge primarily constituted the basis of COVID-19-associated stigma.

Keeping the facts above about the dreaded COVID-19 and its impact on the physical and mental health of patients/ disease survivors and its societal repercussions in relevance with Saudi Arabia's traditional living, ethnic/tribal culture, and ardent religious belief in view. This study explored the prevalence of disease-linked stigma, its socio-demographic correlates, and its relationship with the length of time since a patient's discharge from the hospital among COVID-19 survivors recruited from different regions of Saudi Arabia. The overall aim of this cross-sectional study was divided into four main objectives: (i) to quantify COVID-19-associated stigma experienced by Arab survivors; (ii) to explore the types of stigma(s) encountered by COVID-19 survivors; (iii) to study the influence of ethnic (traditions) / religious culture/beliefs on COVID-19 survivors' stigma and (iv) to explore the views of Covid-19 survivors about coping strategies, contextual challenges they might face, and preferences for support to re-integrate into their social life.

The study highlights the impact of disease-linked stigma on survivors' mental health and challenges in reintegration into society. It provides valuable insights for holistic health policy formation and preparedness strategies for future pandemics or crises.

Methodology

Study Design, Participants, and Sample Size

A cross-sectional survey study design was adopted to fulfill this study's objectives. The study was designed to be investigative and conducted by the College of Nursing, Jazan University, Saudi Arabia, in collaboration with various hospitals and universities of the kingdom. The duration of the study is eleven months, commencing in July 2021. The study recruited patients/survivors 18+ years of age and diagnosed with COVID-19. These COVID-19 survivors were

recruited to participate in the study while in the hospital for follow-ups. Before securing their written consent, the participants were informed in person, by phone, or by email about the purpose, scope, and study method. They were informed that they could opt out of the study at any point and ensured their data confidentiality would be maintained at all levels. It was also clarified that no personal information will be collected/revealed. Survivors who had cognitive impairment or refused to participate in the study were excluded from the study. This study did not include patients with chronic tuberculosis or other respiratory illnesses. The eligibility criteria for this study are detailed in [Table 1](#).

The sample size was determined using the Raosoft online tool¹⁷ following a 95% confidence level and 5% margin of error, with a target population of 385 required to be statistically significant. The survey questionnaire was developed using Google Forms as an online platform and printed copies in paper hard-copy format to be distributed personally. The standardized instrument (printed copy or online Google form) was distributed by preferred mode, and participants were given sufficient time to complete the survey.

The data for this study were collected from patients admitted to hospitals, healthcare centers, or university hospitals in different kingdom regions. The definition of COVID-19 recovery was taken from the latest guidelines from the Centers for Disease Control and Prevention (CDC) that state “20 days” have passed from the day symptoms appeared and at least 24 hours have passed since the last fever symptoms were recorded. The inclusion criteria followed for subject recruitment were: (i) individuals (patients) who met the criteria of “recovery”, (ii) attained 18+ years of age, (iii) were able to read/write Arabic or/both English languages. The participants were contacted via telephone, email, or in-person to obtain their consent. Consent terms were also included in the survey questionnaire to inform them of the terms and conditions of participation.

Demographics and Measures

It consisted of demographic questions (n=10) regarding gender, nationality, marital status, age, residence status (rural/urban), educational level, occupation, living status (alone/with family), family member suffering from COVID-19, and income level. The COVID-19 stigma survey includes 15 items that measure the total stigma as enacted stigma, internalized stigma, perceived external stigma, and disclosure fear, which were used in this study.¹² The values described the experience of COVID-19 survivors after they recovered or detected negative. Higher scores showed a more significant concern or complicated effect of COVID-19-associated stigma and vice versa. The responses were expressed in terms of ordinal data varying from 1 to 5, wherein (1) represented Strongly Disagree, (2) Disagree, (3) Neutral, (4) Agree, and (5) Strongly Agree based on a 5-point Likert scale. The total scores ranged from a minimum of 15 to a maximum of 75; the higher the score, the greater the level of the perceived stigma. The reliability of the questionnaire was ascertained and demonstrated excellent consistency (Cronbach’s $\alpha' = 0.92$).

The Arabic version was verified for its translational validity by two native Arabic speakers and then was translated back by two native English speakers. The initial and translated drafts were cross-checked for discrepancies and refined by meeting with all members involved in this research study. A panel of experts from the Nursing College, Jazan University, reviewed and approved the Arabic version. The review included three options (essential, helpful but not essential, and non-essential) against each item in the questionnaire. The outcome was measured using Lawshe’s Content Validity Ratio (CVR) for every item and Content Validity Index (CVI).^{18,19} The items rated “essential” were considered primarily for the calculations. The item details have been presented in [Table 2](#). Open-ended questions (n=3) focused on survivors’ stigmatization experiences and coping strategies, contextual challenges, and preferences for support to re-integrate into their social life.

Table 1 Inclusion & Exclusion Criteria

	Inclusion Criteria	Exclusion Criteria
1	Must be diagnosed with COVID-19	Not infected with COVID-19
2	Must be 18 years or older	Less than 18 years of age
3	Able to speak Arabic or English	Cognitive impairment and Unable to give written consent.
4	Resident or Citizen of KSA	Not a resident of KSA / staying outside KSA

Table 2 Lawshe's Content Validity Ratios (CVR) for an Item and Content Validity Index (CVI) Value

Lawshe's Content Validity Ratios (CVR) for an item and a Content Validity Index (CVI) value						
	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	CVR
Question 1	x	x	x	x	x	1
Question 2	x	x	x	x	x	1
Question 3	x	x	x	x	x	1
Question 4	x	x	x	x	x	1
Question 5	x	x	x	x	x	1
Question 6	x	x	x	x	x	1
Question 7	x	x	x	x	x	1
Question 8	x	x	x	x	x	1
Question 9	x	x	x	x	x	1
Question 10		x	x	x	x	0.6
Question 11	x	x	x	x	x	1
Question 12	x	x	x	x	x	1
Question 13	x	x	x	x	x	1
Question 14	x	x		x	x	0.6
Question 15	x	x	x	x		0.6
CVR(Critical) for a panel size (N) of 5 is 1.					CVI	0.8

Data Gathering

The responses were collected via Google form/ in-person as per the need/feasibility. A team of data collectors was initially trained to collect the data and then sent to the field for the participants needing assistance. Written informed consent was obtained from all participants, and then a questionnaire was shared.

Statistical Analysis

Microsoft Excel was used to enter the data and other associated questions. Categorical values were analyzed for the frequency and the percentages. The questions from Section 2 that measured the disease-related stigma were measured for the aggregate score in terms of mean, frequency, median, and standard deviation for every item and for the domain as a whole. The participant's data were tabulated using Microsoft Excel and then exported to Statistical Package for Social Science (SPSSTM) version 25 for performing descriptive analysis. The results were reported across the items (Table 3). The principal investigator (NM) used thematic analysis to examine free-text replies to find overarching themes that emerged from the data. After that, other researchers in the team reviewed the themes (BS, ZA, AK).²⁰ Stage one of the study entailed assigning descriptive themes to various data segments. Stage two required combining these descriptive themes to produce interpretative themes that emphasized new patterns in the data (Several overarching themes were established as all interpretive themes were brought together and connected in the final stage.

Ethical Considerations

This study complies with the Declaration of Helsinki and received ethics approval from the Jazan University Research and Ethics Committee (REC-43/06/126) and the Jazan Health Ethics Committee (H-10-Z-073), MOH, (#2158). During the ethical approval, the study information was provided, including the voluntary nature of the study and the participant's right to withdraw at any time. Participants' confidentiality and privacy were maintained throughout the study. Participants' informed consent included the publication of anonymized information. Written informed consent was obtained before the data collection and responses.

Table 3 Descriptive Analysis of the Data Collected

		Frequency, (%)	Enacted Sigma		Disclosure Concerns		Internalized Stigma		Externalized Stigma		Total Stigma	
			Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age (in years)	18–27	338 (70.1%)	7.88	3.53	4.8	2.8	6.39	3.98	18.19	8.04	37.28	15.52
	28–37	61 (12.7%)	8.18	2.98	4.66	2.38	5.79	2.91	18.75	7.82	37.38	13.03
	38–47	42 (8.7%)	8.26	2.88	4.33	1.97	6.24	2.96	19.33	7.77	38.17	14.20
	48–57	27 (5.6%)	7.67	3.89	3.67	1.98	5.85	3.11	18.44	9.68	35.63	18.01
	58 and above	14 (2.9%)	7	3.7	3.79	2.29	5.5	3.32	15.71	9.07	32.0	17.39
Gender	Male	158 (32.7%)	7.47	3.31	5.22	2.67	6.94	3.67	20.85	7.96	41.84	15.68
	Female	324 (67.2%)	8.83	3.5	4.37	2.59	5.9	3.69	17.06	7.89	34.82	14.58
Education	High School	148 (30.7%)	7.47	3.27	4.43	2.6	6.15	3.65	17.02	8.21	35.07	15.65
	Bachelors	309 (64.1%)	8.15	3.52	4.77	2.72	6.22	3.72	18.74	7.95	37.91	15.17
	Masters	17 (3.5%)	8.29	2.71	4.53	1.58	7.65	4.32	18.76	8.75	39.24	14.62
Occupation	Doctorate	8 (1.7%)	6.38	3.54	4.38	2.13	5.63	2.92	24.13	7.45	40.50	12.99
	Unemployed	261 (54.1%)	7.67	3.62	4.57	2.81	5.96	3.8	17.34	7.96	35.58	15.46
	Self Employed	82 (17.0%)	8.11	3.53	4.91	2.66	6.8	3.86	19.32	8.89	39.15	16.40
	Private	44 (9.1%)	7.8	2.34	4.14	2.13	6.11	3.32	18.14	6.53	36.18	12.00
Marital Status	Government	94 (19.5%)	8.53	3.17	4.9	2.35	6.63	3.47	20.21	8.14	40.28	14.73
	Single	155 (32.2%)	8.02	3.47	4.8	2.76	6.35	3.87	18.16	8.07	37.36	15.46
	Married	300 (62.2%)	7.73	3.43	4.5	2.42	6.08	3.49	18.27	8.14	36.57	15.12
Residence	Divorced	27 (5.6%)	7.85	3.15	3.85	2.36	5.96	3.14	20	8.31	37.67	14.79
	Living alone	77 (16%)	8.62	3.55	4.88	2.69	7.19	3.95	18.83	8.57	39.53	16.90
	Living with family	405 (84%)	7.78	3.4	4.61	2.63	6.06	3.64	18.2	8.02	36.67	14.94
Range of score(s): min - max			5–15		5–10		5–15		7–35		15–75	
Mean Time since discharge		13.17 days (Range: 7–21 days), Std Dev: 6.14 days										

Results

Out of 500 participants, there were 482 COVID-19 survivors (455 Saudi citizens and 27 non-Saudi/ residents). The Arabic version was distributed among the survivors, and their responses were collected. The obtained score distribution is plotted in [Figure 1](#) against every item of the stigma scale.

The data's internal consistency (ie, reliability) was measured using Cronbach's alpha, which reflects how closely related the items are as a group. A high value indicates the scales to be unidimensional, and additional analyses can be carried out. The Reliability analysis of the test revealed Cronbach's alpha value of 0.932. The content validity ratio was calculated using Lawshe's Content Validity Ratio (CVR) for every item and the overall scale's Content Validity Index (CVI) value.^{18,19} The formula used for calculating CVR is as follows:

$$CVR = \frac{n_e - \left(\frac{N}{2}\right)}{\left(\frac{N}{2}\right)}$$

Where n_e is the number of panel members rating the item "essential"; N is the total number of members in the panel. The critical values of CVR, if higher than 0.5, are considered acceptable. This indicates that more than 50% of the panel members agree that the item is essential. The CVR in our study ranged between 0.6 and 1 for each independent item and indicated that all were valid and useful for further analysis. The CVI was found to be 0.8, signifying that the instrument was statistically competent and valid ([Table 2](#)).

Examining the sample characteristics, Shapiro–Wilk's test ($p < 0.05$)^{21,22} and a visual inspection of their histograms, normal Q-Q plots and box plots showed that the total scores were not normally distributed with skewness of 0.455 (SE=0.111) and a kurtosis value of −0.407 (SE= 0.222) (Cramer & Howitt, 2004). The data points were found close to

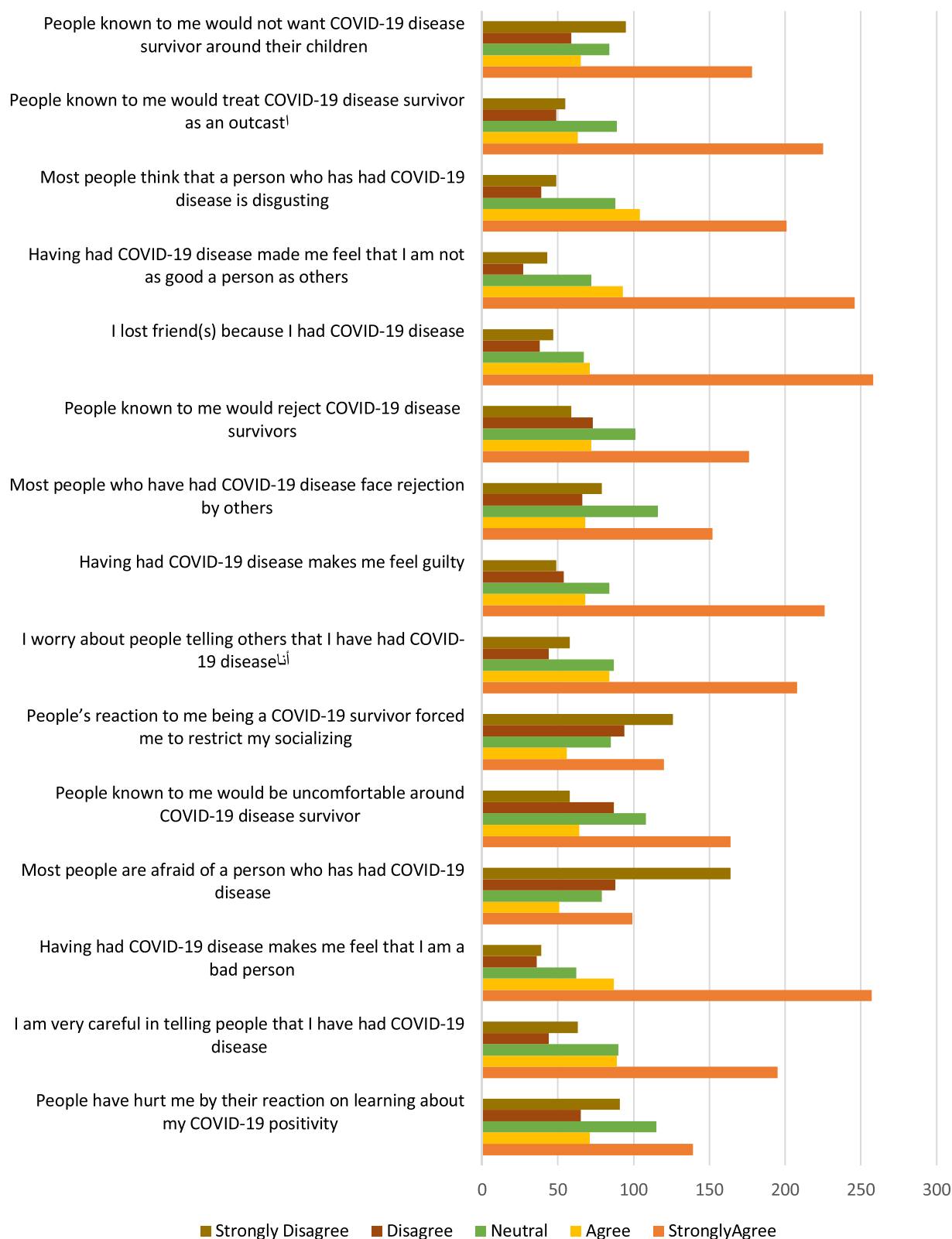


Figure 1 Score distribution to stigma questionnaire by the study participants.

the central line (but not onto it) in the Q-Q plot, indicating that the data were slightly skewed. Therefore, non-parametric methods were selected for further analysis (Figure 2a and b).

Socio-demographic information indicated that the participating COVID-19 survivors mostly belonged to the age group of 18–27 years. Their number was 70% of the subjects recruited (338 out of 482). Of all the survivors, 67% were females, and 33% were males. 84% of the survivors lived with family, and 62% were married. The education level of the COVID-19 survivors was found to be graduation (309 out of 482; 64%). Table 3 summarizes the socio-demographic characteristics of COVID-19 survivors who responded to the survey. While a more significant proportion of the survivors (70.1% approx.) belonged to the 18–27 age group, their percentages steadily declined with the increasing age of survivors from 70.1% to 12.7%, 8.7%, 5.6% and 2.9% for 18–27 years, 28–37 years, 38–47 years, 48–57 years, and 57 years and above, respectively. Approximately two-thirds of the respondents belonged to urban areas, while 33% were from rural areas. The minimum to maximum discharge time from hospitals ranged between 7 to 21 days, with a mean discharge time of 13.2 days. More than half of the survivors were unemployed (54%), and most employed (19.5%) belonged to the government sector. Most COVID-19 survivors (62.2%) were married, 32.2% were singles, and 84% of

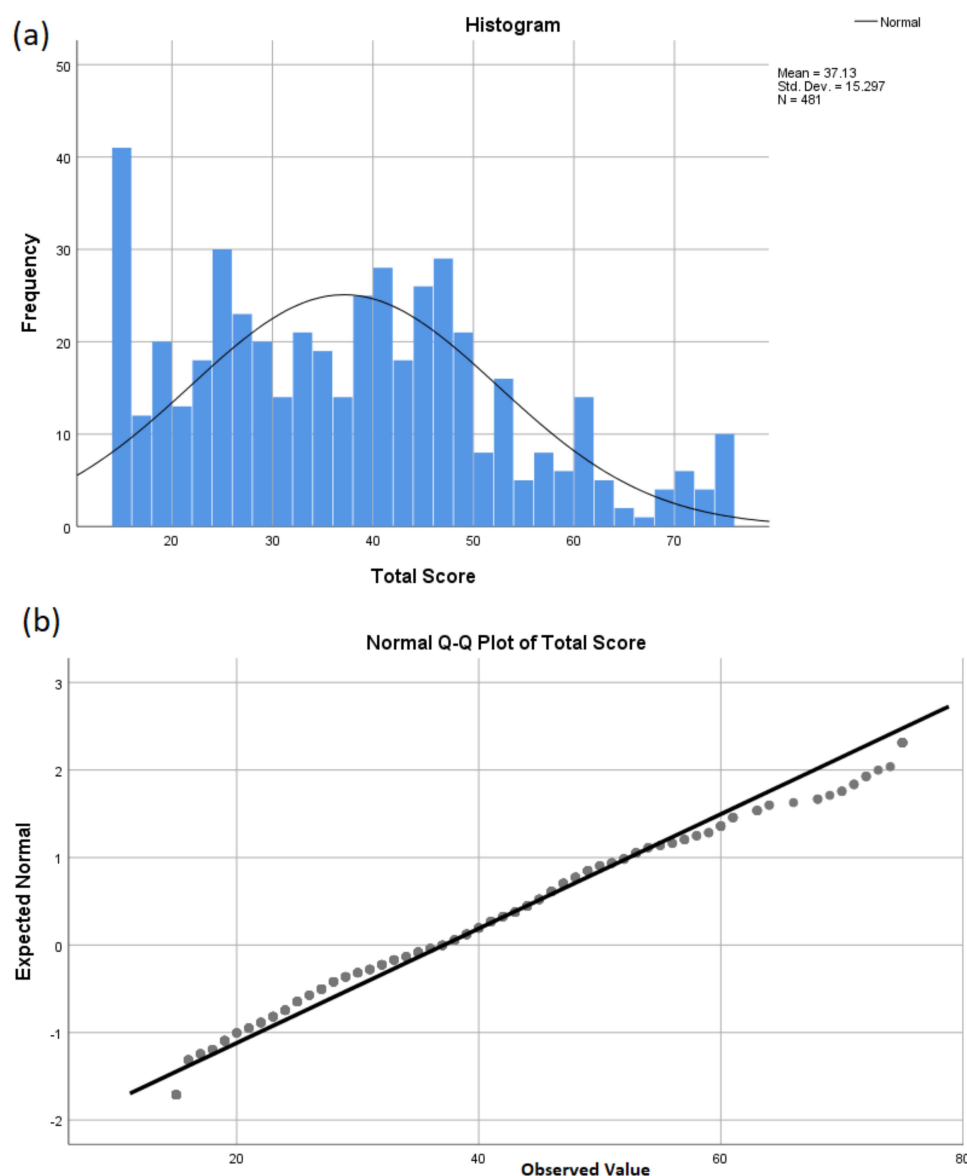


Figure 2 Distribution of scores (a). Depicted as a histogram (b). Normal Q-Q plot of the total score as against stigma questionnaire.

participants lived with their families. Hence, it can be inferred that the survivors had someone to care for and support them during their hospitalization. The four domains in which the study was divided indicated the highest mean value of Enacted Stigma in females (8.83). The Enacted stigma was higher in survivors with master’s degrees (8.29) and in the age group 38–47 years (8.26). The survivors in the public sector scored more (8.53) than their unemployed counterparts.

The analyses revealed that almost all COVID-19 survivors faced at least one stigma-endorsing response (Table 3). The mean stigma sub-scores were highest for Enacted stigma (mean value of 2.64) with a median of 3 (on a scale of 1 to 5, where 1=Strongly Disagree and 5= Strongly Agree), followed closely by Externalized stigma with a mean score of 2.61 with a median of 3. The disclosure concerns fared much lower at a mean score of 2.32 with a median of 2, while Internalized stigma showed a mean score of 2.08 with a median of 1. Social status and the attitudes of close relatives and friends towards the infection were the causes of great concern to the victims. This could lead to isolation and loneliness in patients who have recovered from COVID-19. The total mean stigma score (Overall score combining all domains) was 37.12, with a standard deviation 15.2 and a median score of 37. The overall distribution of the total scores per domain item is shown in Figure 1.

The survivors experienced a high sub-score(s) in the Internalized stigma, eg, “having had COVID-19 disease makes me feel that I am a terrible person” scored 4.0, closely followed by COVID-19 infection made the survivor think that they were not a good person when compared to those who had never contracted the infection, scored 3.98. Another sub-score, almost equivalent to the previous one, was the belief that the survivors had lost friends due to their COVID-19 infection, scoring 3.94. The sub-section indicating that people were fearful of the person who had contracted COVID-19 infection scored the lowest with a mean score of 2.65. These results indicated significant fear and apprehension from others about contracting COVID-19 infection from the survivors.

The obtained data were analyzed for internal reliability. Cronbach’s Alpha (0.932, N=15) was calculated for reliability statistics and to check the internal consistency and reliability of the data. The mean stigma statistic for all the items under study was 2.477 (1.99–3.34), with an average standard deviation of 1.42. One sample *t*-test was conducted for each domain, comparing the minimum possible score against every domain, indicating conservatively no stigma (Table 4).

Table 5 represents the responses obtained per item and their respective frequencies and percentages. The Enacted stigma had a mean of 2.64, higher than all the domains, indicating much negative self-perception among COVID-19 survivors. The level of emotional distress and aversion to telling people about the COVID-19 infection, the feeling of being bad because the infection happened, took a prominent position in the responses of the COVID-19 survivors. The median was 3, with quartiles Q1 and Q3 at 1 and 4, respectively. This indicates that the responses were primarily concentrated in the middle of the scale. The Disclosure Concerns domain indicated a mean score of 2.32, with a median of 2, indicating no fear of an infected person being around. The third quartile (Q3) was lower than the previous domain’s (2.32 vs 2.64). Internalized stigma domain performed even lower than Disclosure concerns, indicating that participating survivors were sure that contracting the disease is not very distressful and their rejection will not be significant in society. A lower score for Internalized stigma (Mean: 2.08) indicated that, as humans, we do not accept the negative aspects of a situation internally, which may be far from reality. On the contrary, when we look into the Externalized stigma, which reflects the Internalized stigma, from the external perspective, it scores higher. It reached almost equal to the Enacted stigma domain. The mean for Externalized stigma was 2.61, with a median of 3, and the quartiles (Q1 to Q3) ranged from 1 to 4.

Table 4 One-Sample *t*-Test for Each Domain

Domain	Overall Mean	t	df	p-value
Enacted Stigma	7.92	31.39	480	<0.001
Disclosure Concerns	4.65	21.96	480	<0.001
Internalized Stigma	6.24	19.14	480	<0.001
Externalized Stigma	18.30	30.57	480	<0.001
Total Stigma	37.13	31.72	480	<0.001

Table 5 Descriptive Analysis of the Domain and Corresponding Responses

Items / Questions	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	N	%	N	%	N	%	N	%	N	%
1. People have hurt me by their reaction on learning about my COVID-19 positivity.	139	28.9%	71	14.8%	115	23.9%	65	13.5%	91	18.9%
2. I am very careful in telling people that I have had COVID-19 disease.	195	40.5%	89	18.5%	90	18.7%	44	9.1%	63	13.1%
3. Having had COVID-19 disease makes me feel that I am a bad person.	257	53.4%	87	18.1%	62	12.9%	36	7.5%	39	8.1%
Total Enacted Stigma: Domain Mean: 2.64, SD: 1.52, Median: 3, 25th Percentile: 1, 75th Percentile: 4										
4. Most people are afraid of a person who has had COVID-19 disease.	99	20.6%	51	10.6%	79	16.4%	88	18.3%	164	34.1%
5. People known to me would be uncomfortable around COVID-19 disease survivor.	164	34.1%	64	13.3%	108	22.5%	87	18.1%	58	12.1%
Total Disclosure Concerns: Domain Mean: 2.32, SD: 1.41, Median: 2, 25th Percentile: 1, 75th Percentile: 3										
6. People's reaction to me being a COVID-19 survivor forced me to restrict my socializing.	120	24.9%	56	11.6%	85	17.7%	94	19.5%	126	26.2%
7. I worry about people telling others that I have had COVID-19 disease.	208	43.2%	84	17.5%	87	18.1%	44	9.1%	58	12.1%
8. Having had COVID-19 disease makes me feel guilty.	226	47.0%	68	14.1%	84	17.5%	54	11.2%	49	10.2%
Total Internalized Stigma: Domain Mean: 2.08, SD: 1.33, Median: 1, 25th Percentile: 1, 75th Percentile: 3										
9. Most people who have had COVID-19 disease face rejection by others.	152	31.6%	68	14.1%	116	24.1%	66	13.7%	79	16.4%
10. People known to me would reject COVID-19 disease survivors.	176	36.6%	72	15.0%	101	21.0%	73	15.2%	59	12.3%
11. I lost friend(s) because I had COVID-19 disease.	258	53.6%	71	14.8%	67	13.9%	38	7.9%	47	9.8%
12. Having had COVID-19 disease made me feel that I am not as good a person as others.	246	51.1%	93	19.3%	72	15.0%	27	5.6%	43	8.9%
13. Most people think that a person who has had COVID-19 disease is disgusting.	201	41.8%	104	21.6%	88	18.3%	39	8.1%	49	10.2%
14. People known to me would treat COVID-19 disease survivor as an outcast.	225	46.8%	63	13.1%	89	18.5%	49	10.2%	55	11.4%
15. People known to me would not want COVID-19 disease survivors around their children.	178	37.0%	65	13.5%	84	17.5%	59	12.3%	95	19.8%
Total Externalized Stigma: Domain Mean: 2.61, SD: 1.48, Median: 3, 25th Percentile: 1, 75th Percentile: 4										
Overall Stigma score: 37.12, SD: 15.2, Median: 37, 25th Percentile: 25, 75th Percentile: 47, Minimum: 15, Maximum: 75,										

The responses from all the domains were further segregated into high-moderate-low perspectives. Table 5 represents the details of the analysis for each domain. The responses were segregated into low and high values, making them dichotomous. The responses reaching a median value of 3 or above were considered high scores, while responses lower than 2.9 were combined as low scores and grouped accordingly. This was further used to perform the Chi-Square test to verify whether the variables under study correlated. Table 6 shows the Chi-square values and the corresponding significant values against the tested variables. The p-value obtained <0.001 was much lower than the critical value of <0.05, indicating that the null hypothesis is rejected and a significant statistical correlation exists between the variables tested. Perceived External Stigma and Enacted Stigma were more significant among participants. They most likely had a negative impact on the mental and emotional health of the survivor to a substantial extent.

Thematic analysis of the open-ended responses generated three overarching themes (Table 7): Self-coping strategies, Contextual challenges during COVID-19, Preferences for self-coping, and support strategies to promote health and social re-integration. The first overarching theme, *Self-coping strategies*, captures various beneficial strategies to overcome social stigma, discrimination, and social exclusion and their sequels. Additionally, some participants acknowledged following the COVID-19 protocols only partially or not when infected to avoid being stigmatized and discriminated against. Spiritual practices, faith in Allah (the God), and mindfulness were described as practices related to releasing

Table 6 Predictors of COVID-19 Perceived Stigma

	Moderate/High		Low		Chi-Square	Significance	Likelihood Ratio	
	N	(%)	N	(%)	X2	p-value	Value	p-value
Gender								
Male	93	19.3%	65	13.5%	21.731	<0.001	21.704	<0.001
Female	118	24.5%	206	42.7%				
Nationality								
Non-Saudi	19	3.9%	8	1.7%	8.219	0.004	8.251	0.004
Saudi	192	39.8%	263	54.6%				
Marital Status								
Single	129	26.8%	171	35.5%	0.318	0.853	0.316	0.854
Married	69	14.3%	86	17.8%				
Divorced	13	2.7%	14	2.9%				
Age Group								
Young	142	29.5%	196	40.7%	1.431	0.232	1.426	0.232
Mature	69	14.3%	75	15.6%				
Residence Status								
Rural	83	17.2%	86	17.8%	3.011	0.083	3.003	0.083
Urban	128	26.6%	185	38.4%				
Educational Levels								
High	154	32.0%	180	37.3%	2.403	0.121	2.419	0.12
Low	57	11.8%	91	18.9%				
Occupation								
Employed	116	24.1%	104	21.6%	13.71	0.001	14.113	0.001
Unemployed	95	19.7%	166	34.4%				
Living Status								
Alone	35	7.3%	42	8.7%	0.105	0.746	0.105	0.746
With Family	176	36.5%	229	47.5%				
Relatives / Family suffering from Covid-19								
Yes	172	35.7%	234	48.5%	3.06	0.217	3.416	0.181
No	38	7.9%	37	7.7%				
Income Level								
Low	123	25.5%	190	39.4%	8.215	0.016	8.566	0.014
High	87	18.0%	81	16.8%				

Table 7 Thematic Analysis of Open-Ended Questions and Free-Text Comments

Participants Quotes	Interpretative Theme	Overarching Themes
Self-coping strategies	Faith and spiritual practice	Prayers, optimism, and faith in God help me overcome all COVID-19 matters and consequences.
		Even if my people let me down, God will not let me down and leave me alone for sure.
	Negative and realistic expectations	I had COVID-19, a source of harmful and fatal infections; I expected to be abandoned.
		I have to be realistic and realize the negative attitude towards me; I always remind myself about the negative consequences of COVID-19.
	Withdraw behaviours	I keep myself alone and isolated. I did not go to any events or be social with others.
		Being alone is better than seeing people run away from you.
	Ignoring	Ignore people and negative attitudes to avoid negative feelings.
		Ignore all media and news, turn off social media app notifications, and avoid negotiations.
	Hide the COVID-19 diagnosis and act normally.	I did not tell anybody about my positive results, tried to treat my symptoms at home, and went to work usually. Then, all had COVID-19 at work, so I would not be isolated or discriminated against.
		I hid my COVID-19 diagnosis from my family and friends without informing them about where I travel or what disease I have.
	Mindfulness	Reading inner strength and practicing mindfulness and breathing exercises helped overcome COVID-19.
		Yoga and meditation are excellent practices for clearing my mind, releasing my tension and negative feelings, and tolerating the negative attitudes of others.
Contextual Challenges during COVID-19	Media Factors	The negative social and traditional media information can lead to negative perceptions of ourselves.
		Exposure to COVID-19 has shaped mental and social attitudes.
		Media misinformation and false allegations lead to stigma.
	Policy conflicts	I think the uncertainty and self-stigma are attributed to confusing policies and information.
		The health COVID-19 policies implemented and forced to follow are associated with crime and significant financial fines.
		I lost trust in HCPs and felt insecure due to contradictory information.
	In direct stigmatization by HCPs	HCPs closed my flat and stigmatized us, isolating us for two weeks.
		When I was in the hospital, HCPs avoided talking or coming close to me. I felt that I was rejected and discriminated against even by HCPs
		The inappropriate attitude of MOH staff, such as sealing my apartment while we were inside and preventing us from going outside, caused neighbors to abandon us, leading to fear.
	Lack of formal education and healthcare support	HCPs were confused and overwhelmed by COVID-19 and focused on warning the infected more than supporting the infected.
		Health agencies should have listened to our needs.

(Continued)

Table 7 (Continued).

Participants Quotes	Interpretative Theme	Overarching Themes
Preferences for self-coping and support strategies to promote health and social re-integration	Self-care	I prefer to maintain my daily routine and, following a healthy lifestyle, perform exercise, especially in the initial days of reintegration.
		I like to keep my own space and have a spiritual practice. Having a particular time praying and performing my religious customs was very beneficial.
		Yoga and meditation were beneficial in releasing all tensions and negative feelings.
	Harm reduction	Avoiding self-isolation and hiding my medical information and COVID-19 test results helped prevent stigmatization.
		I was keen to increase adherence to health instructions and guidelines to protect family members and loved ones.
		I advise anyone to follow the health guidelines and personal protective equipment for the COVID-19 response and reduce its complications.
		Control thoughts and emotions to manage negative feelings and emotions.
		Reducing social activity and avoiding adverse reactions were helpful.
		There is no point in having aggressive responses or trying to defend yourself or explain your case. Ignore all and have your own space.
	Resilience	I am still young and was confident that my body's immune system could fight COVID-19.
		Confidence in God's help to overcome COVID-19
		I was confident in my ability to cope with COVID-19.
		I should be mindful of people's fears and reactions to COVID-19, even if they make uncertain conclusions.
	Peer support	Having a group discussion with other COVID-19 patients is beneficial
		The peer support group provides a safe space to express concerns.
	Social interventions	The community should be more open and allow infected people to express their feelings.
		Media contaminates people's minds with fear, doubts, and false information. The community should accept and respect all infected people and support them in reintegrating.
		Working society should support infected workers to find emotional healing.
		Please use community institutions to establish peer support groups for infected people and their family members.
	Organizational interventions	Plans and interventions for dealing with this stigma should be a part of national preventive strategies for this pandemic.
		Controlling the media is essential. Social media analysts can help identify potential stigma hotspots.
		MOH public messaging directly combats the stigmatization of individuals or groups and aids in addressing the stigma associated with the disease
		National psychological crisis intervention and health education should be established to help people reintegrate into society and reduce social stigma.
		Online stigma programs can reduce stigma and help people understand the negative impact of stigma.

negative feelings and tolerating the negative attitudes of others. The second overarching theme, *Contextual Challenges during COVID-19*, provides insight into various factors that picture the contextual challenges that participants face and negatively influence their experiences concerning social stigma, coping strategies, and social reintegration. In addition, it

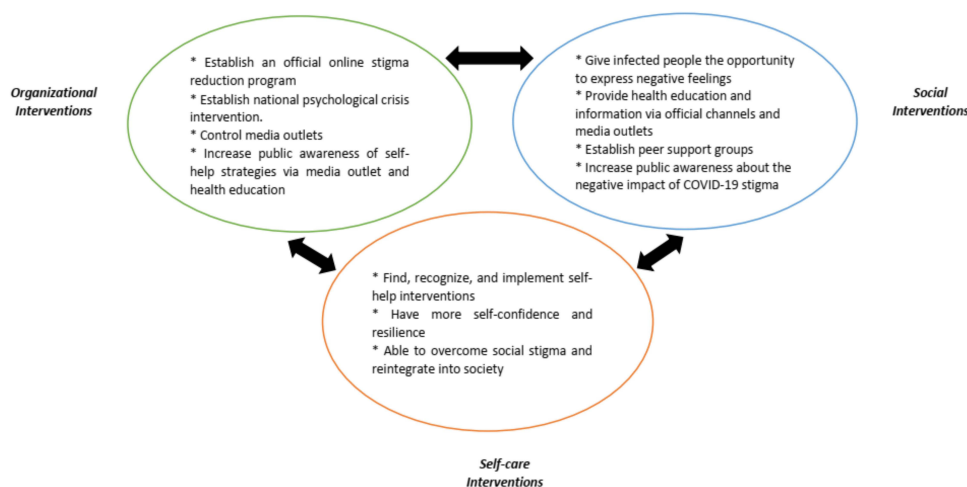


Figure 3 Preferences stigma interventions for recovery and integrations following the COVID-19 surge.

explores the negative impact of media factors and policy conflicts on the participants' experiences about COVID-19 and how they attach meaning to COVID-19. It also explained how the indirect stigmatization by HCPs and the lack of formal education and healthcare support shape participants' and community members' experiences and perceptions in conjunction with how meaning is attached to concepts and attitudes towards them, such as COVID-19 and its protocol and behaviors against it.

The Third overarching theme, Preferences for self-coping and support strategies to promote health and social reintegration, provides evidence from participants on what coping and supporting strategies are essential and how important these strategies are to overcome the barriers of reintegration in society and promote health and psychological well-being. Within the need for future organizational and social interventions, participants highlighted their preferences in initiating future organizational and social interventions that would eliminate discrimination and stigmatization and help enhance the awareness and well-being of infected patients, survivors, and community members. For example, they suggest initiating an official online stigma production program, national psychological crisis intervention, and controlling media outlets at the organizational level. They also suggest establishing peer support groups to help infected people and survivors share their experiences via official media outlets and the COVID-19 stigma campaign. Giving access to psychotherapy, meditation, workout plans, and online applications can help them find emotional healing and cope with their experiences. Thus, they can optimally reintegrate into society when the community members understand and support them. (Figure 3)

Discussion

Although the COVID-19 pandemic's formal global public emergency is over, its lingering detrimental consequences on people's physical, mental, and social well-being will probably persist for many years.^{14,15} By the middle of the pandemic's fourth year, the new COVID-19 subtypes were still rising.²³ WHO's Technical Advisory Group on SARS-CoV-2 Virus Evolution is still discussing the newest evidence and doing a regular risk assessment of both variants of concern (VOCs) and variants of interest (VOIs),²³ in addition to variant under monitoring (VUM).²⁴ A mixed picture is still presented by COVID-19 activity, with the stabilization of intensive care unit admissions and emergency department visits but an increase in outbreaks, primary care positivity, laboratory surveillance test positivity rates, and hospital admissions in the UK.²⁵

Considering the lethal nature of the disease, especially during the active phase, its heavy influence on patients' physical and mental health, and its societal relevance. This study assesses the prevalence and explores the experiences of social stigma and their preferences for support among COVID-19 survivors. The results obtained from this analysis revealed that almost all the recruited survivors accepted that they experienced at least one stigma. Stigmatizing any

disease can harm disease prevention, diagnosis, and treatment efforts.²⁶ Several research studies and various organization reports have stated that COVID-19 stigma decreased people's willingness to seek treatment or have tests done and their adherence to therapies, which resulted in underreporting of the disease.⁵ Although more than three and half years have passed since the first reported case of SARS-CoV-2, still the disease, COVID-19, is linked with uncertainty and more concerning SARS-CoV-2 variants/OMICRON sub-variants continue to spread widely among people around the world.^{23,24,27} Even a few countries are still experiencing frequent lockdowns, especially over the winter of 2023, such as China,^{28,29} North Korea,³⁰ India.³¹ Gatwick, the second-largest airport in Britain, temporarily suspended daily flights on Sep 2023 due to a staffing deficit in air traffic control due to COVID-19 illness and outbreak.³² Thus, this continuous disease spread partially relates to the stigma associated with uncertainty, fear of the unknown, and difficulty expressing one's anxieties to others.³³

The key findings of this study were the prevalence of high levels of Perceived External Stigma and Enacted Stigma among COVID-19 survivors. These current findings support the findings of Dar et al¹² wherein they reported mean stigma sub-scores highest for Perceived External Stigma (15.0), followed closely by Enacted Stigma with a mean score of (7.6) among Indian COVID-19 survivors. A high level of stigma experienced by COVID-19 survivors may be attributed to the attitudes prevalent in the general population,^{34,35} and we have noticed the same during our study. A national population-based survey study reported that discriminatory tendencies and stigma toward COVID-19 survivors were comparatively high among the general population in Ghana.³⁵ In this study, disclosure concerns performed lower, with a mean score of 3.022, whereas Internalized Stigma had a mean score of 3.4. Stigma brings disgrace and embarrassment,³⁶ which separates COVID-19 survivors from others and significantly increases their suffering. Consistent with previous literature,^{14,37} this study found that the sufferers often opted to conceal their symptoms, travel histories, or medical histories to avoid prejudice, which might increase the risk of contracting COVID-19. This study also broadly supports that the main reasons for non-disclosure were fear, stigmatization, a lack of public knowledge, and a proper understanding of the disease.^{38–40} Concealment of COVID-19 symptoms and postponement of seeking healthcare intervention posed further challenges to the public health authorities in their struggle to control the pandemic. It instigated the decision of frontline healthcare professionals to leave their positions against the fear of contracting the infection and passing it on to their families⁴¹ and facing the associated stigma with it.⁴² They were vulnerable because of their traumatic experiences of COVID-19, the terrifying circumstances, and the possibility of dying from the disease.⁴³

The present study concluded that Perceived External Stigma and Enacted Stigma substantially impacted the survivors and influenced their mental and emotional health. Among COVID-19 survivors, their social environment and the attitude of loved ones towards the infection were a cause of considerable concern, leading to their isolation and loneliness. These results concur with previous semi-structured interviews that reported that COVID-19 survivors experienced isolation and labeling in Malaysia.³⁹ The findings also support the previous study that reported COVID-19 survivors (primarily symptomatic patients) experienced high levels of post-traumatic stress and mild depression and anxiety in Pakistan.⁴⁴

The current study found that survivors recorded high sub-scores in the Internalized Stigma category, which indicated unsurmountable fear and apprehension surrounding survivors related to contracting and suffering from the infection. This fear may be explained by several factors, including uncertainty about the disease, terrifying illness experiences, losing loved ones, and severe family challenges after loved ones die. Yoosefi Lebni et al¹⁶ reported that the families of COVID-19 victims encountered various difficulties, such as alienation, limited access to medical care, and disruption in family life. Even after the patient's death, their challenges continued, including the brevity of the funeral service, the lack of mourners, the incomprehensibility of the death, the sense of guilt, and desertion, all of which made matters worse.¹⁶ This study also found that the total stigma was higher in male participants (41.84%) than in females (34.82%). This finding rebutted the previous study^{10,11} that examined the gender disparities in reaction to the COVID-19 pandemic and showed that women in China and Spain experienced more psychological distress than men during the pandemic. This might relate to the difference in this study setting and the Arab culture and background of the participants.

Findings from this study confirmed the previous systematic review⁴⁵ but also went beyond that to provide a comprehensive picture of challenges experienced by participants during COVID-19. Participants expressed how social media had shaped negative mental pictures and social attitudes against them and how the COVID-19 news outbreak, misconceptions, rumors, and misinformation impede response efforts by fostering stigma and discrimination. They also

explained how some policy conflicts and contradictory information about COVID-19 caused a lack of trust in HCPs, confusion, insecurity, and self-stigma that overwhelmed them physically, mentally, and financially. For example, forcing COVID-19 policies and protocols to follow and associated with crime and significant financial fines. This study also highlighted some HCPs' behaviors attributed to indirect stigmatization, such as avoidance, ignoring, and sealing patients' apartments in the context of a lack of psychological health support. All these factors shaped participants' and community members' experiences and perceptions in conjunction with how meaning is attached to concepts and attitudes towards them, such as COVID-19 and its protocol and behaviors against it.

This study also found that Internalized Stigma was one of the most profound ramifications of COVID-19, and survivor respondents indicated a significant impact of pandemic-linked stigma. The guilt of being COVID-positive profoundly impacts the person's overall personality. However, our findings contradicted the previous study that reported low levels of Internalized Stigma among COVID-19 survivors, which suggested higher levels of survivor confidence and self-worth.¹² The results showed that Enacted and Internalized Stigma were associated with the participants' educational levels. Enacted Stigma was comparatively higher in respondents with a higher education level. Higher education is generally linked with more excellent work opportunities, chances of employment, and public engagement, increasing the chances of encountering Enacted Stigma.¹² These factors might explain a higher prevalence of Enacted Stigma among well-educated survivors. Looking into the survivors who were employed in any organization scored high on the stigma domain.

In accordance with the present results, previous studies^{40,46–48} have demonstrated that self-care strategies, including a healthy lifestyle and performing meditation, yoga exercises, and practicing beliefs, were beneficial in coping with social stigma and its sequels. They also discussed various strategies for self-harm reduction, including self-isolation, hiding positive results, controlling thoughts and emotions, and strictly adhering to COVID-19 guidelines and instructions to protect their families and loved ones. The participants in this study also believed that spiritual practice, faith and trust in Allah (the God), self-confidence, and peer support were vital strategies to enhance self-resilience and provide a safe space to express and share concerns. It is significant to identify how to eliminate the stigma associated with health-related concerns such as COVID-19.⁴⁹

This study also added a novel perspective to international literature by exploring the participants' preferences for support to combat social stigma and promote health and social reintegration in developing countries where stigma program reduction and psychological healthcare and support are poorly developed. The participants preferred to receive support and suggested interventions at three interconnected levels: organizational, social, and personal (Figure 3). At the organizational level, they suggest establishing an official online stigma reduction program and national psychological crisis interventions in addition to controlling national media outlets to reduce the spread of misinformation and increase public awareness. These strategies are needed to help local society understand the negative impact of COVID-19 stigma and discrimination and equip institutions to help employees and students. At the social level, they suggest various strategies, including allowing the sufferers to express negative feelings, issues, and needs via official media outlets and the COVID-19 Stigma campaign. They also suggested establishing peer support groups and supporting them in finding emotional healing via therapy, mindfulness, or exercise. Thus, the sufferers at the personal level could find, recognize, and implement self-help interventions, have more self-confidence and resilience to overcome social stigma and its sequels, and reintegrate into society.

Many questions remain about the future of the pandemic. The number of reported COVID-19 cases globally may be significantly underestimated, as at-home testing has become more prevalent, and many infections have yet to be reported.^{50,51} Furthermore, COVID-19 cases have started to rise again in 2023. For example, there were almost 3 million new cases and 23,000 deaths in March, while there were almost 2.8 million new cases and 17,000 deaths in April globally.^{52,53} Indeed, almost every nation confirmed the coronavirus outbreak (COVID-19) in May 2023 and increased deaths, especially in Africa, the Americas, Southeast Asia, and the Western Pacific Region.^{54,55} The virus has infected over 766 million people worldwide, with nearly 6.9 million deaths, and the US, India, and Brazil are most severely affected.^{54,55} Such increasing cases again remind us to be aware of the situation in advance and develop psychological coping strategies and healthcare preparedness. This study is still relevant as the findings offer a solid basis for recommending targeted coping/ societal re-integration strategies, including customized social media-based friends'

groups/ systematic learning programs/ online educational forums/ health and mental well-being awareness programs /social media-based audio/video channels/ contents. That can help minimize the pandemic-linked stigma and contribute to developing a knowledge-based society capable of addressing crises.

The effects of COVID-19 stigma will be unexpectedly very long-lasting due to its continuity in terms of the arrival of its variants/ sub-variants, making it difficult for survivors who have recovered from COVID-19 to reintegrate into society and regain self-confidence and trust in others. To the best of our information, this is the very first study reporting the COVID-19-linked stigma from the active phase of the pandemic among COVID-19 survivors and exploring their coping strategies, challenges, and support preferences in reintegration into Saudi society. The relevance of this study has become more significant regarding the central role of traditional Saudi society's tribal culture and practicing religious beliefs and the prevalence of stigma among disease survivors.

Limitations

The present study employed a cross-sectional research design and provided a snapshot of the existing COVID-19 situation. Therefore, we cannot derive a long-term effect from employing the variables under the current situation. The levels of stigma also slowly diluted, and the acceptance of COVID-19 survivors returned to normal. The current findings only apply to COVID-19 survivors residing in Saudi Arabia as non-Saudi participants only 19 (3.9%); thus, it cannot be generalized to all other Arab countries. Purposive sampling might be used to recruit the subjects best suited for the current study and should not be used to estimate generalizability. During the survey, most participants belonged to urban areas, and survivors from rural areas might have varied experiences. The mean time for the discharge from the hospital for the subjects under study was 13.7 days when stigmatization was greatest and may over-represent the stigma.

Recommendations

Well-designed large-scale prospective research is required to gain a deeper understanding of how stigma can change over time. Comprehensive, in-depth knowledge to understand the factors affecting stigma among COVID-19 survivors can be well elicited through qualitative studies. Although Saudi people are content to accept that COVID-19 is Allah's will, they are struggling to reintegrate into society. Future stigma awareness programs targeting the consequences of stigmatizing infectious diseases are warranted to address such crises.

Conclusions

High levels of Perceived External Stigma and Enacted Stigma existed among Saudi COVID-19 survivors. Enacted Stigma and Internalized Stigma were both associated with the educational levels of the disease survivors. There is a dire need to develop targeted approaches for preventing and minimizing stigmatization during and after pandemic outbreaks to provide evidence to assist the preparedness for future outbreaks and pandemics of infectious disease. The high score for Enacted Stigma and Externalized Stigma indicated the need for consultation and counseling for the COVID-19 survivors in close collaboration with the medical /emergency services in hospitals and during the post-recovery visits. The study also warrants community services and public awareness to help COVID-19 survivors cope with the stigma, destigmatize it, and assist in quick recovery. It also suggested three levels of support: organizational, social, and personal. Establishing an online stigma reduction program and national psychological crisis interventions at the organizational level. It is crucial to assist coping mechanisms and societal reintegration techniques at the social level, such as specialized social media peer support groups, systematic learning programs, online discussion forums, health and mental health awareness campaigns, and social media-based audio and video channels. These would allow sufferers to express negative feelings, find self-emotional healing, implement self-help interventions, overcome social stigma and its sequels, and optimally reintegrate into society. This study provides valuable insights for holistic health policy formation and preparedness strategies for future pandemics, helping survivors promote health and reintegrate into society, where stigma reduction and psychological crisis interventions are underdeveloped.

Data Sharing Statement

The author makes the data supporting this study's findings available upon any reasonable request from the corresponding author.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis, and interpretation, or all these areas; took part in drafting, revising, or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Disclosure

The authors declare no competing interests in this work.

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