


Experienced discrimination and internalized stigma among people infected with SARS-CoV-2 and surviving COVID-19: Association with anxiety, depression, and insomnia symptoms

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Abstract

People surviving COVID-19 may experience social stigma related to their condition even after clinical recovery. This study aimed to: (1) investigate COVID-19-related experienced discrimination and internalized stigma, and (2) explore their association with symptoms of anxiety, depression, and insomnia. We conducted an online survey of people who survived COVID-19. Perception of stigma was assessed using the COVID-19 Experienced Discrimination Scale and the COVID-19 Internalized Stigma Scale. Depression, anxiety, and insomnia were assessed using, respectively, the Patient Health Questionnaire-9, the General Anxiety Disorder Scale-7, and the Insomnia Severity Index. Multivariable logistic regression analyses for each psychopathological domain were performed. A total of 579 participants participated in this study. Overall, 25% reported some degree of experienced discrimination, and 23% reported some degree of internalized stigma. Adjusted odds ratio showed that scoring higher on internalized stigma related significantly to higher symptoms of depression (2.14; 95% confidence

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interval [CI], 1.35–3.39), anxiety (2.30; 95% CI, 1.48–3.59), and insomnia (2.54; 95% CI, 1.64–3.95), whereas experienced discrimination was associated to anxiety (1.55; 95% CI, 1.06–2.28) and insomnia (1.82; 95% CI, 1.24–2.69). Experiences of social stigmatization are frequent among people surviving COVID-19 and seem to be associated with levels of psychological disturbances. Further research is required to elucidate the direction of these relationships to implement effective treatment strategies.

KEYWORDS

anxiety, COVID-19, depression, discrimination, insomnia, internalized stigma

1 | INTRODUCTION

Research conducted during previous epidemics, such as severe acute respiratory syndrome, Middle East respiratory syndrome, or Ebola, has revealed that individuals who contracted these infections often faced social stigma. They were subjected to differential treatment, labeling, stereotyping, and discrimination due to their perceived connection to the disease (Lasalvia, 2020). This negative treatment significantly affected not only their mental well-being but also that of their caregivers, family members, and friends (Baldassarre et al., 2020). Social stigma associated with infectious diseases is accompanied by the fear of rejection and exclusion, leading to feelings of shame, self-evaluation, demoralization, and anxiety (Van Bortel et al., 2016; Clucas et al., 2011; Overholt et al., 2018).

Overall, social stigma can manifest in the two main forms of enacted and internalized stigma (Pescosolido & Martin, 2015). Enacted stigma encompasses overt acts of discrimination and humiliation directed at stigmatized individuals, highlighting the interpersonal dimensions of stigma. This concept aligns with the notion of “experienced discrimination,” which encompasses the process of facing rejection and unfair treatment because of one’s stigmatized status (Thorncroft et al., 2007). The experience of discrimination is deeply rooted in the interplay between stigmatized individuals and the surrounding social environment. For instance, individuals with mental disorders may encounter discrimination across various settings, such as employment, education, healthcare, housing, and interpersonal relationships (Lasalvia et al., 2013; Thorncroft et al., 2009). Stigmatized individuals may face obstacles and disadvantages that impede their full participation and equal opportunities in these domains. The consequences of experienced discrimination are far-reaching and can significantly impact an individual’s psychological well-being, social integration, and overall quality of life (Chan & Fung, 2019). Persistent exposure to discrimination can lead to feelings of anger, frustration, and a sense of injustice, contributing to heightened stress levels and psychological distress across several stigmatized groups (Chan & Fung, 2021; Chan & Tsui, 2023).

In contrast, internalized stigma, also known as self-stigma, characterizes the process of an individual internalizing society’s negative evaluations and stereotypes, and integrating them into their personal values and self-concept (Link & Phelan, 2001). Internalized stigma can have profound implications for individuals’ mental health, well-being, and social functioning. For example, when individuals with mental disorders internalize societal prejudices, they may start to believe that they are inferior, flawed, or unworthy due to their stigmatized identity (Corrigan & Watson, 2002). Negative self-perception can lead to feelings of shame, guilt, and self-blame. It can also

foster a sense of isolation and detachment from others, as individuals may fear rejection or anticipate negative judgments based on their stigmatizing status (Corrigan et al., 2019).

The COVID-19 pandemic has highlighted the possibility of experienced discrimination and internalized stigma among individuals who have been infected with the virus. Indeed, several incidents of stigmatization among COVID-19 patients and survivors have emerged during the pandemic (Bagchi, 2020), and the social virus of stigma, at least in the early phases of the pandemic, spread more rapidly than the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection itself (van Daalen et al., 2021). Survivors of COVID-19 have reported experiences of avoidance, insults, rejection, and ostracization in various aspects of life, including social activities and family relationships, even after recovery (Brooks et al., 2020; Dar et al., 2020; Huang et al., 2022). The unique circumstances surrounding COVID-19, characterized by its rapid transmission, uncertainties, and fear, have contributed to the emergence of discriminatory attitudes and stigmatizing behaviors directed toward infected individuals (Dar et al., 2020).

Experienced discrimination in the context of COVID-19 pandemic pertains to overt acts of prejudice and unfair treatment that individuals infected with the virus may encounter in their everyday life due to their stigmatized status as COVID-19 patients (Ransing et al., 2020). Such forms of discrimination can manifest in diverse ways, including social rejection, exclusion, verbal abuse, and even physical assault (Sacco et al., 2022). The fear and misinformation surrounding the virus have amplified discriminatory conduct, leading to scapegoating and attributing blame to infected individuals for the spread of the disease (van Daalen et al., 2021). Experiencing discrimination can hinder the full social integration of COVID-19 patients, leading to their exclusion from social or interpersonal activities and further worsening their quality of life. This can have detrimental consequences on their psychological well-being in terms of anxiety, depression, and posttraumatic symptoms (Campo-Arias et al., 2022; Chen et al., 2022; Fan et al., 2021; Liu et al., 2020). This, in turn, can induce feelings of isolation, shame, and guilt, exacerbating distress and impeding their ability to seek appropriate medical care or disclose their infection status to others (Mokhtari & Golitaleb, 2021).

Internalized stigma associated with COVID-19 refers to "the awareness of devaluation or a stereotype of oneself because of a linkage with the disease" (Ransing et al., 2020). Internalized stigma has been less explored among patients infected with or surviving COVID-19. Infected individuals may internalize societal perceptions that being infected makes them unclean, dangerous, or culpable during the outbreak (Bruns et al., 2020). Internalization can result in self-blame, shame, and diminished self-esteem (Bruns et al., 2020; Turner-Musa et al., 2020). The presence of internalized stigma among COVID-19 patients can result in significant psychological consequences. They may experience heightened levels of anxiety, depression, and emotional distress (Huang et al., 2022; Mahmoudi et al., 2021). Negative self-perceptions stemming from internalized stigma can impede effective coping with the challenges posed by the illness and recovery process. This may manifest as social withdrawal, reluctance to seek support, and hesitancy to disclose their infection status due to fear of judgment or rejection (Adjaottor et al., 2022).

The literature on the relationship between symptoms of psychological disturbances and stigma among individuals recovering from COVID-19 is somewhat limited. Mahmoudi et al. (2021) demonstrated, among COVID-19 survivors in Iran, a significant correlation between internalized stigma scores and symptoms of insomnia and posttraumatic stress. Campo-Arias et al. (2022), in their study among COVID-19 survivors in Colombia, observed that after adjusting for age, gender, and income, depression, insomnia, and posttraumatic stress were significantly linked to perceived discrimination related to COVID-19. Similarly, Huang et al. (2022), in a cross-sectional survey conducted in Shanghai, found that COVID-19 survivors experiencing higher levels of anxiety and loneliness were more likely to report experiencing stigma. They also found that those who perceived more stigma tended to have more severe depressive symptoms. Finally, a cross-sectional survey conducted in the Democratic Republic of Congo, Haiti, Rwanda, and Togo found that COVID-19-related stigmatization was associated with levels of depressive symptoms, accounting for various socio-demographic and illness-related variables (Cénat et al., 2021). However, it is noteworthy that these studies either utilized COVID-19-related stigma measures that were not

psychometrically validated (Campo-Arias et al., 2022; Mahmoudi et al., 2021) or employed measures that did not distinguish among the various components of stigma (Cénat et al., 2021; Huang et al., 2022). Therefore, the association of COVID-19-related stigma, considering both its components of perceived discrimination and internalized stigma, with symptoms of psychological disturbances in individuals with COVID-19 has not been adequately addressed thus far. As briefly discussed above, the two components are conceptually different, may recognize different associated factors, may lead to different problematic consequences, and may be mitigated by potentially different strategies. This study therefore aims to fill this gap in the literature. Addressing the relationship between psychological disturbances and stigma among COVID-19 survivors is essential for promoting mental health, well-being, and social inclusion within this population.

Specifically, in this study, we aimed to: (1) investigate the frequency and levels of COVID-19-related experienced discrimination and internalized stigma in people infected with SARS-CoV-2 or surviving COVID-19, and (2) explore the association of experienced discrimination and internalized stigma with levels of psychological disturbances (i.e., anxiety, depression, and insomnia) while controlling for demographic and illness-related variables.

2 | METHODS

2.1 | Study design and participants

We conducted an online survey among members of the Facebook community “Noi che il Covid l'abbiamo sconfitto –Sindrome Long COVID” (We who have defeated Covid–Long COVID syndrome) composed of people who self-reported being infected with SARS-CoV-2 or having developed COVID-19. This group aimed to facilitate supportive interactions among its members by using listings, chat rooms, bulletin boards, and personal email exchanges with people who might have had similar problems or challenges related to COVID-19. The survey was conducted between September 10, 2021 and November 10, 2021. At the time of this study, the Facebook community had over 10,000 members across Italy. Potential participants were invited to complete a set of self-rated questionnaires on the online platform “SurveyMonkey.” The description of the study, together with the proposal to participate in the survey, was circulated among all the members by the group administrator. Potential participants received the online questionnaire link within the same post. Written informed consent was obtained from each participant before participation. The study questionnaires were completed anonymously, voluntarily, and without remuneration. The literature has shown that online surveys conducted within Facebook communities represent efficient and cost-effective strategies for psychosocial research (Thornton et al., 2016). This study was conducted in accordance with the principles of the Declaration of Helsinki. Approval was granted by the Verona University Committee on Research (CARP) (n.32.R1_2021). All the participants provided written informed consent.

2.2 | Assessment measures

Experienced discrimination related to COVID-19 was assessed using the COVID-19 Experienced Discrimination Scale (CEDISC), a newly developed self-rated questionnaire. The scale comprises 12 items and asks participants if they were treated unfairly (e.g., with avoidance, hostility, prejudice, rejection) by others in several life domains when they were infected with SARS-CoV-2 or had COVID-19. Items were rated on a 4-point Likert scale, ranging from 0 (“not at all”) to 3 (“a lot”). The scale consists of two subscales: “social life” (seven items) and “close relations” (five items). The CEDISC has proven to be a valid and reliable scale for specifically assessing experienced discrimination in patients infected with SARS-CoV-2 and COVID-19, with a Cronbach's α of 0.848 for the overall scale and 0.770 and 0.777 for its two subscales, respectively (Bonetto et al., 2022). Internalized stigma related to COVID-19 was measured using the COVID-19 Internalized Stigma Scale (COINS), a newly developed self-rated questionnaire. The scale, comprising 13 items, asks

respondents whether they felt uncomfortable (e.g., guilty, ashamed, or embarrassed) across a series of possible situations while they were infected with SARS-CoV-2 or diagnosed with COVID-19. Items are rated on a 4-point Likert scale, ranging from 0 ("not at all") to 3 ("a lot"). The scale consists of three subscales: "self-perception" (seven items), "close relations" (four items), and "social life" (three items). The COINS has also proven to be a valid and reliable scale for assessing internalized stigma in individuals infected with SARS-CoV-2 and/or COVID-19, with a Cronbach's α of 0.837 for the overall scale and 0.855, 0.924, and 0.868 for its three subscales, respectively (Bonetto et al., 2022). For both the CEDISC and COINS, mean global scale and mean subscale scores were calculated, with higher scores indicating higher stigma. The reliability study for both the CEDISC and COINS scale was undertaken on the same sample addressed in this research.

Depression symptoms were evaluated using the Patient Health Questionnaire (PHQ-9) (Kroenke et al., 2001), a nine-item self-rated questionnaire with excellent psychometric properties. Respondents were asked to rate how frequently, in the past 2 weeks, symptoms occurred; responses were rated on a 4-point scale ranging from 0 ("not at all"), 1 ("several days"), 2 ("more than half of the days"), and 3 ("nearly every day"). Total PHQ-9 scores range from 0 ("absence of depressive symptoms") to 27 ("most severe depressive symptoms"). A cutoff of 10, indicating a condition possibly in need of clinical care, was used (Kroenke et al., 2001).

Symptoms of anxiety were evaluated using the General Anxiety Disorder Scale (GAD-7) (Spitzer et al., 2006), a seven-item self-rated questionnaire with good psychometric properties. Items are rated on a 4-point scale ranging from 0 ("not at all"), 1 ("several days"), 2 ("more than half of the days"), and 3 ("nearly every day"). A cutoff score of 10, identifying cases that deserve clinical attention, was adopted.

Symptoms of insomnia were assessed using the Insomnia Severity Index (ISI) (Bastien, 2001), a seven-items self-rated survey evaluating the occurrence and severity of sleep disturbance in the past fortnight; items were rated on a 5-point scale. A cut-off score of 15, indicating at least moderate insomnia, was adopted.

Personal information was collected using participants' self-reports. Specifically, they included sex, age, education (up to secondary education vs. tertiary education or degree or postgraduate education), nationality (Italian vs. other), employment (employed vs. unemployed), marital status (single vs. married or in a civil partnership vs. divorced or widowed), living condition (alone vs. with parents or other relatives vs. with partner and/or children), living place (city vs. town with more than 10,000 inhabitants vs. village with less than 10,000 inhabitants), and current co-morbid physical chronic conditions or physical disabilities (no vs. yes). Finally, COVID-related characteristics were collected also using participants' self-reports and included month and year of SARS-CoV-2 infection, duration of SARS-CoV-2 infection (<2 vs. ≥ 2 weeks), and severity of COVID-19 disease (asymptomatic or mildly symptomatic/requiring no treatment vs. symptomatic treatment at home vs. symptomatic admitted to hospital—treated within intensive care units, or in subintensive units or in ordinary wards).

2.3 | Statistical analyses

Categorical variables were analyzed using frequencies and percentages. To determine the prevalence of participants showing meaningful levels of experienced discrimination or internalized stigma, we categorized the CEDISC and COINS mean scores by applying the midpoint of 1.5 and, accordingly, identifying four categories: "minimal stigma" (<1), "low stigma" (1–1.5), "moderate stigma" (1.5–2), and "high stigma" (>2). The methodology adopted for categorization stemmed from established methodologies in prior research utilizing similar scales, such as the Discrimination and Stigma Scale (Brohan et al., 2013) to assess experienced discrimination among individuals with mental disorders or the Internalized Stigma of Mental Illness scale, which is one of the most widely used instruments for assessing internalized stigma among individuals with mental disorders (Ritsher & Phelan, 2004). Logistic regression analysis was employed to identify variables associated with clinically meaningful levels of psychological disturbances (i.e., anxiety, depression, and insomnia), defined based on validated cutoffs in the literature. Unadjusted associations between each domain of psychological disturbances (PHQ-9 ≥ 10 , GAD-7 ≥ 10 , ISI ≥ 15 , respectively) and the various personal characteristics COVID-related characteristics, experienced

discrimination and internalized stigma were estimated by univariable logistic regression models. Only those independent variables which unadjusted odds ratios (ORs) with a $p < 0.10$ were entered into the final multivariable logistic regression models, thus giving adjusted ORs and 95% confidence intervals (CIs). Goodness-of-fit measures were estimated for these three models. Statistical analyses were carried out in Stata 17.

3 | RESULTS

3.1 | Characteristics of the sample

A total of 579 individuals took part in this online survey. Table 1 (upper section) displays their personal characteristics. Most participants were of Italian nationality (97.6%), female (84.8%), aged over 36 years (81.5%), possessed at least a high school education (80.1%), were employed (69.5%), and resided with others (89.3%). A significant portion were either married or in stable cohabitation relationships (59.3%). Approximately 75% of the respondents lived in towns or villages. More than 30% reported having chronic illnesses or physical disabilities. The study sample substantially overlaps with the overall members of the Facebook community in terms of both gender (75% female vs. 25% males) and age bands (18–35 years 23%; 36–55 years 56%; ≥ 56 years 21%) composition.

The COVID-related characteristics of the participants are reported in Table 1 (bottom part). Overall, 58% had a SARS-CoV-2 infection over the 9 months preceding the assessment, 78.5% had a SARS-CoV2 infection that lasted more than 2 weeks, 54% had developed a symptomatic infection, and among these, 38% had been admitted to the hospital due to COVID-19.

3.2 | Experienced discrimination

Table 2 (upper part) displays the mean (SD) and percentage distribution of respondents reporting minimal, low, and moderate/high scores on the experienced discrimination scale (CEDISC) and its two subscales. Overall, 25% reported a score on the CEDISC that reflected some degree of discrimination, and among these, 51% reported at least a moderate level of discrimination. The subscale where more respondents scored at least a moderate level of discrimination was "Social life" (19.8%).

Figure 1a shows the percentages of participants scoring "moderately" or "a lot" across the various individual items of the CEDISC.

Overall, 39% reported that mass media played a crucial role in shaping negative public perceptions of patients with COVID-19. Nearly 37% said that they had been treated unfairly or in a prejudicial way by healthcare professionals during medical visits because of their COVID-19 infection; 23% reported that they felt avoided or treated with suspicion by other people while showing mild upper respiratory symptoms; 20% reported having perceived hostility and rejection by their colleagues when returning to work after a period of isolation or hospitalization due to COVID-19; and a similar percentage felt that they should have done something wrong that caused their COVID-19 infection.

3.3 | Internalized stigma

Table 2 (lower part) displays the mean (SD) and the percentage distribution of respondents reporting minimal, low, and moderate/high scores on the internalized stigma scale (COINS) and on its three subscales. Overall, nearly 23% reported a score on the COINS that reflected some degree of internalized stigma, and among these, 33.6% reported at least a moderate level of internalized stigma. The subscale where more respondents scored at least a moderate level of internalized stigma was "Self-perception" (17.3%), followed by "Close relations" (12.1%).

TABLE 1 Personal and COVID-19-related characteristics of the study sample ($n = 579$).

	<i>n</i> (%)
<i>Personal characteristics</i>	
Gender	(33 missing)
Male	83 (15.2)
Female	463 (84.8)
Age (years)	
18–35	107 (18.5)
36–55	315 (54.4)
≥56	157 (27.1)
Education	(1 missing)
Up to secondary education	115 (19.9)
Tertiary education/degree/postgraduate degree	463 (80.1)
Nationality	
Italian	565 (97.6)
Other	14 (2.4)
Employment	(5 missing)
No	175 (30.5)
Yes	399 (69.5)
Marital status	(6 missing)
Single	141 (24.6)
Married/in civil partnership	340 (59.3)
Divorced/widowed	92 (16.1)
Living condition	
Alone	62 (10.7)
Parents/other relatives	397 (68.6)
Partner and/or children	120 (20.7)
Living place	(3 missing)
City	154 (26.7)
Town with more than 10,000 inhabitants	217 (37.7)
Village with less than 10,000 inhabitants	205 (35.6)
Suffering from chronic conditions or physical disabilities	(2 missing)
No	389 (67.4)
Yes	188 (32.6)
<i>COVID-related characteristics</i>	
Period of SARS-CoV-2 infection	
January–September 2020	111 (19.2)

(Continues)

TABLE 1 (Continued)

	n (%)
October–December 2020	223 (38.5)
From January 2021	245 (42.3)
Duration of SARS-CoV-2 infection, weeks	(2 missing)
<2	124 (21.5)
≥2	453 (78.5)
Severity of COVID-19 disease	(1 missing)
Asymptomatic/mildly symptomatic (no treatment)	266 (46.0)
Symptomatic, treated at home	193 (33.4)
Symptomatic, admitted to hospital	119 (20.6)
ICU	25 (21.2)
Subintensive care	73 (61.9)
Ordinary wards	20 (16.9)

Abbreviations: ICU, intensive care unit; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

Figure 1b shows the percentage of participants scoring 'moderately' or 'a lot' across the various individual items of the COINS.

Overall, 32% of participants felt guilty about becoming infected with COVID-19, 31% felt embarrassed to share with other people their COVID-19 infection, 29% felt uncomfortable going outside their home even after being tested negative and completely recovered from the disease, 22.6% reported feelings of reduced self-worth or worthlessness, and 20% avoided social interactions due to the fear of being unfairly rejected by other people.

3.4 | Levels of psychological disturbances

Regarding depressive symptoms, 55.4% of participants ($n = 279$) scored above the PHQ cut-off point (≥ 10), thus displaying at least a moderate clinical condition [44.6% ($n = 225$) scored below the cut-off and 75 did not provide any response to the PHQ]. Regarding anxiety symptoms, 42.5% ($n = 213$) scored above the GAD cut-off point (≥ 10), thus showing a clinically significant condition [57.5% ($n = 288$) scored below the cut-off and 78 did not respond to the GAD]. Finally, 27.5% ($n = 137$) scored above the ISI cut-off point (≥ 15) displaying significant symptoms of insomnia [72.5% ($n = 361$) scored lower than the cut-off point and 81 did not provide any response].

3.5 | Association between experienced discrimination and internalized stigma with levels of psychological disturbances

Unadjusted ORs estimating the association between each domain of psychological disturbances (i.e., symptoms of depression, anxiety, and insomnia) and personal characteristics, COVID-related characteristics, and levels of experienced discrimination and internalized stigma (as measured with CEDISC and COINS) are reported in Supporting Information S1: Appendix Tables 1–3.

In brief, among personal characteristics, being a woman was linked to higher insomnia, anxiety, and depression symptoms; suffering from other chronic conditions or physical disabilities was also linked to

TABLE 2 Mean scores (SDs) and frequencies (%) of respondents reporting minimal, low, and moderate/high scores in the experienced discrimination and internalized stigma scales and the respective subscales.

	n (%)
<i>Experienced discrimination (CEDISC) (N = 579)</i>	
Total score, mean (SD)	0.66 (0.61)
<1 minimal	434 (75.0)
1–1.5 low	71 (12.2)
1.5+ moderate/high	74 (12.8)
Social life, mean (SD)	0.82 (0.72)
<1 minimal	368 (63.6)
1–1.5 low	96 (16.6)
1.5+ moderate/high	115 (19.8)
Close relations, mean (SD) (3 missing)	0.44 (0.59)
<1 minimal	474 (82.3)
1–1.5 low	59 (10.2)
1.5+ moderate/high	43 (7.5)
<i>Internalized stigma (coins) (n = 519)</i>	
Total score, mean (SD)	0.61 (0.55)
<1 minimal	400 (77.1)
1–1.5 low	79 (15.2)
1.5+ moderate/high	40 (7.7)
Self-perception, mean (SD)	0.79 (0.77)
<1 minimal	351 (67.6)
1–1.5 low	78 (15.1)
1.5+ moderate/high	90 (17.3)
Close relations, mean (SD) (16 missing)	0.50 (0.75)
<1 minimal	353 (70.2)
1–1.5 low	89 (17.7)
1.5+ moderate/high	61 (12.1)
Social life, mean (SD) (7 missing)	0.26 (0.63)
<1 minimal	452 (88.3)
1–1.5 low	28 (5.4)
1.5+ moderate/high	32 (6.3)

Abbreviation: CEDISC, COVID-19 Experienced Discrimination Scale.

increased symptoms of depression, while having a high educational level was associated with higher symptoms of insomnia. Among COVID-19-related characteristics, longer COVID-19 infection (more than 2 weeks) was linked to increased symptoms of anxiety and depression; treatment at home (with respect to being asymptomatic) was linked to increased symptoms of insomnia, anxiety, and depression, and having been

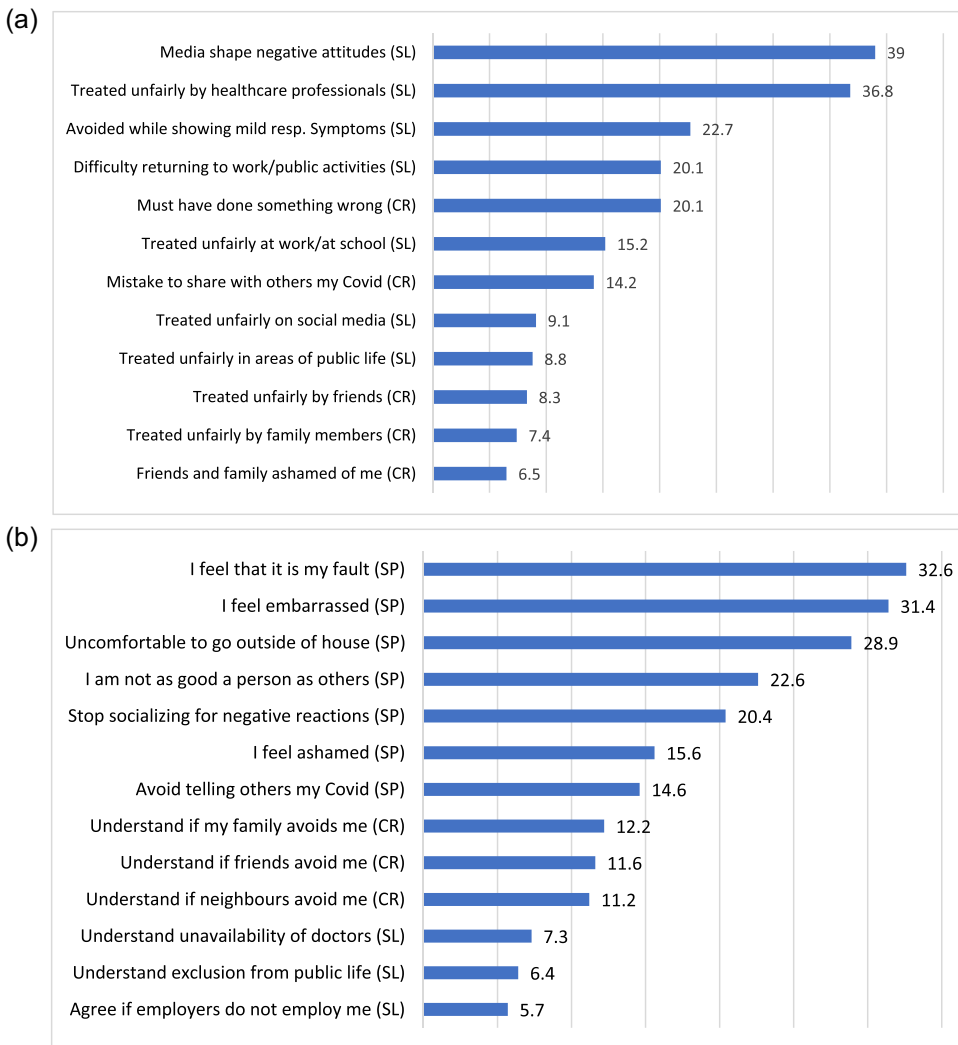


FIGURE 1 (a) Percentage of participants scoring “moderately”/“a lot” in the various items of the CEDISC scale ($n = 579$). (b) Percentage of participants scoring “moderately”/“a lot” in the various items of the COINS scale ($n = 519$). CEDISC, COVID-19 Experienced Discrimination Scale; COINS, COVID-19 Internalized Stigma Scale; CR, close relations; SL, social life; SP, self-perception.

hospitalized for COVID-19 (with respect to being asymptomatic) was linked to increased symptoms of depression; and a more recent COVID-19 infection (within the last 9 months) was linked to lower symptoms of insomnia. Regarding experienced discrimination and internalized stigma, higher scores on both scales were linked to increased symptoms of insomnia, anxiety, and depression. As regards experienced discrimination, both the subscale scores (“Social life” and “Close relations”) were associated with levels of psychological disturbances in all the three domains considered, whereas for internalized stigma only the “Self-perception” subscale was associated with higher symptoms of psychological disturbances (for details see Supporting Information S1: Appendix Tables 1–3).

Table 3 shows the multivariable logistic regression models estimating the association between symptoms of depression, anxiety, and insomnia and potential independent variables.

Adjusted ORs showed that being female and scoring higher on the internalized stigma scale were linked to increased symptoms of depression. Being a woman, having developed a COVID-19 infection for more than 2 weeks, and scoring higher on both experienced discrimination and internalized stigma scales were all significantly associated with higher symptoms of anxiety. Symptoms of insomnia were associated with being female, having a higher education, and with higher experienced discrimination and internalized stigma, whereas a more recent COVID-19 infection (i.e., over the previous 9 months) was associated with lower symptoms of insomnia.

4 | DISCUSSION

The most interesting finding is that a significant proportion of individuals infected with SARS-CoV-2 or surviving COVID-19 are burdened by social stigma related to their condition. Specifically, nearly one-fourth of the participants reported experiencing unfair treatment by other people (in terms of hostility, avoidance, rejection, and prejudice) when returning to their usual life once they recovered from the disease (or tested negative following a period of isolation). The perception of people who developed COVID-19 of being treated differently by others is paralleled by findings conducted among the general population, indicating that they hold more negative attitudes toward individuals who have recovered from COVID-19 than toward those with mental health problems (Economou, 2021). It is noteworthy that the most frequent source of unfair treatment for people with COVID-19 was by healthcare professionals during medical encounters and by colleagues in the workplace when patients returned to their jobs after a period of isolation or hospitalization. According to Attribution Theory (Weiner, 1995), people who become infected or develop COVID-19 might have been blamed by others for contracting the virus and therefore considered to blame for their condition. This is particularly problematic, as evidence from stigma research shows that when an illness or social condition is attributed to internal causes, it seems more likely that lay people hold stigmatizing attitudes (Corrigan et al., 2003; Economou et al., 2019).

Moreover, our study showed that a significant proportion of patients with COVID-19 became aware of the distorted public perceptions and stereotypes surrounding the new disease, tended to accept society's negative assessments, and incorporated this into their sense of self and value of oneself, thus leading to internalized stigma. Specifically, one-third to one-fourth of the participants in our study presented with high levels of internalized stigma, in terms of feelings of guilt or reduced self-worth for having had COVID-19, embarrassment to share with other people that they had COVID-19, and public unease once returned to their usual social life after being recovered from the disease. Internalized stigma is a factor that leads to the adoption of dysfunctional coping strategies, a barrier to gaining successful social reintegration after having recovered from COVID-19 infection, and a precondition for developing emotional disturbances (Corrigan & Rao, 2012). It would be interesting to see in future research how these change over time and across different contexts, as there may be some cultural and contextual aspects at play that deserve specific attention.

A significant proportion of the participants showed clinically meaningful mental health disturbances (i.e., 55.4% depression, 42.5% anxiety, and 27.5% insomnia). This finding substantially overlaps with those reported in other studies conducted in similar populations. A meta-analysis by Deng et al. (2021) found that the pooled prevalence of depression, anxiety, and sleeping disorders among people surviving COVID-19 was 45% (95% CI, 37%–54%), 47% (95% CI, 37%–57%), and 34% (95% CI, 19%–50%), respectively.

The percentage of participants in our study reporting symptoms of depression and anxiety falls within the ranges of anxiety symptoms (6.33%–18.7%) and depressive symptoms (14.6%–32.8%) identified by a systematic review of studies conducted in both European and non-European countries among the general population during the COVID-19 pandemic (Xiong et al., 2020). However, upon examining the sole Italian study included in the review of Xiong et al (2020), it appears that the percentage of participants in our sample experiencing significant symptoms of depression or anxiety is higher than the corresponding percentages (18.7% and 32.4%) found in that study (Mazza et al., 2020). The prevalence of symptoms of depression and anxiety among the people in our sample was

TABLE 3 Multivariable logistic regression models for depression (PHQ-9 \geq 10), anxiety (GAD-7 \geq 10), and insomnia (ISI \geq 15) ($n = 579$).

	Depression		Anxiety		Insomnia		Overall LR test
	Adjusted OR (95% CI)	p Value	Adjusted OR (95% CI)	p Value	Adjusted OR (95% CI)	p Value	
Gender							
Male	1		1		1		
Female	2.64 (1.46–4.76)	0.001	2.54 (1.33–4.85)	0.005	2.11 (1.04–4.28)	0.038	
Education							
Tertiary education/degree/postgraduate					1		
Up to secondary education					1.92 (1.13–3.26)	0.015	
Organic chronic conditions/disabilities							
No							
Yes	1.47 (0.95–2.28)	0.085					
Period SARS-CoV-2 infection							
January–September 2020					1		0.020
October–December 2020					0.81 (0.44–1.50)	0.504	
From January 2021					0.45 (0.24–0.86)	0.015	
Severity of Covid-19 disease							
Asymptomatic/mildly symptomatic	1		1		1		
Treated at home	1.18 (0.57–2.48)	0.652	0.99 (0.46–2.15)	0.981	1.93 (0.92–4.04)	0.080	
Admitted to hospital	1.59 (0.68–3.70)	0.281	0.61 (0.26–1.46)	0.269	1.53 (0.65–3.60)	0.333	

TABLE 3 (Continued)

	Depression		Anxiety		Insomnia		Overall LR test
	Adjusted OR (95% CI)	p Value	Adjusted OR (95% CI)	p Value	Adjusted OR (95% CI)	p Value	
Duration of SARS-CoV-2 infection							
2 weeks or less		1					
More than 2 weeks	1.46 (0.89–2.38)	0.130	2.05 (1.23–3.42)	0.006			
Experienced discrimination							
Total score, mean	1.44 (0.89–2.38)	0.066	1.55 (1.06–2.28)	0.024	1.82 (1.24–2.69)	0.002	
Internalized stigma							
Total score, mean	2.14 (1.35–3.39)	0.001	2.30 (1.48–3.59)	<0.001	2.54 (1.64–3.95)	<0.001	
Number of observations	440		437		467		
LR test, p value	$\chi^2 (7) = 50.47, <0.001$		$\chi^2 (6) = 59.30, <0.001$		$\chi^2 (8) = 68.47, <0.001$		
Hosmer–Lemeshow goodness-of-fit (10 groups)							
$\chi^2 (df), p$ value	$\chi^2 (8) = 3.97, 0.860$		$\chi^2 (8) = 5.07, 0.750$		$\chi^2 (8) = 5.94, 0.653$		
Pearson goodness-of-fit							
Number of covariate patterns	414		396		453		
$\chi^2 (df), p$ value	$\chi^2 (406) = 412.70, 0.398$		$\chi^2 (389) = 388.70, 0.495$		$\chi^2 (444) = 449.97, 0.412$		
Area under ROC curve	0.690		0.696		0.743		

Abbreviations: CI, confidence interval; GAD-7, General Anxiety Disorder Scale-7; ISI, Insomnia Severity Index; LR, likelihood ratio; OR, odds ratio; PHQ-9, Patient Health Questionnaire-9; ROC, receiver operating characteristic; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

remarkably higher than that reported by other studies among the general population in Italy during the pandemic. Fiorillo et al. (2020) found that during the initial stage of the pandemic, 12.4% of the general population reported at least severe levels of depression and 17.6% reported clinically significant anxiety. Another online survey carried out among Italy's general population during the lockdown period found rates of 17.3%, 20.8%, and 7.3% for depression, anxiety, and insomnia, respectively (Rossi et al., 2020). A third nationwide online survey conducted during the initial months of the pandemic reported rates of depression, anxiety, and insomnia of 33.2%, 41.5%, and 38.8%, respectively (Amerio et al., 2021). The higher rates of symptoms of insomnia, anxiety, and depression found in our study could be due to the fact that the sample was composed of people infected with SARS-CoV-2 or who developed COVID-19 and who were all exposed, with respect to the general population, to a multitude of distressful conditions or traumatic events (e.g., fear of dying, uncertainty about their own condition, worry about transmitting the infection to others, physical discomfort, separation from loved ones during quarantine or hospitalization, etc.) (Toulabi et al., 2021). Moreover, it may be possible that recruitment from a Facebook support group in our study might have selected people who joined the group as they were frequently troubled by psychological symptoms.

Our multivariate analyses found that, except for gender (with females showing a significant association with increased levels of both depression and anxiety symptoms, consistent with the literature) and having a concurrent chronic condition (other chronic conditions associated with more severe depressive symptoms), no personal characteristic or COVID-19-related factor were associated with symptoms of psychological disturbances. However, we found that controlling for the effect of personal characteristics and indicators of COVID-19 clinical severity, levels of internalized stigma, and experienced discrimination were the main factors linked to mental health disturbances in this population. Indeed, experiences of being treated differently from others because of COVID-19 (i.e., experienced discrimination) were linked to more severe levels of anxiety, depression, and insomnia. This finding is consistent with earlier reports showing associations between social stigma and mental health disturbances among individuals surviving COVID-19 recruited in China (Huang et al., 2022; Li et al., 2020; Liu et al., 2020). We also found that internalized stigma (i.e., "the awareness of devaluation or stereotyping of oneself because of a perceived linkage with COVID-19" [Bonetto et al., 2022]) was more strongly associated with levels of psychological disturbances, specifically symptoms of depression and insomnia. Unfortunately, the cross-sectional nature of this study prevents us from determining the direction of this association. It is possible that the perception of social rejection related to being infected with COVID-19 may result in lower self-esteem and feelings of worthlessness and guilt among infected people (Shpigelman & HaGani, 2019). These symptoms, in turn, may further increase internalized stigma within a vicus cycle (Drapalski et al., 2013). However, it may be possible that individuals with mental health problems (e.g., depression) are more likely to experience internalized stigma in relation to COVID-19 (Saffari et al., 2022).

4.1 | Strengths and limitations

The most notable strength of this study is the large sample size of nearly 600 participants. The second strength is the use of two standardized validated scales specifically developed for assessing the two different, although conceptually related, constructs of experienced discrimination and internalized stigma in persons with COVID-19. The third strength is the inclusion of people who were infected with SARS-CoV-2 or diagnosed with COVID-19 across different pandemic waves, thus reflecting different patterns of stigmatization.

This study has several limitations that warrant consideration. First, participants self-reported their SARS-CoV-2 infection status, and details regarding the testing method and personnel involved were unavailable, introducing potential bias. Second, the absence of a control group limits contextual understanding of perceived and internalized stigma levels and precludes an assessment of whether observed psychological symptoms are solely linked to the infection or influenced by other factors. Third, the elevated levels of depressive symptoms and anxiety in our

sample may suggest a bias toward individuals experiencing significant distress. Unfortunately, the lack of preinfection psychopathology data prevents a precise determination of how the infection impacted psychopathological symptoms and subsequent experiences of discrimination and internalized stigma in our study. Fourth, the cross-sectional nature of the study does not allow to draw any conclusions on the directionality of the association between experienced discrimination, internalized stigma, and psychological symptoms. Fifth, this study's sample should not be seen as representative of the wider population of interest, as elderly people were underrepresented and females were over-represented, together with people with symptomatic COVID-19 and those hospitalized for COVID-19. Sixth, a selection bias might have occurred, as the survey was carried out within an online virtual community, thus potentially excluding people who do not use social media. Seventh, the CEDISC and COINS were developed in Italian and validated within an Italian sample, limiting generalizability to other geographical and cultural contexts. Eighth, recall bias might have occurred for participants who were infected with SARS-CoV-2 or diagnosed with COVID-19 during the early stages of the pandemic. Finally, although the PHQ-9 and GAD-7 have been widely utilized in the literature with patients infected with SARS-CoV-2 or developing COVID-19, we are not aware of formal validation or reliability studies conducted within this specific population.

4.2 | Policy and practice implications

Experiences of social stigmatization are frequent among people who have tested positive for SARS-CoV-2 or have survived the COVID-19. Therefore, implementing screening measures for COVID-19-related stigma is required to design specific stigma-reducing interventions among this population. Without prompt implementation of tailored antistigma actions, there is a significant risk that prejudice may escalate into overt discriminatory behaviors, resulting in detrimental consequences at both individual and public health levels. Proactive strategies to mitigate discriminatory behaviors among the general population in future outbreak responses may include the following actions (Paterson et al., 2023): (1) implement communication strategies that avoid fear-mongering and moralizing; (2) engage community leaders, influencers, and survivors early on to shape messaging and interventions that are culturally appropriate and sensitive to local contexts; (3) use language that is respectful and inclusive in all communication materials, educate the public about the disease, transmission pathways, and preventive measures without attaching negative connotations that could fuel stigma; (4) establish support networks and peer groups for individuals affected by the disease to foster resilience and collectively combat stigma; (5) ensure that public health interventions, such as contact tracing and quarantine measures, respect individual privacy and confidentiality; (6) provide comprehensive training for healthcare workers on stigma reduction, cultural competence, and effective communication, equip them with resources to manage stigma-related challenges in their interactions with patients and communities; (7) advocate for policies that protect against discrimination related to health status and ensure equitable access to healthcare services.

Our findings suggest that social stigma within COVID-19 patients is correlated with elevated levels of psychological disturbances. Should the cross-sectional associations identified in our study be corroborated by longitudinal research, addressing depression or insomnia could potentially mitigate or prevent stigmatization among individuals with COVID-19. Programs aimed to improve mental health among people with COVID-19 and to reduce the effects of COVID-19-related internalized stigma may include the following actions: (1) provide accurate information about COVID-19 to patients and their families to dispel myths and misconceptions that contribute to stigma; (2) acknowledge and normalize emotional responses such as fear, anxiety, and sadness among COVID-19 patients, encourage open discussions about mental health and the challenges of coping with the illness to reduce feelings of isolation; (3) facilitate peer support groups or connect COVID-19 patients with others who have recovered or are going through similar experiences (this can reduce feelings of loneliness and provide mutual encouragement); (4) encourage patients to practice self-compassion and recognize that having COVID-19 does not make them less valuable or worthy (resilience-building activities

such as mindfulness, relaxation techniques, may be helpful) (Bodini et al., 2024); (5) ensure that COVID-19 patients have access to mental health support services, including counseling and therapy: telehealth options can be particularly useful for providing remote psychological support during isolation periods (Komariah et al., 2022; Soh et al., 2020); (6) provide training for healthcare professionals on recognizing signs of internalized stigma and mental health disturbances among COVID-19 patients, equip them with communication skills to address these issues sensitively and refer patients to appropriate support services; (7) implement routine screening for mental health symptoms among COVID-19 patients during and after hospitalization, monitor their emotional well-being and intervene early if signs of distress or worsening mental health are detected.

5 | CONCLUSIONS

Experiences of social stigmatization are frequent among people surviving COVID-19 and seem to be associated with levels of psychological disturbances. As this study was conducted using a cross-sectional design, further investigations by using longitudinal methodology are needed to elucidate the direction of the association between these variables.

AUTHOR CONTRIBUTIONS

Antonio Lasalvia and Chiara Bonetto conceived and designed the study. Chiara Bonetto designed the statistical analysis plan. Antonio Lasalvia and Chiara Bonetto analyzed the data and developed the figures and tables. Antonio Lasalvia, Chiara Bonetto, Luca Bodini, Morena Colombi, and Tine Van Bortel reviewed the findings and contributed to the interpretation. Antonio Lasalvia drafted the first version of the manuscript; Chiara Bonetto, Luca Bodini, and Tine Van Bortel revised the first version of the manuscript. All authors contributed intellectual content during the drafting and revision of the work and approved the final version of the article.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

Data will be available from the corresponding author upon reasonable request.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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