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## Is self-compassion associated with lower psychological distress in people with long COVID? Results from a cross-sectional survey

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### ABSTRACT

Long COVID affects approximately 10–20% of COVID-19 patients and has a devastating impact on their quality of life and mental health. This study aimed to evaluate symptoms of psychological distress in people with long COVID and explore whether high levels of self-compassion are associated with low levels of psychological distress. An online cross-sectional survey of people with Long COVID was conducted. In total, 332 respondents participated in the survey. All dimensions of self-compassion were found to be significantly associated with depression, anxiety, and perceived stress, independent of symptom severity. Specifically, self-kindness, common humanity, and mindfulness were strongly negatively associated with distress, whereas self-judgment, isolation, and over-identification were strongly and positively associated with distress. Self-compassion seems to play a role in explaining levels of psychological distress in people with long COVID symptoms. The centrality of self-compassion may lead to the development of effective interventions to help patients with long COVID reduce self-judgmental and self-critical tendencies and improve their psychological well-being.

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### Introduction

Approximately 10–20% of people infected with SARS-CoV-2 display a wide range of medium- and long-term symptoms once the acute phase of the infection has subsided (Diaz et al., 2021). This condition is known as ‘Post-COVID-19 syndrome’ or ‘Long COVID’. The World Health Organization (WHO) defines this ‘post COVID-19 condition’ (Long COVID) as a condition ‘that occurs in individuals with a history of probable or confirmed SARS-CoV-2 infection (Diaz et al., 2021), usually three months from the onset of COVID-19. Symptoms last for at least two months and cannot be explained by an alternative diagnosis’.

Patients with long COVID generally show both general non-specific symptomatology, such as persistent fatigue/asthenia, excessive tiredness, fever, muscle weakness, widespread pain, myalgia, and

more, and organ-specific symptoms, such as pulmonary (i.e. dyspnea, breathlessness, persistent cough), cardiovascular, neurological, gastrointestinal, and psychiatric symptoms (Raveendran et al., 2021). Recent qualitative studies have reported that these symptoms are debilitating for those affected, thus significantly reducing their quality of life (Garrigues et al., 2020; Malik et al., 2022). Furthermore, effective treatments for this disease are still lacking, and no clarity exists regarding the classification of this syndrome as a chronic disease. Finally, a lack of public awareness of the condition is associated with experiences of social stigma that patients often report (Byrne, 2022).

The most frequent Long COVID clinical manifestations are neuropsychiatric symptoms, which are reported in almost half of the patients (Lopez-Leon et al., 2021). These include fatigue, migraine, attention disorders, brain fog, neuropathy, anxiety and

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mood disorders, insomnia, and dementia. The etiology of neuropsychiatric symptoms of Long COVID has been explained by hypothesizing neurobiological or immunopsychological mechanisms (Crook et al., 2021; Penninx, 2021). However, neuropsychiatric symptoms of Long COVID may also be explained as a psychosocial reaction to a long-lasting, disabling, and unexplained condition.

Research on chronic illness has often focused on day-to-day management of the disease, particularly through the patient's active efforts to mitigate everyday symptoms, such as following treatment, coping with the consequences of a chronic illness, and understanding the role these ways of coping with everyday difficulties can have on mental health (Dorrian et al., 2009, p. 2; Gray & Rutter, 2007; Sharpe et al., 2001; Zyrianova et al., 2011). Another psychological construct that has gained relevance in the field of chronic diseases is illness perception (Broadbent et al., 2006). Illness perception involves cognitive elements like perceived disease consequences and understanding, and emotional factors such as fear and distress (Weinman et al., 1996). The common-sense model of self-regulation describes illness perception as being shaped by situational stimuli, such as symptoms and health information. Illness perception influences how individuals adjust to chronic conditions and adhere to medical guidelines, including during COVID-19. A recent study analyzed the role of illness representations in mental health in a sample of people with Long Covid (Bierbauer et al., 2022). The results showed that more symptoms, higher perceived consequences, and higher emotional representation correlated with worse adaptation. Another recent study on illness perception found that while objective physical health abnormalities due to COVID-19 play a role, persistent somatic symptoms and emotional responses have a more pronounced effect on illness perception (Hüfner et al., 2023).

A growing body of literature over the last decade has shown that other psychological constructs, not just illness perception, can also play a role in the mental health of those with a chronic illness. Studies based on self-compassion have highlighted how excessive self-criticism, self-blame, and shame are other mechanisms that may explain the development of anxiety, depression, or other forms of psychopathology in human beings (Gilbert, 2017; Neff, 2003a) and in patients with chronic illnesses (Hughes et al., 2021; Sirois et al., 2015). Self-compassion, which involves treating oneself with kindness, care, and affective closeness, is a skilled response that allows coping with a series of immutable challenges

– not questioning the perception of adversity or encouraging unsuccessful efforts to overcome them, but inhibiting self-blame and self-criticism through compassionate acceptance of the self and reality (Hughes et al., 2021; Kirschner et al., 2019; Rockliff et al., 2011). The attitude of self-compassion could be central in patients with Long Covid, as it is a disease whose course (chronic or acute) is currently unknown and for which no effective treatments are available.

In this exploratory study, we aimed to evaluate levels of psychological distress in terms of depression, anxiety, and perceived stress in a cohort of patients with Long Covid and explore whether high levels of self-compassion – adjusting for personal, pre-COVID, and SARS-CoV-2 infection characteristics – are associated with lower depression, anxiety, and perceived stress.

## Method

### Participants

This online cross-sectional survey was conducted from June 2022 to August 2022 on the web-based platform 'LimeSurvey' and were made available to participants who could self-rate them through their PCs, smartphones, or other mobile devices. To be eligible for the study, participants had to be adults ( $\geq 18$  years of age) who had been infected with SARS-CoV-2 for at least 12 weeks before participating in the study and were currently experiencing persistent symptoms (Long COVID).

### Procedure

The online survey was conducted within a closed Facebook (FB) discussion group ('Noi che il Covid l'abbiamo sconfitto - Sindrome Long COVID') comprising people who reported to have developed Long COVID. At the time of the evaluation, this virtual community had more than 30,000 members across Italy. Literature reports that Facebook is an effective and cost-efficient recruitment method for psychosocial research (Thornton et al., 2016). The study description and invitation to participate as well as the link to the online questionnaires were posted to all members by the group administrator (M.C.). The study protocol was reviewed and approved by the research ethics board of the Verona University Committee on Research (CARP) (n.16.R1/2022). Participants were aware of the purpose of the study and gave informed consent before participating.

They completed the survey anonymously, voluntarily and without any remuneration.

### Measures

Personal, pre-COVID and SARS-CoV-2 infection characteristics were collected using participants' self-reports. Specifically, they included the following: sex, age (18–35, 36–55, 56+ years), education (primary, secondary, tertiary/degree/postgraduate degree), nationality (Italian vs. other), employment (no vs. yes), marital status (single, married/in a civil partnership, divorced/widowed), living condition (alone, with parents or other relatives, with partner and/or children), living place (city, town with more than 10,000 inhabitants, village with less than 10,000 inhabitants), suffering from chronic conditions or physical disabilities (no vs. yes), period of the first SARS-CoV-2 infection (Jan. 2020–Sep. 2020, Oct. 2020–Sep. 2021, Oct. 2021–May 2022), re-infection by SARS-CoV-2 (no vs. yes), severity of COVID-19 disease (asymptomatic, mildly symptomatic with no treatment, symptomatic treated at home, symptomatic admitted to hospital), hospital ward (ICU, sub-intensive care, ordinary care), and Long COVID diagnosis (no vs. yes).

Information on Long COVID symptoms was also collected using participants' self-reports. A list of 27 symptoms most frequently experienced according to a recent meta-analysis (Lopez-Leon et al., 2021) was proposed to participants. For analysis, these symptoms were categorized based on the classification proposed by the Italian National Institute of Health (Giuliano et al., 2023). Specifically, symptoms were categorized as general, neurological, pulmonary, cardiovascular, dermatological, gastrointestinal, psychiatric/psychological, ENT, endocrine, hematological, or kidney.

Symptoms of depression were assessed using the Patient Health Questionnaire (PHQ-9) (Costantini et al., 2021; Kroenke et al., 2001), a self-rated 9-item scale that asks if the respondent had experienced symptoms of depression in the previous two weeks. Respondents are asked to rate how often each symptom occurred: 0 (not at all), 1 (several days), 2 (more than half the days), or 3 (nearly every day). The total PHQ-9 score ranges from 0 (absence of depressive symptoms) to 27 (most severe depressive symptoms). The internal reliability of the PHQ-9 was excellent, with Cronbach's  $\alpha$  ranging from 0.70 to 0.93 (Kroenke et al., 2001).

General Anxiety symptoms were assessed by the Generalized Anxiety Disorder (GAD-7) (Bolgeo et al., 2023; Spitzer et al., 2006), a self-rated questionnaire

that consists of 7 items that investigate the level of anxiety and worry felt by the respondent over the previous 2 weeks. Respondents are asked how often they were bothered by each symptom during the last 2 weeks. The response options are 'not at all', 'several days', 'more than half the days', and 'nearly every day', scored as 0, 1, 2, and 3, respectively. The total GAD-7 score ranges from 0 (absence of anxiety symptoms) to 21 (most severe anxiety symptoms). Reliability of the GAD-7 in different populations ranges from good to excellent (Cronbach's  $\alpha$  between 0.8 and 0.97) (Bolgeo et al., 2023).

Stress perception was assessed using the Perceived Stress Scale (PSS-10) (Cohen et al., 1994; Mondo et al., 2021). The PSS-10 is a psychological instrument frequently used to measure perceived stress. Respondents are asked to answer 10 questions pertaining to the frequency of stressful situations during the last month on a five-point scale ranging from 0 (never) to 4 (very often). Example items include 'In the last month, how often have you been upset because of something that happened unexpectedly?'. The total PSS-10 score ranges from 0 (low perceived stress) to 40 (high perceived stress). The reliability of the PSS-10 was good, with internal consistency estimates using Cronbach's alpha ranging from 0.67 to 0.91 (Mondo et al., 2021).

Self-compassion was measured through the Self Compassion Scale (SCS) (Neff, 2003b; Veneziani et al., 2017), that consists of 26 items measuring six facets of self-compassion: self-kindness (5 items, e.g. 'I try to be loving towards myself when I'm feeling emotional pain'); common humanity (4 items, e.g. 'I try to see my failings as part of the human condition'); mindfulness (4 items, e.g. 'When something upsets me I try to keep my emotions in balance'); self-judgement (5 items, e.g. 'I'm disapproving and judgmental about my own flaws and inadequacies'); isolation (4 items, e.g. 'When I fail at something that's important to me, I tend to feel alone in my failure'); and over-identification (4 items, e.g. 'When I'm feeling down I tend to obsess and fixate on everything that's wrong'). Respondents indicate how frequently they act on a 5-point Likert scale from 1 (almost never) to 5 (almost always). Mean scores are computed for each subscale. The total score showed good internal consistency in the original version (Cronbach's  $\alpha$  = 0.92) (Veneziani et al., 2017).

### Data analyses

Frequencies and percentages were given for categorical variables, whereas means and standard deviations were given for continuous variables. The

unadjusted beta coefficients for the independent variables pertaining to personal characteristics (sex, age, education, employment, marital status, living conditions, and living place), pre-COVID conditions (suffering from chronic conditions or physical disabilities), COVID infection (period of the first SARS-CoV-2 infection, re-infection by SARS-CoV-2, severity of COVID-19 disease), Long COVID (Long COVID diagnosis, number of Long COVID symptoms), and SCS (total score and dimensions) were estimated using univariate linear regression models. Only those variables with  $p < .10$  entered the multivariate linear regression models estimating the adjusted beta coefficients. All the analyses were performed using Stata version 17 for Windows.

## Results

A total of 332 members of the Facebook (FB) community participated in the survey. Their personal characteristics are presented in Table 1. Most were Italian (97.3%), female (73.6%), older than 36 years (77.4%), with at least a high school qualification

**Table 1.** Personal characteristics of the study sample ( $n = 332$ ).

Variable	<i>n</i>	%
Sex	(63 missing)	
Male	71	26.4
Female	198	73.6
Age (years)		
18–35	75	22.6
36–55	186	56.0
56+	71	21.4
Education	(1 missing)	
Primary education	68	20.5
Secondary education	142	42.9
Tertiary education/degree/postgraduate degree	121	36.6
Nationality		
Italian	323	97.3
Other	9	2.7
Employment	(1 missing)	
No	105	31.7
Yes	226	68.3
Marital status		
Single	117	35.2
Married/in civil partnership	172	51.8
Divorced/widowed	43	13.0
Living condition		
Alone	46	13.9
Parents/other relatives	75	22.6
Partner and/or children	211	63.6
Living place	(1 missing)	
City	112	33.8
Town with more than 10,000 inhabitants	126	38.1
Village with less than 10,000 inhabitants	93	28.1
Suffering from chronic conditions or physical disabilities		
No	185	55.7
Yes	147	44.3

(79.5%), employed (68.3%) and lived with other people (86.2%). About half of the people in the sample were married or in a stable cohabiting relationship (51.8%), more than 65% lived in towns or villages, and approximately 45% suffered from chronic conditions or physical disabilities.

The socio-demographic characteristics of the respondents substantially overlap with those of the members of this FB community in terms of their gender (75% female vs. 25% males) and age (18–35 yrs. 23%; 36–55 yrs. 56%; ≥56 yrs. 21%) composition.

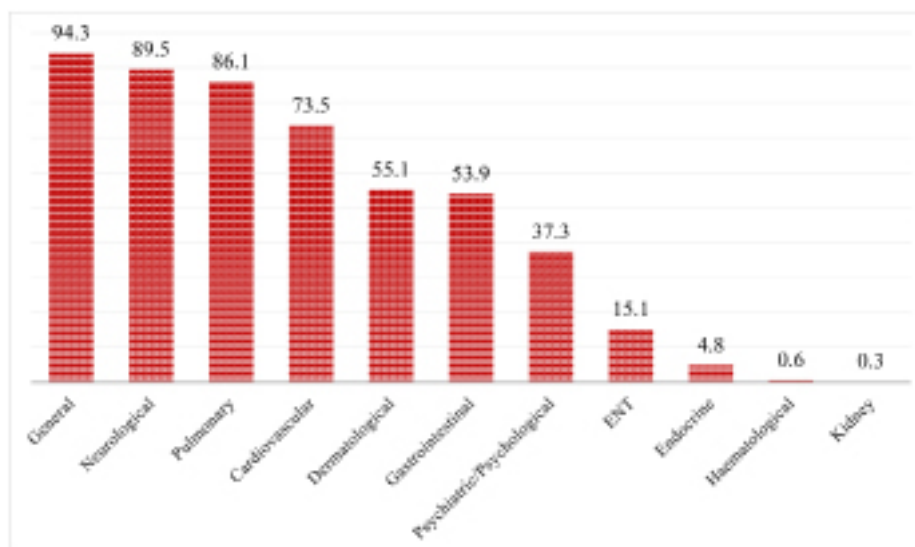
Table 2 presents the COVID-related characteristics. Overall, more than 50% of the respondents had been infected with SARS-CoV-2 in the third wave (Oct 2021–May 2022), 93% had developed a symptomatic infection, and 19.4% had been admitted to the hospital due to COVID-19. The mean number of Long COVID symptoms was 10 (S.D. 5), with a range from 1 to 25 (Interquartile range 7–14).

When ranking according to symptoms (Figure 1), 94.3% of participants reported having at least one general symptom (e.g. persistent fatigue, diffuse pain, myalgia, high temperature), 89.5% neurological symptoms (e.g. headache, brain fog, memory problems), 86.1% pulmonary (e.g. shortness of breath, persistent cough), 73.5% cardiovascular (e.g. chest tightness, chest pain, palpitations, tachycardia), 55.1% dermatological (e.g. erythema pernio, papulosquamous disorder, alopecia), 53.9% gastrointestinal (e.g. abdominal pain, nausea, vomiting), 37.3% psychiatric/psychological (e.g. depression, anxiety, post-traumatic stress disorder), and 15.1% ENT (e.g. tinnitus, earache, sore throat). Finally, only a small fraction reported endocrine (4.8%), hematological (0.6%), and kidney (0.3%) symptoms.

**Table 2.** COVID-19 related characteristics of the study sample ( $n = 332$ ).

Variable	<i>n</i>	%
Period of the first SARS-CoV-2 infection		
First wave (Jan 2020–Sep 2020)	52	15.7
Second wave (Oct 2020–Sep 2021)	109	32.8
Third wave (Oct 2021–May 2022)	171	51.5
Re-infection by SARS-CoV-2		
No	299	90.1
Yes	33	9.9
Severity of COVID-19 disease	(2 missing)	(2 missing)
Asymptomatic	23	7.0
Mildly symptomatic (no treatment)	29	8.8
Symptomatic treated at home	214	64.8
Symptomatic admitted to hospital	64	19.4
ICU	11	17.5
Sub-intensive care	32	50.8
Ordinary wards	20	31.7
Variable	<b><i>M</i></b>	<b><i>SD</i></b>
Number of Long-COVID symptoms	10.5	4.9





**Figure 1.** Percentage of participants reporting Long Covid symptoms ( $n=332$ ).

**Table 3.** Mental health dimensions (depression, anxiety, perceived stress): mean (sd), range, n and percentage of participants by categories.

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Range</i>	Categories	<i>n</i>	%
Depression (PHQ-9)	250	13.1	5.8	0–27	0–4 no depression	13	5.2
					5–9 mild	62	24.8
					10–14 moderate	78	31.2
					15–19 moderately severe	63	25.2
					20–27 severe	34	13.6
Anxiety (GAD-7)	249	10.7	5.6	0–21	0–4 no anxiety	32	12.9
					5–9 mild	83	33.3
					10–14 moderate	62	24.9
					15–21 severe	72	28.9
Perceived stress (PSS)	257	23.5	7.1	4–40	0–13 low stress	21	8.2
					14–26 moderate	153	59.2
					27–40 high	83	32.3

PHQ-9 scores range from 0 to 27, GAD-7 scores range from 0 to 21, and PSS scores range from 0 to 40. As regards the PSS, the 257 participants who completed it differed from the 75 who did not complete only for age (18–35 yrs. 17.9% vs 38.7%, 36–55 yrs. 59.8% vs 46.7%, 56–80 yrs. 23.3% vs 14.7%;  $p < .001$  Chi-square test).

**Table 3** displays symptoms of depression, anxiety and stress reported by participants.

Overall, 70% ( $n=175$ ) of respondents reported moderate to severe depressive symptoms, 53.8% ( $n=134$ ) moderate to severe anxiety symptoms, and 91.8% ( $n=236$ ) moderate to high levels of perceived stress.

A total of 279 participants also completed the self-compassion scale (SCS). The mean overall score was 3.1 (S.D. 0.7). As regards the various scale dimensions, the mean score was 3.1 (SD 0.7) for self-kindness (SK), 2.4 (SD 1.0) for Self-Judgement (SJ), 2.6 (SD 0.9) for Common Humanity (CH), 2.5 (SD 1.0) for Isolation (IS), 2.7 (SD 1.0) for Mindfulness (MF), and 2.5 (SD 1.0) for Over-identification (OI).

**Table 4** shows the adjusted beta coefficients estimated from the multivariate linear regression model for each psychological dimension, i.e. depression (PHQ-9), anxiety (GAD-7), and perceived stress (PSS-10). Only

variables [personal characteristics (gender, age, education, employment, marital status, living condition, and living place), pre-COVID conditions (suffering from chronic conditions or physical disabilities), COVID infection (period of the first SARS-CoV-2 infection, re-infection by SARS-CoV-2, severity of COVID-19 disease), Long COVID (long-COVID diagnosis, number of long-COVID symptoms), and SCS (total score and dimensions)] with unadjusted beta coefficients at  $p < .10$  were included in the models (data available from the authors).

The specificity of the SCS dimensions was explored by re-estimating the models with each dimension as an independent variable in place of the SCS total score (**Table 5**).

All SCS dimensions were significantly associated with all psychological dimensions. As expected, self-kindness, common humanity, and mindfulness were negatively associated (higher SCS levels were

**Table 4.** Multivariate linear regression models for depression (PHQ-9), anxiety (GAD-7) and perceived stress (PSS) with self-compassion (SCS total score) among independent variables.

Personal and pre-covid characteristics	Depression		Anxiety		Perceived stress	
	Adj Beta (95% CI)	p	Adj Beta (95% CI)	p	Adj Beta (95% CI)	p
Gender						
Male	Ref.				Ref.	
Female	0.99 (−0.61; 2.58)	.225			1.28 (−0.58; 3.14)	.176
Age						
18–35			Ref.		Ref.	
36–55			−2.14 (−3.81; −0.47)	.012	−1.43 (−3.54; 0.68)	.182
56+			−1.11 (−3.05; 0.84)	.264	−1.39 (−3.81; 1.03)	.259
Education						
Primary	Ref.					
Secondary	−1.36 (−3.09; 0.37)	.123				
Tertiary/degree/postgraduate degree	−2.56 (−4.36; −0.77)	.005				
Living condition						
Alone			Ref.			
Parents/other relatives			1.80 (−0.25; 3.86)	.084		
Partner and/or children			2.24 (0.61; 3.88)	.007		
Organic chronic conditions/disabilities						
No	Ref.					
Yes	1.14 (−0.23; 2.50)	.102				
Adjusted R-Squared	7.5%		3.5%		3.2%	
Long COVID						
Number of symptoms	0.29 (0.15; 0.44)	<.001	0.23 (0.09; 0.37)	.001	0.27 (0.11; 0.42)	.001
Adjusted R-Squared	7.8%		3.6%		5.6%	
Self-Compassion						
SCS total score	−3.99 (−4.92; −3.06)	<.001	−4.47 (−5.26; −3.68)	<.001	−5.92 (−6.99; −4.86)	<.001
Adjusted R-Squared	22.3%		31.4%		33.5%	
Number of observations	205		249		211	
F test, p-value	F(6, 198) = 21.45, <.001		F(6, 242) = 26.91, <.001		F(5, 205) = 31.82, <.001	
Model's Adjusted R-Squared	37.6%		38.5%		42.3%	

Independent variables considered in the univariate linear regression model for PHQ-9, GAD-7, and PSS: personal and pre-COVID characteristics (gender, age, education, employment, marital status, living condition, living place, suffering from chronic conditions or physical disabilities), COVID infection (period of the first SARS-CoV-2 infection, re-infection by SARS-CoV-2, severity of COVID-19 disease), long-COVID (long-COVID diagnosis, number of Long-COVID symptoms), self-compassion (SCS total score). Only independent variables with  $p < .10$  entered the multivariate model for PHQ-9, GAD-7, and PSS.

**Table 5.** Contribution of each SCS dimension considered separately in the multivariate linear regression models for depression (PHQ-9), anxiety (GAD-7) and perceived stress (PSS): Adjusted Beta coefficient (95% CI), p-value and Adjusted R-squared are reported.

SCS dimension	Depression			Anxiety			Perceived stress		
	Adj Beta (95% CI)	p	Adj R <sup>2</sup>	Adj Beta (95% CI)	p	Adj R <sup>2</sup>	Adj Beta (95% CI)	p	Adj R <sup>2</sup>
Self-kindness	−1.77 (−2.52; −1.01)	<.001	7.9%	−1.90 (−2.56; −1.24)	<.001	10.5%	−2.75 (−3.65; −1.85)	<.001	13.2%
Self-judgment	2.67 (1.89; 3.44)	<.001	15.8%	3.13 (2.47; 3.80)	<.001	24.2%	3.61 (2.64; 4.58)	<.001	18.7%
Common humanity	−1.49 (−2.36; −0.62)	.001	4.3%	−1.15 (−1.91; −0.39)	.003	2.9%	−2.04 (−3.09; −0.98)	<.001	5.6%
Isolation	2.42 (1.76; 3.08)	<.001	17.3%	2.69 (2.11; 3.28)	<.001	23.5%	3.81 (3.06; 4.56)	<.001	29.5%
Mindfulness	−1.96 (−2.72; −1.20)	<.001	9.4%	−2.21 (−2.86; −1.56)	<.001	14.1%	−3.21 (−4.10; −2.32)	<.001	17.8%
Over-identification	2.85 (2.20; 3.51)	<.001	22.6%	3.49 (2.96; 4.02)	<.001	38.1%	4.20 (3.43; 4.96)	<.001	32.8%

Independent variables considered in the multivariate linear regression model for PHQ-9, GAD-7, and PSS are the same as models in Table 4.

associated with lower distress levels), while self-judgment, isolation, and over-identification were positively associated (higher SCS levels were associated with higher distress levels). Interestingly, three main dimensions emerged that, adjusted for the other factors in the models, contributed to explaining the greatest variability in the psychological dimensions

considered: over-identification explained the greatest variance in all three psychological dimensions (R-squared 22.6% for depression, 38.1% for anxiety, and 32.8% for perceived stress), isolation explained the greatest variance for perceived stress (R-squared 29.5%), whereas self-judgement explained the greatest variance for anxiety (R-squared 24.2%).

## Discussion

A growing body of literature over the last decade has investigated the impact of self-blame, self-criticizing, or shaming tendencies as determinants of mental health in patients with chronic illness (Neely et al., 2009; Sirois et al., 2015). The present study aimed to investigate the association between self-compassion and distress (particularly stress, anxiety, and depression) in people with Long COVID. To our knowledge, this is the first study to examine the effect of self-compassion in a sample of people with Long COVID and one of the few studies investigating the role of psychological constructs in this population (Bierbauer et al., 2022; Hübner et al., 2023; Wang et al., 2022).

Regarding the clinical characteristics of the sample, the most frequently reported Long Covid symptoms were persistent fatigue, diffused pain, myalgia, and high temperature. Regarding depressive symptoms, participants reporting at least a moderate level were nearly 70%. A recent systematic review revealed that mood disorders in this population are reported by 13.66% of patients and anxiety disorders in 17.39% of patients (Efstathiou et al., 2022), in a meta analysis the pooled prevalence of depression and anxiety among patients coping with Post COVID-19 syndrome was estimated to be 23% (Seighali et al., 2024). This seems to suggest that a self-selection bias might have occurred in our sample, which includes patients with high levels of distress. Participants with severe distress may also be over-represented because they are part of a social media community where people share the difficulties of living with Long COVID symptomatology.

Regarding psychological dimensions, all subcategories of self-compassion were found to be strongly associated with distress (i.e. depressive symptoms, anxiety symptoms and stress perception). In particular, the dimension of over-identification (excessively associating one's identity with one's emotional state or situation) accounted for the largest amount of variance in all three psychological dimensions (depression, anxiety, and perceived stress), with R-squared values of 22.6% for depression, 38.1% for anxiety, and 32.8% for perceived stress. Isolation explained the most variance in perceived stress (R-squared of 29.5%). Self-judgment explained the greatest variance in anxiety (R-squared of 24.2%). The relationship between distress and self-compassion is well known in the literature and has been found in previous studies on chronic illnesses (Baker et al.,

2019; Brion et al., 2014; Gillanders et al., 2015; Hughes et al., 2021). Several studies have shown that the tendency to be kinder and warmer to oneself and the belief of not being the only one experiencing such suffering is associated with lower distress and more adaptive coping strategies (Sirois et al., 2015); no study before had shown this within a cohort of Long covid patients.

The positive association between over-identification, isolation, self-judgment and distress emphasises the role of self-critical attitudes and judgemental thoughts in dysfunctional adaptation to illness and suffering. Previous research has shown that people who tend to attribute illness-related changes to their past behaviours experience more personal failures, increased criticism, self-judgment, and blaming (Thompson et al., 1993). Moreover, over-identification, or the tendency to selectively focus only on the negative aspects of one's suffering, involves ruminating on one's own suffering and is thought to result in a tunnel vision that prevents deep experiencing of the present moment (Gilbert & Procter, 2006; Neff & Vonk, 2009). People who tend to overidentify may magnify the significance of failures and suffering (Barnard & Curry, 2011; Neff et al., 2005; Shapiro et al., 2007). These observations are supported by several studies of affective neuroscience within the model of affect regulation (Gilbert, 2009), where focus on threat can lead to shame, self-criticism, and depression (Gilbert, 2017), and deactivating self-regulatory processes of self-reassurance and self-compassion (Gilbert et al., 2006).

Activation of the parasympathetic system, which is thought to be involved in self-compassion processes, is associated with more affiliative and mindful attitudes (Gilbert, 2017; Kirschner et al., 2019) and allows adaptive self-regulation through a clear and realistic view of internal and external experiences (Didonna, 2009). Mindfulness, a component of self-compassion, involves being aware of one's present moment experience of suffering with clarity and balance, without being caught up in an exaggerated storyline about negative aspects of oneself or one's life experience, as occurs during over-identification and self-judgment (Neff, 2016). Self-compassion can promote self-regulation of health-related behaviors by lowering defensiveness and reducing negative emotional states and feelings of guilt that interfere with self-regulation (Terry & Leary, 2011).

Previous research with people with other chronic conditions has shown that high levels of self-compassion are associated with higher positive emotions and lower negative emotions, thus suggesting that self-compassion



plays a central role in coping more positively with unpleasant and stressful events to unpleasant and stressful events (Allen et al., 2012; Brion et al., 2014; Neff et al., 2005, 2007).

Self-compassion may represent an interesting target for psychological interventions to reduce the impact of neuropsychiatric symptoms in this population. A growing body of research supports the effectiveness of self-compassion-based interventions in other populations. A recent meta-analysis of self-compassion-based interventions showed that these interventions have a significant effect on many psychological dimensions and populations, including people with physical illnesses (Ferrari et al., 2019). These findings suggest that compassion-based interventions may be effective in reducing distress in this type of population.

### Strengths and limitations

The first strength of this study is the large sample size which exceeds more than 300 people. The second strength is the use of standardized validated scales specifically developed to assess self-compassion and the different dimensions of distress. The third strength relates to the inclusion of people who became positive or were diagnosed with COVID-19 in different pandemic waves and who developed disabling symptoms related to Long COVID.

This study has several limitations. The first relates to the representativeness of the sample, which may not be representative of the population of interest, both in terms of sociodemographic composition and in terms of Long COVID symptom severity. This is because females were overrepresented in our sample. The recruitment method (through Facebook) might be one explanation, as, according to evidence in the literature, women are more frequent social media users, particularly for health and psychological issues (Bidmon & Terlutter, 2015; Kimbrough et al., 2013). Participants with severe Long COVID symptoms may also be over-represented because they are part of a social media community where people share the difficulties of living with Long COVID symptomatology. Moreover, about 70% have moderate to severe depressive symptoms, and about 55% have moderate to severe anxiety symptoms, the current scientific literature has attested to prevalence rates of anxiety and depression around 23% in this population, which leads to consider our sample as particularly distressed (Seighali et al., 2024). This could be explained by several reasons, e.g. only people with

higher levels of distress may have responded to the survey, or another explanation could come from the recruitment method, i.e. a closed group dedicated to those suffering from Long Covid, which might over-represent patients with greater distress and impairment. In order to reduce these biases, it might be useful to replicate this study in a different setting, such as a hospital setting. Second, selection bias might have occurred, thus limiting the participation of those with non-disabling Long COVID symptoms and who do not regularly access social media and, in general, of all people affected by 'digital poverty' and 'digital inequality'. A third limitation is the cross-sectional nature of the study which did not allow for the determination of causal relationships between Long COVID symptoms, distress, and self-compassion dimensions. Finally, as with any study that relied on online data collection, response and social desirability biases might have affected the results.

Future research directions should consider these findings to build more robust studies that can test the causality between low levels of self-compassion and suffering in this population. This could be particularly important in order to build psychological interventions that can directly impact such cognitive processes.

### Conclusion

In summary, self-compassion seems to be negatively associated with depression, anxiety, and stress in people with Long COVID, and it may thus represent a treatment target for psychological interventions in this population. A more self-compassionate attitude may help reduce distress related to Long COVID and promote better adaptation to illness.

### Authors contributions

A.L., L.B and C.B conceived of and designed the study. C.B designed the statistical analysis plan. A.L., L.B. and C.B. analysed the data and developed the figures and tables. A.L., C.B, L.B., M.C., N.B. reviewed the findings and contributed to the interpretation. L.B drafted the first version of the manuscript; C.B and A.L. revised the first version of the manuscript, T.V.B. revised subsequent versions of the manuscript. All authors contributed intellectual content during the drafting and revision of the work and approved the final version of the article.

### Ethical approval

The study was conducted in accordance with the Declaration of Helsinki and was approved by an Institutional Review Board/Ethics committee. See details under Methods.

## Consent to participate

Participants were aware of the purpose of the study and gave informed consent before participating. They completed the survey anonymously, voluntarily and without any remuneration.

## Disclosure statement

The authors do not have any competing interests to disclose.

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## Data availability statement

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

## References

- Allen, A. B., Goldwasser, E. R., & Leary, M. R. (2012). Self-compassion and well-being among older adults. *Self and Identity*, 11(4), 1–12. <https://doi.org/10.1080/15298868.2011.595082>
- Baker, D. A., Caswell, H. L., & Eccles, F. J. (2019). Self-compassion and depression, anxiety, and resilience in adults with epilepsy. *Epilepsy & Behavior*, 90, 154–161. <https://doi.org/10.1016/j.yebeh.2018.11.025>
- Barnard, L. K., & Curry, J. F. (2011). Self-compassion: Conceptualizations, correlates, & interventions. *Review of General Psychology*, 15(4), 289–303. <https://doi.org/10.1037/a0025754>
- Bidmon, S., & Terlutter, R. (2015). Gender differences in searching for health information on the internet and the virtual patient-physician relationship in Germany: Exploratory results on how men and women differ and why. *Journal of Medical Internet Research*, 17(6), e4127. <https://doi.org/10.2196/jmir.4127>
- Bierbauer, W., Lüscher, J., & Scholz, U. (2022). Illness perceptions in long-COVID: A cross-sectional analysis in adults. *Cogent Psychology*, 9(1), 2105007. <https://doi.org/10.1080/23311908.2022.2105007>
- Bolgeo, T., Di Matteo, R., Simonelli, N., Dal Molin, A., Lusignani, M., Bassola, B., Vellone, E., Maconi, A., & Iovino, P. (2023). Psychometric properties and measurement invariance of the 7-item General Anxiety Disorder scale (GAD-7) in an Italian coronary heart disease population. *Journal of Affective Disorders*, 334, 213–219. <https://doi.org/10.1016/j.jad.2023.04.140>
- Brion, J. M., Leary, M. R., & Drabkin, A. S. (2014). Self-compassion and reactions to serious illness: The case of HIV. *Journal of Health Psychology*, 19(2), 218–229. <https://doi.org/10.1177/1359105312467391>
- Broadbent, E., Petrie, K. J., Main, J., & Weinman, J. (2006). The brief illness perception questionnaire. *Journal of Psychosomatic Research*, 60(6), 631–637. <https://doi.org/10.1016/j.jpsychores.2005.10.020>
- Byrne, E. A. (2022). Understanding long COVID: Nosology, social attitudes and stigma. *Brain, Behavior, and Immunity*, 99, 17–24. <https://doi.org/10.1016/j.bbi.2021.09.012>
- Cohen, S., Kamarck, T., & Mermelstein, R. (1994). Perceived stress scale. *Measuring Stress*, 10(2), 1–2.
- Costantini, L., Pasquarella, C., Odone, A., Colucci, M. E., Costanza, A., Serafini, G., Aguglia, A., Belvederi Murri, M., Brakoulias, V., Amore, M., Ghaemi, S. N., & Amerio, A. (2021). Screening for depression in primary care with patient health questionnaire-9 (PHQ-9): A systematic review. *Journal of Affective Disorders*, 279, 473–483. <https://doi.org/10.1016/j.jad.2020.09.131>
- Crook, H., Raza, S., Nowell, J., Young, M., & Edison, P. (2021). Long covid—Mechanisms, risk factors, and management. *BMJ*, 374, n1648. <https://doi.org/10.1136/bmj.n1648>
- Diaz, J. V., Herridge, M., Bertagnolio, S., Davis, H. E., Dua, T., Kaushic, C., Marshall, J. C., del Rosario Pérez, M., Strub-Wourgaft, N., & Soriano, J. B. (2021). Towards a universal understanding of post COVID-19 condition. *Bulletin of the World Health Organization*, 99(12), 901–903. <https://doi.org/10.2471/BLT.21.286249>

- Didonna, F. (2009). Introduction: Where new and old paths to dealing with suffering meet. In *Clinical handbook of mindfulness* (pp. 1–17). New York: Springer.
- Dorrian, A., Dempster, M., & Adair, P. (2009). Adjustment to inflammatory bowel disease: The relative influence of illness perceptions and coping. *Inflammatory Bowel Diseases*, 15(1), 47–55. <https://doi.org/10.1002/ibd.20583>
- Efstathiou, V., Stefanou, M.-I., Demetriou, M., Siafakas, N., Makris, M., Tsivgoulis, G., Zoumpourlis, V., Kypouropoulos, S. P., Tsoporis, J. N., Spandidos, D. A., Smyrnis, N., & Rizos, E. (2022). Long COVID and neuropsychiatric manifestations. *Experimental and Therapeutic Medicine*, 23(5), 363. <https://doi.org/10.3892/etm.2022.11290>
- Ferrari, M., Hunt, C., Harrysunker, A., Abbott, M. J., Beath, A. P., & Einstein, D. A. (2019). Self-compassion interventions and psychosocial outcomes: A meta-analysis of RCTs. *Mindfulness*, 10(8), 1455–1473. <https://doi.org/10.1007/s12671-019-01134-6>
- Garrigues, E., Janvier, P., Kherabi, Y., Le Bot, A., Hamon, A., Gouze, H., Doucet, L., Berkani, S., Oliosi, E., Mallart, E., Corre, F., Zarrouk, V., Moyer, J.-D., Galy, A., Honsel, V., Fantin, B., & Nguyen, Y. (2020). Post-discharge persistent symptoms and health-related quality of life after hospitalization for COVID-19. *The Journal of Infection*, 81(6), e4–e6. <https://doi.org/10.1016/j.jinf.2020.08.029>
- Gilbert, P. (2009). Introducing compassion-focused therapy. *Advances in Psychiatric Treatment*, 15(3), 199–208. <https://doi.org/10.1192/apt.bp.107.005264>
- Gilbert, P. (2017). A brief outline of the evolutionary approach for compassion focused therapy. *EC Psychology and Psychiatry*, 3, 218–227.
- Gilbert, P., & Procter, S. (2006). Compassionate mind training for people with high shame and self-criticism: Overview and pilot study of a group therapy approach. *Clinical Psychology & Psychotherapy*, 13(6), 353–379. <https://doi.org/10.1002/cpp.507>
- Gilbert, P., Baldwin, M. W., Irons, C., Baccus, J. R., & Palmer, M. (2006). Self-criticism and self-warmth: An imagery study exploring their relation to depression. *Journal of Cognitive Psychotherapy*, 20(2), 183–200. <https://doi.org/10.1891/jcop.20.2.183>
- Gillanders, D. T., Sinclair, A. K., MacLean, M., & Jardine, K. (2015). Illness cognitions, cognitive fusion, avoidance and self-compassion as predictors of distress and quality of life in a heterogeneous sample of adults, after cancer. *Journal of Contextual Behavioral Science*, 4(4), 300–311. <https://doi.org/10.1016/j.jcbs.2015.07.003>
- Giuliano, M., Tiple, D., Agostoni, P., Armocida, B., Biardi, L., Bonfigli, A. R., Campana, A., Ciardi, M., Di Marco, F., Florida, M., Gnerre, P., Grassi, T., Grattagliano, I., Kruger, P., Leonardi, M., Liguori, R., Pagani, E., Perger, E., Pricci, F., ... Onder, G. (2023). Italian good practice recommendations on management of persons with Long-COVID. *Frontiers in Public Health*, 11, 1122141. <https://doi.org/10.3389/fpubh.2023.1122141>
- Gray, S. E., & Rutter, D. R. (2007). Illness representations in young people with Chronic Fatigue Syndrome. *Psychology & Health*, 22(2), 159–174. <https://doi.org/10.1080/14768320600774595>
- Hüfner, K., Tymoszyk, P., Sahanic, S., Luger, A., Boehm, A., Pizzini, A., Schwabl, C., Koppelstätter, S., Kurz, K., Asshoff, M., Mosheimer-Feistritz, B., Pfeifer, B., Rass, V., Schroll, A., Iglseder, S., Egger, A., Wöll, E., Weiss, G., Helbok, R., ... Löffler-Ragg, J. (2023). Persistent somatic symptoms are key to individual illness perception at one year after COVID-19 in a cross-sectional analysis of a prospective cohort study. *Journal of Psychosomatic Research*, 169, 111234. <https://doi.org/10.1016/j.jpsychores.2023.111234>
- Hughes, M., Brown, S. L., Campbell, S., Dandy, S., & Cherry, M. G. (2021). Self-compassion and anxiety and depression in chronic physical illness populations: A systematic review. *Mindfulness*, 12(7), 1597–1610. <https://doi.org/10.1007/s12671-021-01602-y>
- Kimbrough, A. M., Guadagno, R. E., Muscanell, N. L., & Dill, J. (2013). Gender differences in mediated communication: Women connect more than do men. *Computers in Human Behavior*, 29(3), 896–900. <https://doi.org/10.1016/j.chb.2012.12.005>
- Kirschner, H., Kuyken, W., Wright, K., Roberts, H., Brejcha, C., & Karl, A. (2019). Soothing your heart and feeling connected: A new experimental paradigm to study the benefits of self-compassion. *Clinical Psychological Science*, 7(3), 545–565. <https://doi.org/10.1177/2167702618812438>
- Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, 16(9), 606–613. <https://doi.org/10.1046/j.1525-1497.2001.016009606.x>
- Lopez-Leon, S., Wegman-Ostrosky, T., Perelman, C., Sepulveda, R., Rebolledo, P. A., Cuapio, A., & Villapol, S. (2021). More than 50 long-term effects of COVID-19: A systematic review and meta-analysis. *Scientific Reports*, 11(1), 16144. <https://doi.org/10.1038/s41598-021-95565-8>
- Malik, P., Patel, K., Pinto, C., Jaiswal, R., Tirupathi, R., Pillai, S., & Patel, U. (2022). Post-acute COVID-19 syndrome (PCS) and health-related quality of life (HRQoL)—A systematic review and meta-analysis. *Journal of Medical Virology*, 94(1), 253–262. <https://doi.org/10.1002/jmv.27309>
- Mondo, M., Sechi, C., & Cabras, C. (2021). Psychometric evaluation of three versions of the Italian perceived stress scale. *Current Psychology*, 40(4), 1884–1892. <https://doi.org/10.1007/s12144-019-0132-8>
- Neely, M. E., Schallert, D. L., Mohammed, S. S., Roberts, R. M., & Chen, Y.-J. (2009). Self-kindness when facing stress: The role of self-compassion, goal regulation, and support in college students' well-being. *Motivation and Emotion*, 33(1), 88–97. <https://doi.org/10.1007/s11031008-9119-8>
- Neff, K. D. (2003a). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity*, 2(2), 85–101. <https://doi.org/10.1080/15298860309032>
- Neff, K. D. (2003b). The development and validation of a scale to measure self-compassion. *Self and Identity*, 2(3), 223–250. <https://doi.org/10.1080/15298860309027>
- Neff, K. D. (2016). The self-compassion scale is a valid and theoretically coherent measure of self-compassion. *Mindfulness*, 7(1), 264–274. <https://doi.org/10.1007/s12671-015-0479-3>
- Neff, K. D., & Vonk, R. (2009). Self-compassion versus global self-esteem: Two different ways of relating to oneself. *Journal of Personality*, 77(1), 23–50. <https://doi.org/10.1111/j.1467-6494.2008.00537.x>
- Neff, K. D., Hsieh, Y.-P., & Dejitterat, K. (2005). Self-compassion, achievement goals, and coping with academic failure. *Self and Identity*, 4(3), 263–287. <https://doi.org/10.1080/13576500444000317>

- Neff, K. D., Kirkpatrick, K. L., & Rude, S. S. (2007). Self-compassion and adaptive psychological functioning. *Journal of Research in Personality, 41*(1), 139–154. <https://doi.org/10.1016/j.jrp.2006.03.004>
- Penninx, B. W. (2021). Psychiatric symptoms and cognitive impairment in “Long COVID”: The relevance of immunopsychiatry. *World Psychiatry, 20*(3), 357–358. <https://doi.org/10.1002/wps.20913>
- Raveendran, A., Jayadevan, R., & Sashidharan, S. (2021). Long COVID: an overview. *Diabetes & Metabolic Syndrome, 15*(3), 869–875. <https://doi.org/10.1016/j.dsx.2021.04.007>
- Rockliff, H., Karl, A., McEwan, K., Gilbert, J., Matos, M., & Gilbert, P. (2011). Effects of intranasal oxytocin on compassion focused imagery. *Emotion, 11*(6), 1388–1396. <https://doi.org/10.1037/a0023861>
- Seighali, N., Abdollahi, A., Shafiee, A., Amini, M. J., Teymouri Athar, M. M., Safari, O., Faghfour, P., Eskandari, A., Rostaii, O., Salehi, A. H., Soltani, H., Hosseini, M., Abhari, F. S., Maghsoudi, M. R., Jahanbakhshi, B., & Bakhtiyari, M. (2024). The global prevalence of depression, anxiety, and sleep disorder among patients coping with Post COVID-19 syndrome (long COVID): A systematic review and meta-analysis. *BMC Psychiatry, 24*(1), 105. <https://doi.org/10.1186/s12888-023-05481-6>
- Shapiro, S. L., Brown, K. W., & Biegel, G. M. (2007). Teaching self-care to caregivers: Effects of mindfulness-based stress reduction on the mental health of therapists in training. *Training and Education in Professional Psychology, 1*(2), 105–115. <https://doi.org/10.1037/1931-3918.1.2.105>
- Sharpe, L., Sensky, T., & Allard, S. (2001). The course of depression in recent onset rheumatoid arthritis. *Journal of Psychosomatic Research, 51*(6), 713–719. [https://doi.org/10.1016/S0022-3999\(01\)00266-5](https://doi.org/10.1016/S0022-3999(01)00266-5)
- Sirois, F. M., Molnar, D. S., & Hirsch, J. K. (2015). Self-compassion, stress, and coping in the context of chronic illness. *Self and Identity, 14*(3), 334–347. <https://doi.org/10.1080/15298868.2014.996249>
- Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine, 166*(10), 1092–1097. <https://doi.org/10.1001/archinte.166.10.1092>
- Terry, M. L., & Leary, M. R. (2011). Self-compassion, self-regulation, and health. *Self and Identity, 10*(3), 352–362. <https://doi.org/10.1080/15298868.2011.558404>
- Thompson, S. C., Sobolew-Shubin, A., Galbraith, M. E., Schwankovsky, L., & Cruzen, D. (1993). Maintaining perceptions of control: Finding perceived control in low-control circumstances. *Journal of Personality and Social Psychology, 64*(2), 293–304. <https://doi.org/10.1037/0022-3514.64.2.293>
- Thornton, L., Batterham, P. J., Fassnacht, D. B., Kay-Lambkin, F., CEAR, A. L., & Hunt, S. (2016). Recruiting for health, medical or psychosocial research using Facebook: Systematic review. *Internet Interventions, 4*, 72–81. <https://doi.org/10.1016/j.invent.2016.02.001>
- Veneziani, C. A., Fuochi, G., & Voci, A. (2017). Self-compassion as a healthy attitude toward the self: Factorial and construct validity in an Italian sample. *Personality and Individual Differences, 119*, 60–68. <https://doi.org/10.1016/j.paid.2017.06.028>
- Wang, Y., Bao, S., & Chen, Y. (2022). The illness experience of long COVID patients: A qualitative study based on the online Q&A community Zhihu. *International Journal of Environmental Research and Public Health, 19*(16), 9827. <https://doi.org/10.3390/ijerph19169827>
- Weinman, J., Petrie, K. J., Moss-Morris, R., & Horne, R. (1996). The illness perception questionnaire: A new method for assessing the cognitive representation of illness. *Psychology & Health, 11*(3), 431–445. <https://doi.org/10.1080/08870449608400270>
- Zyrianova, Y., Kelly, B. D., Sheehan, J., McCarthy, C., & Dinan, T. G. (2011). The psychological impact of arthritis: The effects of illness perception and coping. *Irish Journal of Medical Science, 180*(1), 203–210. <https://doi.org/10.1007/s11845-010-0522-2>