The potential of psychological connectedness: Mitigating the impacts of COVID-19 through sense of community and community resilience

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Abstract
The purpose of this study was to identify patterns of relationships connecting sense of community (SOC) and community resilience with psychological wellbeing, via the mediation of coronavirus disease 2019 (COVID-19) impacts on life domains. Survey data were collected from an international sample of adults (n = 824) during the COVID-19 outbreak (June–September 2020). Using a structural equation model, we tested a mediation model to identify the associations between SOC and community resilience with the perceived impacts of the emergency situation and with psychological wellbeing. Results revealed that SOC mitigated the impacts of COVID-19 on multiple life domains, and it was also positively associated with wellbeing. Community resilience was correlated with SOC and wellbeing but showed no significant relationship with COVID-19 impacts. The findings support that SOC has a protective function and can contribute to mitigating the impacts of difficult life situations. SOC can also be leveraged as an intervention aimed at protecting the wellbeing of people and communities, particularly in times of crises

KEYWORDS
community resilience, COVID-19 impacts, emerging infectious diseases, outbreak, psychological wellbeing, sense of community, structural equation modeling
INTRODUCTION

On March 11, 2020, the World Health Organization officially declared coronavirus disease 2019 (COVID-19) a pandemic, propelling countries all over the world into a state of emergency (WHO, 2020a, 2020b). At the time of this study (June–August 2020) the virus had spread in a great number of countries all over the world (WHO, 2020a, 2020b). Although responses have varied, global restrictions on mobility and physical distancing were applied as key strategies for curtailing the highly infectious COVID-19 virus (CDC, 2020; WHO, 2020a, 2020b). The public health recommendation for physical distancing (more commonly known as social distancing) changed the ways all of our social and community institutions function (Rainie & Perrin, 2020). With COVID-19 as a threat to health, the overwhelming focus of responses to this pandemic went first and foremost toward biomedical solutions. What is of equal concern to social scientists—and should be of concern to all—is the tremendous psychological impact of both the pandemic and of the responses to curb its spread on both short-term and long-term individual and community-level psychological and social outcomes.

As is the case in most contexts of risk, there is also tremendous potential for amelioration to be found in the strengths, resources, and resilience of individual and community responses to this crisis. This study focuses attention on the psychological impact of COVID-19. By examining the relationships between psychological sense of community (PSOC), community resilience, and psychological wellbeing in these two contexts, as they are impacted by this pandemic response, our multinational research team sought to elucidate the bidirectional impacts of COVID, community response, and individual experience and response on wellbeing.

1.1 | Sense of community (SOC)

SOC (also referred to as “PSOC”) is the feeling of belonging, mutual influence, fulfillment of needs, and shared emotional connection felt between an individual and their communities. McMillan and Chavis’s (1986) four-dimensional model captures the elements at the heart of SOC and is the most common conceptualization used today. SOC has been studied in the United States as well as a wide range of populations and settings including Afghanistan and Pakistan (Brodsky, 2009), Israel (Itzhaky, 2003), Italy (Mannarini et al., 2012), the United Kingdom (K. Chang, 2010), and Spain (Vidal, 2009). In these and other studies, positive SOC has been positively related to wellbeing and life satisfaction (e.g., Farrell et al., 2004), operation of virtual communities (e.g., Blanchard, 2008), social cohesion (e.g., Wilkinson, 2007), community engagement, political participation, and community development (e.g., Brodsky et al., 1999, Xu et al., 2010) to name just a few linkages. Recent studies have begun to explore the role of SOC in moderating the impacts of COVID-19-related burdens. Some focus on interventions designed to build SOC and belonging in the midst of disruptions to social interactions (Dougherty & Dougherty, 2020; Frei-Landau, 2020); others on exploring SOC’s relation with COVID-19 outcomes. For example, SOC has been shown to moderate negative mental health symptoms related to caregiver burdens (Maytles et al., 2021) and moderate the increased risk of elder abuse during the pandemic (E. S. Chang & Levy, 2021).

1.2 | Community resilience

Community resilience can be broadly defined as “the sustained ability of a community to withstand and recover from adversity” (Chandra et al., 2011). COVID-19 is a collective major adversity, in other words, a disaster. Extant literature suggest that community resilience can act as a buffer against disasters by supporting a community to withstand such events with less external assistance (Panday et al., 2021; Zhou et al., 2010). The hallmark of emergency management relies on the understanding that a community’s ability to withstand and recover from adversity is what can mitigate negative impacts (Chandra et al., 2010; Plough et al., 2011). An individual’s relation to
a community can also play a critical role in facilitating recovery from a disaster (Pfefferbaum et al., 2015; Spialek & Houston, 2019). According to the model of community resilience outlined by Norris et al. (2008), individuals with high perceived community resilience are more likely to use collective action to counteract problem outcomes. Additionally, those with high perceived community resilience have been found to have stronger social ties, flexibly build, and disseminate resources, and are prepared to take action (Norris et al., 2008).

In recent years, community resilience has also been operationalized as collective resilience or collective community resilience when specifically referring to a group or community’s ability to overcome threats to well-being. Each term has been applied across diverse communities and challenges (Lyons et al., 2016). Recent research indicates a link between community resilience, mental health, and wellbeing. Those who belong to a community perceived as having high community resilience were less likely to experience psychological distress and more likely to experience positive mental health outcomes (Lyons et al., 2016). Moreover, community resilience is associated with SOC, as reported in a recent study conducted during the COVID-19 pandemic (Compare et al., submitted).

1.3 Psychological wellbeing

Subjective psychological wellbeing is a broad construct consisting of cognitive domains, such as a high life satisfaction, and affective domains, such as happiness, joy and contentment with low sadness, worry, and anger (Diener, 2009; Prilleltensky & Prilleltensky, 2006). The global concept of psychological wellbeing includes evaluations of the past, present, and prospect/future. However, it is the present temporal state that is most salient and reflected in self-report measures of both past and prospective wellbeing (Durayappah, 2011). Psychological wellbeing has been associated with better mental health, physical health, and meaningful relationships; fewer physical and mental health problems; better work productivity and fewer days missed of work; and even longer lives and a lower risk of suicide depending on what the term encompasses (e.g., Keyes & Grzywacz, 2005; Keyes & Simoes, 2012; Keyes et al., 2012; Keyes, 2007).

Multiple factors play a role in the development and maintenance of psychological wellbeing in the face of challenges, including both SOC and community resilience (e.g., Davidson & Cotter, 1991; Pretty et al., 1996). A strong SOC across diverse contexts—including both territorial and relational communities around the globe—has been shown to increase individuals’ psychological wellbeing and satisfaction with life (e.g., Boyd et al., 2018; M. I. Hombrados-Mendieta et al., 2013; Pozzi et al., 2014; Prezza & Costantini, 1998). Moreover, SOC appears to buffer against potential negative individual impacts of group- and community-level challenges, for example, predicting life satisfaction following a natural disaster (Huang & Wong, 2014) and predicting psychological wellbeing of spouses following military deployment (M. C. Wang et al., 2015). While the outcomes associated with community resilience are often measured at the community, rather than individual level, community resilience, like SOC, has been shown to support post natural disaster psychological wellbeing for both those directly impacted and first responders providing relief (e.g., Brooks et al., 2015; Gibbs et al., 2015; Prewitt Diaz, 2013).

2 CURRENT STUDY

The study examined the relationships between SOC, community resilience, and psychological wellbeing in a composite sample of adults drawn from different countries. The rationale for collecting data in different national contexts was to draw on a diverse sample of participants. Although differences in the epidemic stages and policies across countries are undeniable, research on the psychological impacts of the COVID-19 outbreak report extremely similar findings across countries and groups (Badr et al., 2020; Dawell et al., 2020; Saladino et al., 2020; Xiong et al., 2020).

During the period from June to September 2020, when this cross-sectional survey was conducted, countries were facing very different situations. The outbreak curve had almost flattened in the countries that were hit first, such as Italy, where the peak of the infections was registered between March and May, while in the same period the number of cases
had constantly increased in other countries, as is the case for the United States. (John Hopkins University, https://coronavirus.jhu.edu/data/new-cases). While communities were going through different stages of the outbreak and dealing with different health policies and political leadership, they were also all impacted by the COVID-19 pandemic in similar ways. All over the world (United Nations, 2020) the pandemic and related mitigation strategies reduced face-to-face social interactions and leisure activities; led to online classes for children, teens, and adult students; created intensive work from home demands for many adults and loss of employment for others; led to economic damages, personal and family health crises, and painful losses, and placed those employed in essential sectors in peril of exposure.

The impacts of these changes, particularly quarantine, on mental health have been readily documented across many countries, populations, and events, highlighting that pandemic-related stress and social isolation present significant risks to psychological wellbeing (e.g., Badr et al., 2020; Dawell et al., 2020; Migliorini et al., 2021; Saladino et al., 2020; Xiong et al., 2020). More than two in five adults in the United States reported symptoms consistent with anxiety and/or depression, a figure that has more than doubled since the pandemic began (Panchal et al., 2021). Symptoms of anxiety increased at the very beginning of the pandemic, whereas depression and sadness surfaced in the following months (Yarrington et al., 2021). Other studies involving US adults revealed widespread feelings of fear and threat, as well as concern about both the medical and financial hardship resulting from the spread of the virus (Gallup Opinion Pool [April], 2020), with higher sensitivity among the most vulnerable groups (e.g., immigrants, foreign-born, families with children) (Fitzpatrick et al., 2020) and higher psychological distress and poorer mental health among the disadvantaged communities (Purtle, 2020). An impact on mental health and wellbeing was observed also in the Italian population (Maizza et al., 2020), along with an upsurge of negative emotions (i.e., fear, anger, anxiety, and sadness) (Cerbara et al., 2020), and the surfacing of psychiatric symptoms, such as depression (Amendola et al., 2021) and posttraumatic stress disorder (Prete et al., 2020).

While much research has understandably focused on the medical impacts of COVID-19, identifying factors that can mitigate the negative individual and community health and wellbeing effects brought about by the pandemic's risky social conditions is highly relevant for interventions aimed at promoting wellbeing. This is particularly true given that the international health landscape is unlikely to return to a state of normality in the short run. Studies on the effects of the COVID-19 outbreak on wellbeing have attested to the importance of social support (Zhang & Ma, 2020) and family functioning (Gloster et al., 2020), as well as of timely and accurate health information (H. Wang et al., 2020). Cases of both informal bottom-up and formal top-down community initiatives aimed at mitigating the impacts of COVID-19 are examples of community resilience responses (Fransen et al., 2021; Rippon et al., 2020).

Our study focused on two community-related variables that previous research has found to be associated with wellbeing and also key in promoting adaptive responses to emergencies—SOC and community resilience. The main aim of this study was to test the capacity of both these variables to sustain wellbeing in times of crisis, while at the same time containing the negative impacts of the COVID-19 pandemic on a variety of life domains: family and social relationships, physical and mental health, work status, and the personal economic situation. Specifically, we tested the following hypotheses:

H1: SOC would be positively associated to psychological wellbeing, both directly and indirectly, through the mediation of COVID-19 impacts. We expected that SOC—because of its nature, composed of the four main elements: membership, influence, integration & fulfillment of needs, and shared emotional connection (McMillan & Chavis, 1986)—would help psychologically to contain the negative impacts on multiple life domains, thus giving people the feeling that they were not alone in dealing with problems and could count on others. In turn, the less negative the impacts were perceived, the less wellbeing would be undermined.

H2: In the same vein, community resilience would be directly and positively linked to psychological wellbeing, and indirectly and positively linked to wellbeing through the mediation of COVID-19 impacts. We hypothesized that community resilience—by reassuring individuals on the capacity of their community to cope with unprecedented events—would offer a symbolic anchor to aid people in managing stressful situations by conveying the message that their community is competent and able to
address the emergency. Hence, it would mitigate the perceived negative impacts of the outbreak, which in turn would act upon wellbeing.

3 | METHODS

3.1 | Procedures

All procedures implemented in the study are consistent with the APA’s ethical standards and the 1964 Helsinki Declaration. The project was reviewed and approved by the UMBC Institutional Review Board (IRB Y20AB20211). The questionnaire was constructed by the research team, using validated scales when possible, and translated into four languages (English, Spanish, Italian, and Korean). The languages were chosen based on research team expertise and location as well as to draw participation from a range of global contexts in which the pandemic was playing out in varied ways. Data were collected from the end of June until the beginning of September 2020 in an online survey administered through Qualtrics platform. The questionnaire was posted on Qualtrics with the choice to take it in any of the four languages. Online multilingual fliers that contained general information about the research (title, aims, potential participants, and research teams), an invitation to participate, and the link to the questionnaire were distributed via email, social media, and word of mouth by members of the international research team to their personal, professional, and social networks. Participation was voluntary and anonymous. Participants could decide whether to enter a raffle for one of 20 $75 (or equivalent denomination) gift cards, which was done through a link to a separate site that protected anonymity.

Before starting the questionnaire, participants were provided with informed consent describing the study aims and survey content, risks, benefits, privacy, the names of the researcher institutions, and contact information for the study team head. The questionnaire took approximately 25 min to complete. The response rate, defined as response to the entire questionnaire, was 68% of those who started the survey.

3.2 | Participants

A total of 938 participants completed the questionnaire. We excluded 114 participants because they missed at least one of the multi-item scales under study. The final sample included 824 participants (72.5% females) between the ages of 18 and 90 (M = 35.14, SD = 14.66; 21 cases were missing on this variable). The respondents’ socio-demographic characteristics are presented in Table 1.

3.3 | Instruments

Data reported here are from the portion of the self-report questionnaire that contained sociodemographic questions and the measures below. The scales items were all treated as continuous variables and were averaged to obtain a total mean score.

3.3.1 | Psychological wellbeing

Three items derived from the interpersonal, community, occupation, physical, psychological, and economic scale (Prilleltensky et al., 2015) were employed to measure psychological wellbeing (1) at the present moment, (2) 1 year before the COVID-19 restrictions, and (3) 1 year after their end, as psychological wellbeing reflects a holistic present construction of multiple temporal states (Durayappah, 2011). Respondents were asked to weigh their satisfaction with their emotional
<table>
<thead>
<tr>
<th>TABLE 1 Sample sociodemographic characteristics</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No high school</td>
<td>22</td>
<td>2.7</td>
</tr>
<tr>
<td>High school diploma, GED, or equivalent</td>
<td>89</td>
<td>10.8</td>
</tr>
<tr>
<td>Associate's degree or technical certification</td>
<td>220</td>
<td>26.7</td>
</tr>
<tr>
<td>Bachelor's degree</td>
<td>232</td>
<td>28.2</td>
</tr>
<tr>
<td>Graduate or professional degree</td>
<td>261</td>
<td>31.7</td>
</tr>
<tr>
<td><strong>Employment status</strong></td>
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<td></td>
</tr>
<tr>
<td>Full-time work</td>
<td>302</td>
<td>36.7</td>
</tr>
<tr>
<td>Part-time work</td>
<td>147</td>
<td>17.8</td>
</tr>
<tr>
<td>Home maker</td>
<td>43</td>
<td>5.2</td>
</tr>
<tr>
<td>Student</td>
<td>228</td>
<td>27.7</td>
</tr>
<tr>
<td>Retired</td>
<td>28</td>
<td>3.4</td>
</tr>
<tr>
<td>Not currently working</td>
<td>76</td>
<td>9.2</td>
</tr>
<tr>
<td><strong>Household income last year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $12,999</td>
<td>107</td>
<td>13.0</td>
</tr>
<tr>
<td>$13,000–$24,999</td>
<td>169</td>
<td>20.5</td>
</tr>
<tr>
<td>$25,000–$49,999</td>
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<td>20.8</td>
</tr>
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<td>$50,000–$99,999</td>
<td>119</td>
<td>14.4</td>
</tr>
<tr>
<td>$100,000–$200,000</td>
<td>68</td>
<td>8.3</td>
</tr>
<tr>
<td>More than $200,000</td>
<td>27</td>
<td>3.3</td>
</tr>
<tr>
<td>Prefer not to say</td>
<td>156</td>
<td>18.9</td>
</tr>
<tr>
<td><strong>Country</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>503</td>
<td>61.1</td>
</tr>
<tr>
<td>US</td>
<td>191</td>
<td>23.2</td>
</tr>
<tr>
<td>Republic of Korea (South Korea)</td>
<td>41</td>
<td>5.0</td>
</tr>
<tr>
<td>Chile</td>
<td>24</td>
<td>2.9</td>
</tr>
<tr>
<td>Brazil</td>
<td>18</td>
<td>2.2</td>
</tr>
<tr>
<td>Other countries a</td>
<td>47</td>
<td>5.6</td>
</tr>
<tr>
<td><strong>Level of COVID-19 infection currently</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Few, if any, COVID-19 infections</td>
<td>335</td>
<td>40.7</td>
</tr>
<tr>
<td>More than a few COVID-19 infections</td>
<td>294</td>
<td>35.7</td>
</tr>
<tr>
<td>A lot of COVID-19 infection</td>
<td>152</td>
<td>18.4</td>
</tr>
<tr>
<td>Do not know</td>
<td>43</td>
<td>5.2</td>
</tr>
<tr>
<td><strong>Level of community COVID-19 restrictions currently</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social/physical distancing has not been instituted</td>
<td>17</td>
<td>2.1</td>
</tr>
</tbody>
</table>
life on a scale format ranging from 0 "Worst" to 10 "Best" (e.g., "When it comes to your emotional and psychological wellbeing, (a) on which number do you stand now, (b) did you stand a year ago before the COVID-19 restrictions, (c) do you think you will stand when all the COVID-19 restrictions end?"). Reliability was satisfactory ($\alpha = 0.65$).

### 3.3.2 | Sense of Community Index-2

The revised version of the Sense of Community Index (Chavis et al., 2008) was used to measure SOC. It consists of 24 items rated on a 4-point Likert-type scale ranging from 1 "Not at all" to 4 "Completely." Examples of items are "Being a member of this community makes me feel good"; "I have influence over what this community is like." Reliability was excellent ($\alpha = 0.93$).

### 3.3.3 | Community resilience

The Fletcher-Lyons Collective Resilience Scale (FLCRS, Lyons et al., 2016) was utilized to measure community resilience. Respondents were requested to score their SOC resilience on five items using a 7-point scale where 1 corresponds to "Strongly Disagree" and 7 corresponds to "Strongly Agree" (e.g., "Our group bounces back from even the most difficult setbacks"). Reliability was excellent ($\alpha = 0.93$).

### 3.3.4 | COVID-19 impacts

Six items were developed to assess the participants’ concern for the impact of COVID-19 pandemic on significant life domains, namely "Family Relationships," "Social Life/Leisure," "Employment," "Income," "Physical Health," and "Mental Health." Items were rated on a 10-point Likert-type scale ranging from 0 "Become much worse" to 10 "Become much better." The items showed satisfactory reliability ($\alpha = 0.61$).

### 3.3.5 | Sociodemographics

Participants were asked to report their gender, age, ethnicity, political orientation, level of formal education, employment, occupation, income, household, caregiving responsibilities, level of COVID-19 infection, and level of COVID-19 restrictions in their community.
3.4 | Analyses

Statistical analysis was performed using MPLUS 8 (Muthén & Muthén, 2017) and SPSS 26.0 (IBM SPSS Statistics, IBM Corporation). In a preliminary phase of analysis, we used the multiple imputation (MI) procedure after we assessed that data were not missing completely at random. The percentage of missing values for each scale under study ranged from 0.8% to 8.6%.

Frequencies, means, and standard deviations were calculated to summarize variables included in this study. Pearson’s correlation ($r$) was used to test the relationship between variables and the results were interpreted according to Cohen’s (1988) conventions. The reliability of each scale was performed with Cronbach’s $\alpha$.

Since the measure to detect the impact of COVID-19 on life domains (henceforth, COVID-19 impacts) was created ad hoc, exploratory factor analysis (EFA) with principal axis factoring was run to investigate its factorial structure. Then, we performed a confirmatory factor analysis (CFA) to establish the measurement properties for each measure included in the study. We tested the hypothesized relationships via a mediation model using structural equation modeling (SEM): SOC and community resilience were the predictors, COVID-19 impacts were the mediator, and psychological wellbeing was the outcome. All the scales included in the model were measured by their corresponding items.

Gender, age, educational level, income, COVID-19 current levels of infection and restriction, and women with children in their households were included in the model as control variables. For female caregiving, women respondents with children in their households were recoded 1, while the rest of participants were recoded 0. Educational level, COVID-19 levels of infection, and restrictions were recoded as dummy variables using the median values as a cut-off criterion, so all respondents under the median value were recoded 0.

Since data violated the multinormality condition, we used the Asparouhov and Muthén (2010) mean- and variance-adjusted maximum likelihood (MLMV). This estimation method demonstrates good properties in terms of the accuracy of standard errors and type I error in the presence of non-normal data (Maydeu-Olivares, 2017).

To assess the goodness of model fit in CFA and SEM, three criteria were applied: root mean square error of approximation (RMSEA) $\leq 0.080$, comparative fit index (CFI) $\geq 0.900$, and standardized root mean square residual (SRMR) $\leq 0.080$ (Browne & Cudeck, 1993; Hu & Bentler, 1999). We used bootstrap estimation to test the significance of the indirect effects (Hayes, 2018) with 10,000 samples, and we computed the bias-corrected 95% confidence interval (CI) by determining the effects at the 2.5th and 97.5th percentiles; when 0 was not included in the CI the indirect effects were significant.

4 | RESULTS

Table 2 reports the means, standard deviations, and bivariate correlations for the scale scores. The results showed positive correlations between all the scale scores. In particular, a robust correlation emerged between SOC and community resilience, which in turn were weakly correlated with the other scale scores. A moderate correlation also resulted between COVID-19 impacts and psychological wellbeing.

Among the correlations between scale scores and sociodemographic and COVID-19 variables, a positive weak correlation emerged between gender (0 = Female) and COVID-19 impacts ($r = 0.09$, $p < 0.05$). Furthermore, SOC was weakly and positively correlated with age ($r = 0.07$, $p < 0.05$) and negatively with COVID-19 current levels of infection (0 = Few cases) ($r = -0.13$, $p < 0.001$).

To validate our measurement model, we examined a series of CFA models for each scale included in this study. The results of EFA and CFA for COVID-19 impacts for the six items showed a good one-factorial solution. Similarly, a one-factorial solution was confirmed for SOC, community resilience, and the psychological wellbeing, with all factor loadings acceptable. For all the CFAs, factor loadings were freely estimated, and the latent variance was fixed at 1.0.

To verify our hypotheses, a mediation model was analyzed with SEM (see Figure 1 for summary results).
The fit of the model was satisfactory, $\chi^2 (680) = 1431.94, p < 0.05; \text{RMSEA} = 0.037, 90\% \text{ CI} [0.034, 0.040]; \text{CFI} = 0.901; \text{SRMR} = 0.056$. The explained variance was 51.3% for psychological wellbeing. Table 3 reports standardized coefficients ($\beta$) and unstandardized coefficients ($B$) with their standard errors (SE) and bias-corrected 95% CI for direct, indirect, and total effects obtained from the SEM model.

Consistent with H1, SOC showed a positive association both directly and indirectly through the mediation of COVID-19 impacts with psychological wellbeing. H2 was not confirmed because of the absence of significant association, both directly and indirectly through the mediation of COVID-19 impacts, between community resilience and psychological wellbeing.

The model was controlled for sociodemographic variables (gender, education, age, income, COVID-19 levels of infection and restrictions, and caregiving responsibilities). The final model only included significant associations. The only significant association that emerged were between gender (0 = Female) and COVID-19 impacts ($\beta = 0.13, p < 0.01$).

Since the majority of the sample consisted of participants in two countries (Italy and the United States), we also checked the results for these two groups. Then, we considered only participants from Italy and United States balancing with a random sample of the Italian participants (new balanced sample; $N = 445$) and we retested the model through a structural invariance. A first baseline model was estimated imposing intergroup equality restrictions on parameters. Hence, we tested a structural model adding equality constraints between participants from Italy and the United States. The $\chi^2$ difference statistics was calculated to compare the baseline and structural model (Schermelleh-Engel et al., 2003). Results showed that the $\chi^2$ difference was not statistically significant ($\chi^2(6) = 6.37; p = 0.383$), implying that the two groups were equivalent on the relations examined in this study.

### DISCUSSION

An impressive array of research carried out during the first year of the COVID-19 outbreak has highlighted the psychological costs of lockdown measures, quarantine, and physical distancing. These aspects of life are amplified by a deep sense of uncertainty for the present and the future and the concomitant experience of intense feelings, mainly fear and anxiety, worry, and anger (De Luca Picione et al., submitted) all of which impact wellbeing. Our study adds to the literature confirming that the impacts of COVID-19 on various life domains greatly affect psychological wellbeing: the more concerned the participants were that the pandemic was negatively impacting them across life domains, the poorer they judged their own wellbeing. This finding dovetails with research on the social determinants of mental health, that shows

### TABLE 2

<table>
<thead>
<tr>
<th></th>
<th>$M$</th>
<th>$SD$</th>
<th>Range</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SOC</td>
<td>2.20</td>
<td>0.51</td>
<td>1.00–4.00</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2. Community resilience</td>
<td>4.45</td>
<td>1.38</td>
<td>1.00–7.00</td>
<td>0.47***</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. COVID-19 impacts</td>
<td>4.22</td>
<td>1.27</td>
<td>0.00–10.00</td>
<td>0.13***</td>
<td>0.10**</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Psychological wellbeing</td>
<td>6.74</td>
<td>1.56</td>
<td>1.00–10.00</td>
<td>0.17***</td>
<td>0.17***</td>
<td>0.30***</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Age</td>
<td>35.14</td>
<td>14.66</td>
<td>18–90</td>
<td>0.07*</td>
<td>0.06</td>
<td>0.03</td>
<td>0.03</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Gender</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>0.03</td>
<td>−0.04</td>
<td>0.09*</td>
<td>0.03</td>
<td>—</td>
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<tr>
<td>7. Education</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>0.02</td>
<td>0.02</td>
<td>0.007</td>
<td>−0.002</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Note: Gender was coded 0 if the respondent was a woman and 1 if a man. Education was coded 0 if the respondent has low educational levels and 1 if has high educational levels.

Abbreviations: COVID-19, coronavirus disease 2019; SOC, sense of community.

***$p < 0.001$; **$p < 0.01$; *$p < 0.05$. 

The fit of the model was satisfactory, $\chi^2 (680) = 1431.94, p < 0.05; \text{RMSEA} = 0.037, 90\% \text{ CI} [0.034, 0.040]; \text{CFI} = 0.901; \text{SRMR} = 0.056$. The explained variance was 51.3% for psychological wellbeing. Table 3 reports standardized coefficients ($\beta$) and unstandardized coefficients ($B$) with their standard errors (SE) and bias-corrected 95% CI for direct, indirect, and total effects obtained from the SEM model.

Consistent with H1, SOC showed a positive association both directly and indirectly through the mediation of COVID-19 impacts with psychological wellbeing. H2 was not confirmed because of the absence of significant association, both directly and indirectly through the mediation of COVID-19 impacts, between community resilience and psychological wellbeing.

The model was controlled for sociodemographic variables (gender, education, age, income, COVID-19 levels of infection and restrictions, and caregiving responsibilities). The final model only included significant associations. The only significant association that emerged were between gender (0 = Female) and COVID-19 impacts ($\beta = 0.13, p < 0.01$).

Since the majority of the sample consisted of participants in two countries (Italy and the United States), we also checked the results for these two groups. Then, we considered only participants from Italy and United States balancing with a random sample of the Italian participants (new balanced sample; $N = 445$) and we retested the model through a structural invariance. A first baseline model was estimated imposing intergroup equality restrictions on parameters. Hence, we tested a structural model adding equality constraints between participants from Italy and the United States. The $\chi^2$ difference statistics was calculated to compare the baseline and structural model (Schermelleh-Engel et al., 2003). Results showed that the $\chi^2$ difference was not statistically significant ($\chi^2(6) = 6.37; p = 0.383$), implying that the two groups were equivalent on the relations examined in this study.
how wellbeing is affected by financial status and the perception and expectation of one’s future financial situation (Oskrochi et al., 2018), as well as social adverse factors such as social stress (Santamaría-García et al., 2020), and social isolation/deprivation (McAneney et al., 2015). Indeed, for many people, COVID-19 worsened economic status, social life at the interpersonal, family, and social level, and general physical health.

Given that COVID-19 has been found to be a risk factor for wellbeing, the identification of resources and assets—that is, protective factors—is key to developing interventions that help to preserve psychological wellbeing in the face of this critical pandemic. Our findings showed that SOC is not only capable of protecting wellbeing but also of

**TABLE 3** Direct, indirect, and total effects of SOC and community resilience on psychological wellbeing through the mediation of COVID-19 impacts

<table>
<thead>
<tr>
<th></th>
<th>β</th>
<th>B (SE)</th>
<th>BC 95% CI</th>
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</thead>
<tbody>
<tr>
<td><strong>Direct effects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOC → COVID-19 impacts</td>
<td>0.14*</td>
<td>0.14* (0.06)</td>
<td>0.05, 0.23</td>
</tr>
<tr>
<td>Community resilience → COVID-19 impacts</td>
<td>0.007</td>
<td>0.007 (0.06)</td>
<td>-0.10, 0.11</td>
</tr>
<tr>
<td>SOC → psychological wellbeing</td>
<td>0.15**</td>
<td>0.22** (0.07)</td>
<td>0.11, 0.34</td>
</tr>
<tr>
<td>Community resilience → psychological wellbeing</td>
<td>0.04</td>
<td>0.06 (0.07)</td>
<td>-0.05, 0.18</td>
</tr>
<tr>
<td>COVID-19 Impacts → psychological wellbeing</td>
<td>0.67***</td>
<td>0.94*** (0.10)</td>
<td>0.79, 1.13</td>
</tr>
<tr>
<td><strong>Indirect effects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOC → COVID-19 impacts → psychological wellbeing</td>
<td>0.09**</td>
<td>0.13** (0.06)</td>
<td>0.05, 0.23</td>
</tr>
<tr>
<td>Community resilience → COVID-19 impacts → psychological wellbeing</td>
<td>0.005</td>
<td>0.007 (0.06)</td>
<td>-0.09, 0.10</td>
</tr>
<tr>
<td><strong>Total effects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOC → psychological wellbeing</td>
<td>0.25***</td>
<td>0.35*** (0.08)</td>
<td>0.23, 0.48</td>
</tr>
<tr>
<td>Community resilience → psychological wellbeing</td>
<td>0.05</td>
<td>0.07 (0.08)</td>
<td>-0.06, 0.20</td>
</tr>
</tbody>
</table>

Note: Bootstrap 10,000.

Abbreviations: COVID-19, coronavirus disease 2019; SOC, sense of community.

***p < 0.001; **p < 0.01; *p < 0.05.
mitigating the impacts brought about by COVID-19 on numerous life domains. Hence, our study highlights the protective function of SOC and therefore its potential to address community-level challenges and crises.

These results echo consistent findings of perceived social support as a mitigator of negative psychological effects in disaster survivors (Lowe et al., 2010) and trauma survivors (Dworkin et al., 2018; Robinaugh et al., 2011), as well as in groups experiencing adverse social conditions such as migrants (I. Hombrados-Mendieta et al., 2019). Yet SOC and social support, though correlated, are distinct variables. Studies have found that social support is a good predictor of SOC because, by helping individuals to meet their needs, it fosters relationships with others, develop their social networks, and promote connections (Huang et al., 2016; Oh et al., 2014; Vieno et al., 2007). What our study specifically points out is that a feeling of belonging and connection with others in a community helps individuals cope with the difficult conditions created by the COVID-19 virus and mitigation responses. SOC may be conceived of as the “internalized we”: as such, it comes very close to the concept of shared identity that has been invoked by social psychologists in many large-scale disasters (Drury, 2012), including COVID-19 (Jetten et al., 2020). Indeed, research suggests that sharing a traumatic experience mitigates the distress created by the disruptive events (Kearns et al., 2017) and thus cushions its perceived stressfulness (Gallagher et al., 2014). It is striking that during this COVID-19 crisis, which led to the loss of community for so many people who were forced into restrictive, isolated lives, those who could maintain, create, and experience a SOC despite these limitations reported superior mental health outcomes.

Against expectations of our predictive model, community resilience did not show significant associations to psychological wellbeing or to COVID-19 impacts. This was the case even though it was correlated to both. To look more deeply into this counterintuitive finding, we first ruled out the hypothesis that because of the robust correlation between community resilience and SOC, the latter could have absorbed the effects of community resilience when both were entered in the model. We ran the model entering community resilience—but not SOC—and found that the belief that the community had the resources and competencies to deal with difficult situations varied with wellbeing ($\beta = 0.12, p < 0.01$) but had no significant association with COVID-19 impacts. Hence, it seems that SOC neutralized the effect of community resilience on wellbeing but not on more general COVID-19 impacts.

This led us to explore the differences between the two community assets that might account for their different relations to COVID-19 impacts. Community resilience emphasizes the community capacity and instrumental ability to cope with difficulties, while SOC emphasizes shared belonging and social connectedness. It may be argued that even though both constructs have an external reference in a community, SOC as the “internalized we” may be less dependent on the actual structure and functioning of the community. Conversely, community resilience requires that people judge their community in an instrumental capacity, think of how it works, how it did in the past, and so on. Thus, it may be the case that what matters most in mitigating the impacts of the pandemic at the individual level, at least in the initial stages, is “we-ness,” being together in a shared situation and using the resources of we-ness to get through the crisis together, and less what the community is concretely able to do to cope with and possibly address the adversities. In a long-term situation, this pattern could change, and community resilience become more salient than it was at the onset. The pattern of relationships proved to hold stable and significant across education, age, income, caregiving responsibilities, and COVID-19 levels of infection and restriction at the time of study. We did find one effect for gender, with women perceiving worse impacts, even after controlling for potential caregiving responsibilities. This finding fits with other research that has found gender differences in the impact of COVID-19 on employment (Kristal & Yaish, 2020), work sector stressors (more women in front line social service and care positions), and home responsibilities (Casale & Posel, 2021; Zamberlan et al., 2021), and calls for more research to understand the role of structural inequities and gender disparities in the emotional and structural impact of stressors, particularly above and beyond caretaking inequalities.

The implications of this study suggest that leveraging SOC as an intervention can contribute to mitigating the impacts of difficult life situations, especially for those most affected. SOC can be strengthened by activating formal or informal social support initiatives (Huang et al., 2016; Vieno et al., 2007) at the local level or via digital platforms (i.e., online support groups, Obst & Stafurik, 2010); creating opportunities to share time and activities, either in person or in online environments (Blanchard, 2008) if measures of physical distancing are still in force; and by
making self-transcendent, shared values salient (Mannarini et al., 2020), especially in messages coming from authorities and institutional sources. This may have particularly important implications for future efforts to build stronger and more inclusive communities. For example, the pandemic had a silver lining for many individuals who were, before the rapid increase in remote, online, and alternative activities for all, unable to access in-person activities that could build SOC due to (dis)ability, lack of transportation, remote location, and so on.1

The limitations of this study include the cross-sectional nature of our research, which does not support causal relationships despite the predictive logic underlying the model proposed, and the convenience nature of our sample and related unbalanced distribution across countries. Even though the study was not focused on purely comparative aims and the analyses were controlled for contextual variables such as the COVID-19 levels of infection and restrictions at the time and place in which data were gathered, a more balanced composition would have been preferable. Moreover, the online survey inevitably led to a self-selected sample. The study itself was also undertaken during a global pandemic and surely impacted by the environmental conditions that prevailed for everyone. Because of these methodological imperfections, our findings should be considered with caution.

Our study calls for further research aimed at studying how the relationships between community assets and psychological wellbeing change throughout times of crisis, and if the pattern we found applies equally to different population groups. Among these intriguing questions: Is the protective nature of SOC still effective after the initial phases of the crisis? Does the perception of the impacts change over time, maybe because habituation takes over? Does community resilience gain a greater role in mitigating the impacts when the crisis extends over a long period of time? Are community assets equally helpful for vulnerable groups? Does SOC really substitute for actual community resilience and action and if so, for how long? Answering these questions would provide valuable knowledge to crisis management and preventive and ameliorative interventions aimed at protecting the wellbeing of people and communities, particularly in times of shared crisis.

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CONFLICT OF INTERESTS
The authors declare that there are no conflict of interests.

DATA AVAILABILITY STATEMENT
The data that support the findings of this study are available from the corresponding author upon reasonable request.

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1This does not mitigate the lack of access for others, caused by lack of internet, broadband, and/or devices.
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