

Article

# Academic Community in the Face of Emergency Situations: Sense of Responsible Togetherness and Sense of Belonging as Protective Factors against Academic Stress during COVID-19 Outbreak

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**Abstract:** In the face of emergency situations, such as a global pandemic, individuals rely on their personal resources, but also on community dimensions, to deal with the unprecedented changes and risks and to safeguard their well-being. The present study specifically addresses the role of individual resources and community dimensions with reference to academic communities facing COVID-19-related lockdowns and the changes that these have implied. An online questionnaire was administered to 1124 Italian University students. It detected their sense of belonging and of responsible togetherness with reference to their academic community through community dimensions, their student self-efficacy as an individual resource, and their academic stress—potentially stemming from studying in the middle of a pandemic. A multiple mediation model was been run with structural equation modeling. The results show that both the community dimensions associate with higher student self-efficacy and the sense of responsible togetherness, while also associating with lower academic stress. Moreover, student self-efficacy, in turn, associates with lower academic stress and mediates the relationships between both community dimensions and students' academic stress levels. From these findings, the protective role that community dimensions can exert on an individual's life becomes apparent. Building on this, further strategies should be implemented to reinforce personal and community resources in order to strengthen individuals against potentially stressful circumstances.

**Keywords:** COVID-19; pandemic; sense of responsible togetherness (SoRT); sense of belonging; academic stress; student self-efficacy; university

## 1. Introduction

The COVID-19 pandemic [1] has required the adoption of several protective measures to reduce the threat to individuals' health and to the functioning of local sanitary systems [2]. Among these measures, lockdown and social distancing have been adopted in lots of countries around the world. In Italy, which is the focus of the present study, the national lockdown lasted about two months, and, after that, the resumption of face-to-face activities has been slow and is still ongoing in several fields of daily life. As for higher education, after the lockdown, classes and exams have been administered partially online and partially at the university; currently, due to a second wave of contagions, they are totally online again. As of yet, there is no indication of how long this will continue for.

As a matter of fact, COVID-related preventive measures have impacted higher education in unexpected and unprecedented ways, with reference to university management, online classes, exams delivery and different bureaucracy practices, but also to the different kinds of relationships and interactions among students and between students and professors [3]. Attending online classes, taking online exams, and losing the physical context of face-to-face relationships, support and interactions, have meant that university students have been required to adapt massively, ranking them among the most affected populations by these worldwide changes. These adaptations have added additional pressure on students in the form of further exam-related anxiety (due to the new and unprecedented exam procedures), changes in exam dates, deadlines and schedules of lessons, different and unexpected academic workloads; all having been mentioned among students' main sources of academic stress [4]. Thus, higher levels of academic stress, which is a natural and necessary reaction in the face of academic issues, loads, and problems [5], might represent an answer to these COVID-related changes and restrictions [6]. Broadly speaking, stress can be defined as the outcome of when an individual's evaluation of the requests coming from their environment are greater than the resources they can engage to answer them [7]. Furthermore, students' academic stress can also be affected by non-academic factors, such as the socio-cultural, environmental, and psychological circumstances they find themselves in [8], which are likely to have been burdened by the disruptive consequences of the COVID-19-related measures.

Therefore, examining which dimensions of the university experience can be utilized to lighten students' academic stress represents a timely and relevant issue, which could help stakeholders, professors, and policy-makers to manage the changes brought about by the recent pandemic and students' reactions to them. At the same time, it could provide guidelines for future stressful circumstances, helping students to face up to these as well. However, so far the understanding of these protective dimensions still seems to be incomplete: indeed, in the face of stressful events people rely on personal resources as well as on collective dimensions and social relationships, but the latter have not been adequately considered yet when tackling students' academic stress. Indeed, with specific reference to how the pandemic has influenced students' academic management, workloads, and stress, previous studies have not taken into account the role that could have been played by being part of an involving university community [3]. Nevertheless, the university experience also includes being embedded in a social context, which means that students feel as though they belong to—and are involved in—a community [9]. Thus, the role of academic-related community dimensions in the face of huge emergencies—such as a pandemic—still requires further attention. This study aims at filling this gap through deepening the understanding around the following research question: can being part of an involving academic community play a protective role against academic stress when students have to manage huge and unexpected changes in their academic routines? The COVID-19 outbreak, which represents an unexpected emergency circumstance to be faced with, defines the context for the present study; it could have exacerbated students' academic stress due to the changes it has imposed on their routines and habits, if not adequately managed by individuals and institutions. This study tackles whether students' feelings of belonging to their academic community and of playing an active, involved, and responsible role within it (that is, academic community-related resources) and their efficacy beliefs (that is, an individual academic-related resource) could have played a role in contributing to their academic stress levels during the COVID-19-related lockdown—i.e., during the months of social distancing and online lessons and exams. In the following sections, these community dimensions will be framed as potentially protective factors against academic stress and the role of student self-efficacy will be tackled. Then, the methods and results of the study will be described and their theoretical and practical implications will be pointed out.

## 2. The Community as a Protective Dimension

Within a community, “people grow by means of meaningful relationships” [10] (p. 90): sharing the same physical and social context—that is, belonging to the same community—is an experience that

allows individuals to keep and manage meaningful and stable relationships with other people, groups, and social systems within it [11]. This social process is even more relevant to adolescents and young adults, as they strongly rely on social relationships and interpersonal dynamics in these evolutionary phases [12]. Belonging to a community—even an academic one—provides individuals with a sense of meaning and continuity, belonging and safety, affirmation, and mattering [13–16].

Specifically, one community which assumes critical relevance in young adults' lives is the academic one, since it allows them to experience a sense of belonging to a wider social group, relationships with different colleagues, negotiation and collaboration processes, and the need to manage their duties and responsibilities [3]. Indeed, students "have feelings of belonging and trust, and that they believe they matter to one another and to the group; that they have duties and obligations to each other and to the school, and that they possess a shared faith that members' educational needs will be met through their commitment to shared goals" [17] (p. 6). Thus, two main dimensions encompass students' experience of their academic community, described as: the sense of belonging and the sense of responsible togetherness (SoRT). The sense of belonging has been defined as a process of personal relatedness and membership [18]. It has been conceptualized as a key component of the sense of community [18] and has already proved its protective role for individuals' mental health and well-being [19,20], also with reference to school and academic contexts [21–23]. Indeed, by relying on the identification with the community as a whole and with its members, and on the acknowledgment of a shared social and physical context, it allows individuals to acknowledge wider stressors—such as a pandemic—which affect the whole community and not only themselves. This helps students in framing their experiences and difficulties as shared rather than solely depending on their individual characteristics. In turn, this can strengthen their feelings of self-efficacy and avoid the latter from being undermined by these difficulties. SoRT refers to community members' representation about how they share experiences, live together, and manage social relationships and duties through responsibility-taking and engagement processes within and towards their community [24,25]. These representations encompass community members' perceptions of equity and support among community members and from institutional referents, their feelings of being active members of the community and of engaging to improve it, and their respect of the rules and for the others [24,25]. Thus, SoRT can make students feel as though they are able to foster real changes in their community through taking responsibility for themselves and for the needs of others (e.g., by promoting collective requests to the professors or helping each other when in need), acknowledging everyone's needs and resources, thinking up to strategies to tackle new challenges and acting to modify current circumstances together. At the same time, feeling that the community of belonging is characterized by high rates of support among peers and from the professors, and that its current status can be modified by its members' actions, can boost individuals' beliefs about their abilities allowing them to face issues and tasks in an effective way and to achieve the desired results. Taken together, sense of belonging and SoRT are expressions of how the community enables its members to look beyond themselves, helping them to feel a sense of responsibility and commitment towards valuing others and the mutual help among community members. As a matter of fact, through the shared values, the relationships which tie its members, the perception of reciprocal and institutional support when in need, the sense of belonging to a wider social entity, and the opportunities for students to share ideas, views and values in common social spaces and events, being part of the academic community impacts how students feel in terms of being able to answer their academic-related daily issues and worries and the practices they engage in to face them [9,26–30].

Being part of a community—through feeling one's belonging to it and perceiving that its members reciprocally support, engage and take responsibility for its best functioning, and that its institutional referents are fair and available for support when in need—has already been proven to represent a protective factor for individuals' psycho-social well-being [24]. Furthermore, it can represent a protective dimension against stressors, workloads, and daily issues as it fosters mutual support, opportunities for social exchanges, and personal and collective growth through allowing individuals to share positive experiences and social dynamics in different social contexts [31–35]. Therefore, being

part of the academic community might represent a protective factor too, by reducing students' academic stress and at the same time sustaining their perception of being able to face academic-related issues, stressors, and workloads. These two hypotheses follow:

**Hypothesis 1 (H1).** *Students' academic Sense of Belonging (H1a) and SoRT (H1b) positively associate with their student self-efficacy;*

**Hypothesis 2 (H2).** *Students' academic Sense of Belonging (H2a) and SoRT (H2b) negatively associate with their academic stress.*

### 3. The Role of Student Self-Efficacy

Self-efficacy is the main component of individuals' ability to successfully face environmental and social requests; it refers to the belief to be able to do so through relying on one's management and executive skills [36]. It moderates the relationship between stressor and strain and between environmental and social requests and the resources used to answer them, helping individuals to achieve their goals [37,38] and adequately face daily issues and challenges [39]. More specifically, student self-efficacy is the belief in being able to successfully accomplish academic duties and achieve academic goals, and to rely on effective coping strategies to face academic issues [26]. In line with what has been shown about self-efficacy at large, student self-efficacy also associates with positive academic performance and well-being [21,40], while negative cognitions about academic duties, examinations, and performances and about the ability to engage one's resources to face them (e.g., underestimating one's skills) often associate with higher levels of anxiety and stress [41,42]. Building on these results and on the acknowledgment that academic issues, duties, deadlines, and unexpected changes are among the main sources of academic stress [4,5,7], this hypothesis follows:

**Hypothesis 3 (H3).** *Student self-efficacy negatively associates with students' academic stress.*

Furthermore, since sense of belonging and SoRT in the context of the academic community have been hypothesized as protective factors associated with higher rates of students self-efficacy and lower rates of academic stress, the following mediation hypothesis is added:

**Hypothesis 4 (H4).** *Student self-efficacy mediates the relationships of students' academic Sense of Belonging (H4a) and SoRT (H4b) with their academic stress, with a negative effect on the latter.*

## 4. Method

### 4.1. Participants and Procedures

Participants included 1124 Italian university students. The data were collected between March and April 2020, i.e., during the months of the National lockdown due to COVID-19 pandemic, using snowball sampling procedures. In compliance with the safety standards due to the pandemic, the questionnaire was shared via Facebook groups of Italian university students asking them to answer it on a voluntary and anonymous basis. Word of mouth also helped to distribute the questionnaire, since respondents were invited to contact their university colleagues to ask them to complete the questionnaire. Participants received no compensation for participating in the study. The questionnaire was introduced by an explanation about confidentiality and anonymity issues. Participants had to express their informed consent by putting a tick in a box in order to access the questionnaire; no IP addresses or identifying data were retained.

The questionnaire included filter questions (whether they were students, the course they were enrolled on) aimed at detecting non-student respondents to exclude them from the analyses.

No respondent met the requirements to be excluded from the analyses (that is, all the participants disclosed to be university students). Participants (79.4% females) were aged between 18 and 63 ( $M = 23.81$ ;  $SD = 4.42$ ); age skewed towards younger participants with 90% being under the age of 28, which means that this sample meets the age distribution of Italian population of university students [43]. Of them, 54.4% were bachelor's students, 30.6% were master's students, 14.4% were students completing a 5-year degree course, 0.5% were graduate students (i.e., they were completing post-graduate specialization courses or doctoral courses); one participant did not provide specific information about the level of the course he/she was enrolled in. Most of them (77%) were on time with their studies.

With reference to the COVID-19 pandemic, 73.6% people were aware of the presence of infected people in their city, while only 9.5% directly knew at least one of them.

#### 4.2. Measures

The questionnaire included a socio-demographic section, followed by these specific measures.

##### 4.2.1. Sense of Belonging to the Academic Community

The sense of belonging to the academic community was measured using the three items (e.g., "I feel I belong to this University") [44]. Respondents had to rate their agreement on a 4-points Likert scale (1 = Strongly disagree; 4 = Strongly agree).

##### 4.2.2. Sense of Responsible Togetherness Referred to the Academic Context

The Sense of responsible togetherness scale (thirty-three items) [24,25] was used after being adapted to the academic context (that is, "neighborhood" was changed in "university" and the wording of all the items was modified so that it referred to the academic community). It measures the perception of equity, the feeling of being an active member of the community, the perceived support from the referents and among community members, the respect of the rules and for others, and freedom of opinion. Participants were asked to rate on a 4-point Likert scale (1 = Never, 4 = Often) how often they felt like each item described (e.g., "Help each other in carrying out university activities", "Feel free to say whether there is something that you have not totally understood", "Consider university professors as a reference point") referring to their academic context.

##### 4.2.3. Student Self-Efficacy

The student self-efficacy scale (six items) [26] was used. It assesses students' beliefs to be able to solve their study-related problems, to actively contribute to their study groups, and to achieve their goals (e.g., "I believe I can make an effective contribution to the study group(s) I am part of"), on a 5-point Likert scale (1 = Strongly disagree; 5 = Strongly agree).

##### 4.2.4. Academic Stress

The academic stress scale [4] was used. It measures university students' perceived academic stress with reference to several sources (academic expectations, faculty work and examinations, students' academic self-perceptions) on a 5-point Likert scale (1 = Strongly disagree; 5 = Strongly agree). It comprises eighteen items (e.g., "I fear failing courses this year").

#### 4.3. Data Analyses

Analyses were run using Mplus 8. Prior to hypotheses testing, confirmatory factor analyses (CFA) were run with structural equation modeling (SEM) to test the expected factor structure for each measure. To evaluate the model fit, the comparative fit index (CFI), the Tucker-Lewis Index (TLI), the root-mean-square error of approximation (RMSEA) and its 90% confidence interval (CI), and the standardized root mean square residual (SRMR) were observed each time [45]. For CFI and

TLI, values equal to or greater than 0.90 and 0.95 reflect good or excellent fit indices, respectively; for RMSEA and SRMR, values equal to or smaller than 0.06 and 0.08 reflect good or reasonable fit indices, respectively [46]. The reliability was checked through Cronbach's alphas.

All the hypotheses for the study were tested by fitting a multiple mediation model using SEM. The two community dimensions (SoRT and sense of belonging) were included in the model as independent variables, student self-efficacy as the mediator, and academic stress as the dependent variable (see Figure 1, The effect of the control variable is not shown in the figure). Respondents' age was included in the model as a control variable. Before testing the hypotheses, the absence of significant values which could affect the analyses (that is, outliers and/or influential cases) was checked using the leverage value and Cook's D [47]. To witness the absence of such values, leverage values should always be lower than 0.2 and Cook's D should be lower than 1. Given the interest in higher order constructs, a heterogeneous parceling method was adopted [48]: it reproduces smaller but more reliable coefficients and allows to include theoretically meaningful categories in SEM, creating parcels without generating a flawed measurement model [49,50]. To evaluate the model fit, CFI, TLI, RMSEA and its 90% CI, and SRMR were observed [45].

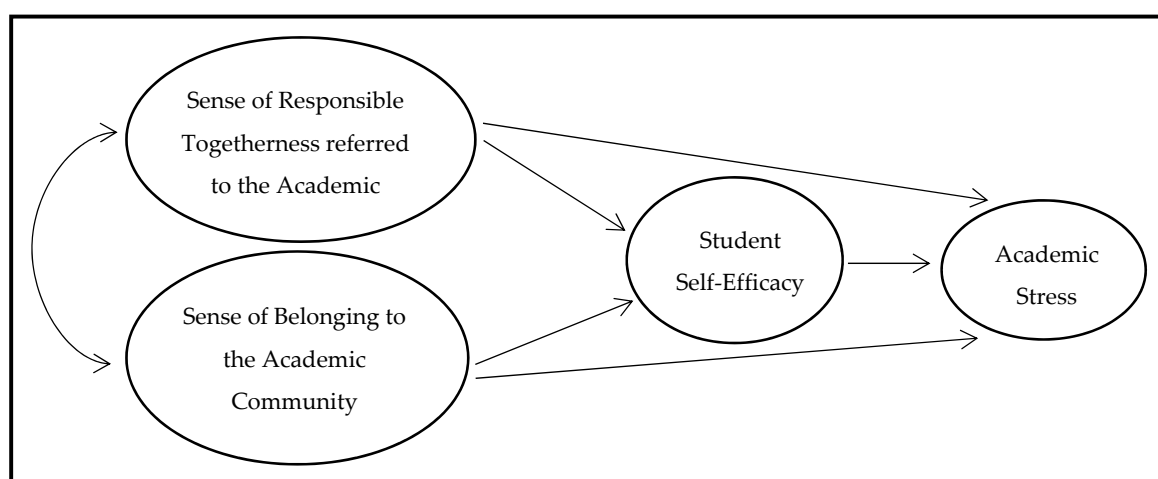


Figure 1. Hypothesized model.

A bootstrap estimation with 10,000 samples was used to test the significance of the results and the bias-corrected 95% CI was computed by determining the effects at the 2.5th and 97.5th percentiles [51,52]; the indirect effects are significant when 0 is not included in the CI.

## 5. Results

Reliability and model fit indices for CFAs are shown in Table 1; descriptive statistics and correlations for all the measures used in the study are shown in Table 2.

Table 1. Summary of model fit indices and reliability for all the study variables.

Variables	$\alpha$	CFI	TLI	RMSEA	RMSEA 90% CI	SRMR
Sense of Belonging to the Academic Community	0.83	0.99	0.99	0.01	(0.001, 0.05)]	0.01
SoRT referred to the Academic Context	0.94	0.90	0.90	0.06	(0.05, 0.06)	0.07
Student Self-Efficacy	0.81	0.99	0.99	0.04	(0.02, 0.06)	0.01
Academic Stress	0.86	0.92	0.90	0.05	(0.05, 0.06)	0.05

Note:  $n = 1124$ .  $\alpha$  = Cronbach's alpha; CFI = comparative fit index; TLI = Tucker-Lewis Index; RMSEA = root mean square error of approximation; CI = confidence interval; SRMR = standardized root mean square residual. SoRT = sense of responsible togetherness.

**Table 2.** Summary of descriptive statistics and correlations for all the study variables.

Variables	M	SD	1	2	3
1. Sense of Belonging to the Academic Community	3.07 <sup>a</sup>	0.68	-		
2. SoRT referred to the Academic Context	3.07 <sup>b</sup>	0.48	0.544 ***	-	
3. Student Self-Efficacy	3.91 <sup>c</sup>	0.71	0.481 ***	0.490 ***	-
4. Academic Stress	2.78 <sup>c</sup>	0.67	-0.385 ***	-0.412 ***	-0.563 ***

Note.  $n = 1124$ . <sup>a</sup> 1–7 range scale; <sup>b</sup> 1–4 range scale; <sup>c</sup> 1–5 range scale. \*\*\*  $p < 0.001$  (2-tailed).  $M$  = mean;  $SD$  = standard deviation. SoRT = Sense of Responsible Togetherness.

The hypothesized model showed good fit indices, CFI = 0.95, TLI = 0.94, RMSEA = 0.07, RMSEA 90% CI (0.06, 0.07), SRMR = 0.05; the leverage value was always lower than 0.08 and Cook's D was between 0 and 0.04, indicating there were no significant values affecting the analyses. This confirmed all the hypotheses except H2a, as the sense of belonging to the academic community did not show a direct effect on students' academic stress. Conversely, SoRT showed a significant effect on students' academic stress,  $B = -0.13$ ,  $SE = 0.06$ ,  $p = 0.03$  (confirming H2b). Furthermore, both SoRT,  $B = 0.47$ ,  $SE = 0.06$ ,  $p < 0.001$ , and sense of belonging,  $B = 0.48$ ,  $SE = 0.06$ ,  $p < 0.001$ , proved to be significant, positive, predictors of participants' self-efficacy as students (confirming both H1s). The latter in turn showed a negative relationship with participants' academic stress,  $B = -0.63$ ,  $SE = 0.05$ ,  $p < 0.001$  (confirming H3). Both the indirect effects resulted significant and negative as it had been hypothesized (confirming both H4). All the unstandardized effects ( $B$ ), their standard errors ( $SE$ ), and their 95% CI are shown in Table 3.

**Table 3.** Direct and indirect effects.

Paths	B (SE)	BC 95% CI
<i>Control variable effects</i>		
Age → Student Self-Efficacy	0.009 * (0.004)	(0.001, 0.02)
Age → Academic Stress	-0.009 ** (0.004)	(-0.02, -0.003)
<i>Direct effects</i>		
SoRT referred to the Academic Context → Student Self-Efficacy	0.47 *** (0.06)	(0.34, 0.59)
SoRT referred to the Academic Context → Academic Stress	-0.13 * (0.06)	(-0.25, -0.01)
Sense of Belonging to the Academic Community → Student Self-Efficacy	0.48 *** (0.06)	(0.37, 0.60)
Sense of Belonging to the Academic Community → Academic Stress	-0.07 (0.05)	(-0.18, 0.03)
Student Self-Efficacy → Academic Stress	-0.63 *** (0.05)	(-0.73, -0.53)
<i>Indirect effects</i>		
SoRT referred to the Academic Context → Student Self-Efficacy → Academic Stress	-0.29 *** (0.04)	(-0.38, -0.21)
Sense of Belonging to the Academic Community → Student Self-Efficacy → Academic Stress	-0.30 *** (0.04)	(-0.39, -0.23)
<i>Total effects</i>		
SoRT referred to the Academic Context → Academic Stress	-0.42 *** (0.06)	(-0.54, -0.31)
Sense of Belonging to the Academic Community → Academic Stress	-0.30 *** (0.04)	(-0.48, -0.27)

Note:  $n = 1124$ . \*\*\*  $p < 0.001$  (2-tailed); \*\*  $p < 0.01$  (2-tailed); \*  $p < 0.05$  (2-tailed).  $SE$  = standard error;  $BC$  = bias-corrected;  $CI$  = confidence interval. SoRT = sense of responsible togetherness.

The model explained 41% of the variance for participants' student self-efficacy and 50% of the variance for their academic stress.

## 6. Discussion

In the face of the COVID-19 outbreak, one of the greatest challenges university students have had to face has been to keep on track with their academic duties and workloads, while adjusting to online lessons and exams, changes in schedules and deadlines, and a lack of physical interactive contexts where they could share their experiences and worries among peers and with their supervisors [3]. Due to these unprecedented and unexpected changes, the risk of experiencing high rates of academic stress is high [4–6]. Collective dimensions and social relationships can represent protective elements in helping students to adequately face the requests coming from their surrounding environment, as well as their individual resources. However, the role of the former has not yet been studied with reference

to lightening students' academic stress [3], the present study was aimed at filling this gap. Specifically, it highlighted the role that students' sense of belonging to their academic community and sense of responsible togetherness could play as protective factors against academic stress and as dimensions enhancing their self-efficacy as students. In turn this could have played a protective role against academic stress as an individual resource. As expected, the considered community-related dimensions (sense of belonging and SoRT) showed negative associations with academic stress and positive ones with student self-efficacy, which in turn mediated the relationships between both of them and students' academic stress, lowering the latter.

The results from this study further highlight the role that belonging to a community where the members reciprocally help, know that each one matters to the others, and feel the support and equity of community referent can play in the face of emergency situations and stressful circumstances, such as the COVID-related lockdown. Indeed, feeling able to foster changes in one's community of belonging could represent a path to increase community members' self-efficacy through the enactment of active and responsible behaviors aimed at producing better conditions for oneself and for others and through the acknowledgment that these behaviors actually produce the expected results—that is, that every member of that community has the opportunity and the power to promote the desired changes within it and for it. Such feeling and attitude about the community that one lives in poses its members in an active position within it, increasing their empowerment through making them aware that they can change what they feel to be unfair or unbearable. Thus, they are able to become actively engaged in order to reduce their community-related stress—in this case, their academic one—and face it by relying on individual and shared resources. This may better equip them to negotiate the new conditions, deadlines, and workloads which have been modified by the unexpected circumstances created by COVID-19.

Building on these results, the sense of responsible togetherness and of belonging to the academic community seem critical elements to be fostered when the aim is to achieve a more satisfying and inclusive university experience for students, which can sustain them in managing their academic duties and tasks, reducing their stress rates even during hard times—such as a pandemic. Indeed, these elements can increase community members' perception about their community being a social entity, where everyone matters to each other and its members—and the whole community—reciprocally support and work towards shared goals, namely, their sense of community [9]. At the same time, through empowering them in producing changes aimed at bettering their individual and community conditions, they can enhance their perception about being able to face daily issues and challenges, safeguarding their well-being [23]. Specifically, these results show that during the COVID-related lockdown, feeling responsible for the academic community of belonging resulted in students not being overborn by the feelings of confusion, loneliness, and general loss which can be produced by the changes in their academic routines and tasks brought about by this emergency experience. Since the COVID-19 outbreak represents a tough test to overcome for students' academic routines and for the management of their academic paths [53], implementing supportive, inclusive, and cohesive academic communities can represent a strategy to help students in coping with the pandemic and the changes it has brought about: it could at the same time help them in managing their academic duties and tasks, reducing their stress, and enhancing their individual resources. In the end, this kind of academic community could represent a valuable contribution in safeguarding their well-being against huge emergency circumstances at large.

Broadly speaking, the meaningfulness of the community as a social entity to belong to and feel responsible for clearly emerges, showing that it can have a protective role for its members. Thus, the need to implement strategies and policies aimed at enhancing students' feelings of belonging to their academic community and willingness to be actively involved and engaged in responsibility-taking processes is highlighted. Indeed, through the opportunities they offer in terms of social relationships and belonging, the practices they allow, and the duties and requests they pose, universities are able to impact their students' well-being and stress rates [30]. However, in modern times building and



maintaining a cohesive community involving its members and enabling them to take responsibilities for themselves and for the community as a whole, oiling and gluing the social networks within it, while giving meaning and relevance to it in individuals' experiences are relevant challenges for which the solutions are not obvious. Indeed, the lack of trust towards the institutions, the sense of disempowerment about the possibility to produce changes in and for the community, the decreasing cohesion, and the increasing isolation are all elements compounding modern community experiences in different contexts [9,24,25,28,31,54–59]. This study invites university referents, policy makers, psychologists, and community managers in different fields to team up and think up to new ways and paths to achieve more cohesive communities, both through research and interventions with reference to several community contexts. These paths could be even more relevant under emergency circumstances in order to reduce the stress that may stem from them.

### *Limitations and Future Directions*

It is important to acknowledge some of the limitations of the present study as well.

First, distributing the questionnaire through Facebook, while being in compliance with the safety standards set in response to the pandemic, may have led to a sort of self-selection bias: indeed, it is likely that only those who were already inclined towards taking part in online studies answered it. Moreover, the findings are based on self-reported data, which can be distorted by memory bias and response fatigue.

Another issue refers to the regional distribution of the participants: indeed, in the present study this information has not been taken into account since the study variables did not directly refer to the local communities of belonging nor to the non-academic context of life. Nevertheless, it should be mentioned that the pandemic struck Italian regions differently during the first wave of contagion—which is the time when the present data were collected. Thus, future studies should take into account contextual dimensions including both local community perceived features (e.g., community resilience or its ability to manage disasters) and official data about pandemic impacts on participants' local community of belonging (e.g., the rates of COVID-related deaths) too. Indeed, as it has been mentioned before, students' academic stress is linked not only to academic-related issues and worries, but also to non-academic factors, such as the socio-cultural, environmental, and psychological circumstances students find themselves in [8].

Lastly, due to the cross-sectional design of the study, the relationships described should be considered carefully and cannot allow inferences on the direction of causality. Thus, future research should attempt to deepen these relationships through longitudinal studies to gain further understanding of the direction of causality. However, we acknowledge that this may be a difficult task to accomplish due to the rapidly evolving pandemic circumstances in which we are currently living.

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