Aligning personal and collective interests in emerging adults during the COVID-19 emergency in Italy

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Abstract
This study investigated the relations of emerging adults’ personal (civic competence and interdependent self-construal) and community-based (sense of community and civic engagement) resources as predictors of appraisal of COVID-19 Public Health Emergency Management (PHEM) and attitudes toward preventing contagion in Italy. Participants were 2873 Italian emerging adults (71% females) aged 19–30 years (M = 22.67, SD = 2.82). Structural equation modeling revealed both direct and indirect positive associations among study variables. Civic competence and interdependent self-construal were related to sense of community and civic engagement behavior which, in turn, predicted appraisal of PHEM. Appraisal of PHEM in turn predicted attitudes toward preventing contagion. Overall, findings highlight the importance of examining the alignment between personal and collective interests to understand emerging adults’ evaluative and attitudinal experiences during a period of crisis, such as that created by COVID-19.
INTRODUCTION

The international emergency due to the Coronavirus—COVID-19 outbreak has posed considerable medical concerns. Many countries have launched public health efforts to contain the infection and to find a treatment in a very short time. While the development of pharmaceutical interventions is still in a germinal stage and the vaccination campaign has just started, political authorities around the world are continuing to apply a set of rules and recommendations to reduce the spread of the virus or flatten the contagion curve. Examples include wearing a mask, washing hands, maintaining physical distance, closing public locations (such as kindergartens, schools, and universities), promoting home working, prohibiting border crossing, and—as an extreme provision—imposing a lockdown.

The adoption of these kinds of rules and recommendations requires a radical shift of mindset and behaviors. The rules require individuals to abide by restrictions that limit personal freedom to safeguard public health and civil life, and include activities such as physical distancing, personal hygiene, and not hoarding supplies. People may become aware that overcoming the challenge represented by the outbreak entails a new perspective on human relationships focused on a strong sense of “us” instead of “me.” In other words, the efforts of all need to be foregrounded to abandon a philosophy of “everyone for themselves” and to enact shared actions for the common well-being.

Social and behavioral sciences can support understanding of the multiple issues that characterize this complex framing encompassing individual, social, and institutional levels. In particular, psychology has a key role to play in providing insights to identify those dimensions that enable people to adopt cooperative and altruistic behaviors (i.e., bearing a personal cost to benefit others). The understanding of these topics is especially important in reference to emerging adulthood (Sherrod et al., 2010; Zaff et al., 2010), a development stage during which individuals make several self-defining choices that will have a long-term impact (Arnett, 2015), such as defining their individuality, preparing for the school-to-work transition, establish their financial independence, leaving parental home. This kind of changes lead emerging adults to be more autonomous from family of origin and are often associated with new social roles (Ingoglia et al., 2017; Viola et al., 2017). During this stage new behavioral patterns emerge such as healthy and responsible attitudes toward the self and others (Sirois, 2015). Indeed, during this period emerging adults become more engaged in the social activities of their community and consolidate civic values and beliefs, strengthening their identities and roles (Arnett, 2015; Barrett & Pachi, 2019; Lerner et al., 2014; Watts & Flanagan, 2007).

Research on the psychological implications of COVID-19 among emerging adults has been primarily focused on analyzing the impact of the pandemic on mental health (Cao et al., 2020; Horesh & Brown, 2020; Lee, 2020; Liu et al., 2020; Qiu et al., 2020; Rajkumar, 2020). Specifically, scholars have evaluated how concerns related to physical distancing, isolation, loss of job, and the ensuing economic crisis affect emerging adults’ psychological and social well-being, especially among college and university students. Taken together, findings show that emerging adults—as a consequence of concerns related to COVID-19—report a wide array of psychosocial problems such as fear, anxiety, depression, stress, panic disorders, and somatisation (Cao et al., 2020; Elmer et al., 2020; Huckins et al., 2020).

However, few studies in emerging adults have been devoted to those factors that increase COVID-19 preventative behaviors. Nor have they examined which factors influence the acceptance of restrictions and explain why some people more than others are willing to comply with public health guidelines (Carvalho et al., 2020;...
Germani et al., 2020; Wilson et al., 2020). For instance, Wilson et al. (2020) carried out a quantitative and qualitative study to identify the psychological resources that prevent risky behaviors in COVID-19 exposure among emerging adults living in Wisconsin, finding that the sense of responsibility toward loved ones and to the broader community were associated with emerging adults’ tendency to adhere to public health guidelines (e.g., wearing masks) that prevent the spread of COVID-19. According to Wolf et al. (2020), individuals who value responsibility are more prone to behave in accordance with the government recommendations and help others in coping with the crisis.

Generally speaking, research on emerging adults’ behaviors in reaction to the health emergency represented by the COVID-19 pandemic have reported mixed findings. On the one hand, many emerging adults do not take into account the severity of the virus and disregard social rules and recommendations and do not engage in physical distancing (Oosterhoff et al., 2020). On the other hand, they show ambivalent emotions, insofar as they also display, at the same time, high levels of anxiety, stress and worries about themselves and their loved ones related to the fast spread of the virus (Germani et al., 2020; Wilson et al., 2020). However, these issues need to be explored further because research on these topics during emerging adulthood is still limited and further studies are needed to understand what conditions are associated with particular responses to COVID-19 among emerging adults in different national and cultural contexts. Thus, more efforts are needed to shed additional light on the ways in which individuals in this developmental period respond to the COVID-19 pandemic and to identify the factors that contribute to adherence to preventative behaviors.

Against this background, the general aim of the present research was to examine the psychological dimensions associated with emerging adults’ adherence to preventative behaviors during the first lockdown phase in Italy (March to May 2020). More specifically, the study focused on the relations between (a) individual dimensions through which people relate to their social and civic environment, (b) appraisal of the political and health authorities in managing the pandemic and its impact on individuals’ daily lives, and (c) emerging adults’ attitudes toward behaviors to avoid the spread of infection and follow public advice.

2 | INDIVIDUAL PSYCHOLOGICAL RESOURCES IN THE RESPONSE TO COVID-19 PANDEMIC

According to Lerner’s model of Positive Youth Development (PYD; Lerner, 2004; Lerner et al., 2005; Lewin-Bizan et al., 2010), we can identify a series of individual psychological resources that can help emerging adults recognize the importance of their contribution to a collective good. In Lerner’s model when these individual resources are aligned with growth promoting ecological resources (i.e., “developmental assets,” Benson et al., 2011), positive development can be observed in youth. The positive development is operationalized in terms of “Five Cs”—Competence, Confidence, Connection, Character, and Caring (Conway et al., 2015; Eccles & Gootman, 2002; Lerner, 2004). In particular, competence can be defined as a positive perception of one’s actions in domain specific areas including social, cognitive, academic, and vocational realms; confidence refers to a sense of overall positive self-worth and self-efficacy; connection indicates one’s perception to have to constructive relationships with people and institutions; character refers to individual’s respect for societal rules and a sense of right; and caring can be defined as person’s sense of sympathy and empathy for other people (Lerner et al., 2005).

Although this model was mainly developed to understand and explain adolescents’ behaviors and adjustment (Lerner et al., 2005, 2010), several authors have underlined that it could be effectively applied also in the study of emerging adults (Ferrer-Wreder et al., 2021; O’Connor et al., 2015; Wood et al., 2018). Particularly relevant for the current study, PYD model focuses on the importance of building an inclusive collective identity and a sense of an interdependent self, cultivating basic skills and capacities such as empathy, respect for others, responsibility, resilience, prosocial, and cooperative behaviors (Crocetti et al., 2014; Sherrod, 2007). Taken together, these personal dimensions facilitate the development of civic behaviors that can replace a perspective centered on self-interest to one involving community strategies leading to an interdependent self-construal. An interdependent
self-construal may be defined as a constellation of thoughts, feelings, and actions which represents the self as being fundamentally connected to other people (Markus & Kitayama, 1991, 1994). Persons with a highly developed interdependent self-construal tend to view relationships as integral parts of their true being, conceive the care of harmonious interpersonal relationships as a central aspect of their life, and believe that their personal behavioral choices have a deep impact on others, such that these choices can be defined as a collective phenomenon (e.g., Cross & Madson, 1997; Kashima et al., 1995; Lyons, 1983; Markus & Kitayama, 1991, 1994; Pearson et al., 1998; Singelis, 1994).

In addition to self-construal, civic competence is also associated with collective engagement in society (Barrett & Pachi, 2019). For this reason, insights provided by the Reference Framework of Competences for Democratic Culture (RFCDC; Barrett et al., 2018a) also informed the current study. The RFCDC defines civic competence as the capacity to select, activate, organize, and apply psychological resources that allow all individuals (children, adolescents, and adults) to respond effectively and appropriately to the demands and opportunities of civic situations. The psychological resources identified by the RFCDC include skills such as empathy, cooperation and flexibility-adaptability, and attitudes such as responsibility, civic-mindedness and respect. All of these variables were examined in this study.

The study investigated both personal psychological resources such as civic competence and interdependent self-construal ("caring" in terms of the PYD model), and community-based psychological resources such as a sense of community and civic engagement behaviors ("connection" in terms of the PYD model). Both interdependent self-construal and civic competence can be conceptualized as fundamental personal psychological resources that enable people to put themselves in an active relationship with others and their community. Both involve dynamic processes of mobilization and deployment that help adaptation to new and unpredictable circumstances.

In addition, sense of community and civic engagement behavior were investigated because they too play an important role in affecting emerging adults' behaviors in response to COVID-19 pandemic. They may be conceived as community-based resources that connect individuals to their group because they imply a commitment to community well-being. Specifically, sense of community refers to positive bonds with people and institutions that are reflected in bidirectional exchanges between the individual and community in which both parties contribute to the relationship (e.g., Albanesi et al., 2007; Bess et al., 2002; Sarason, 1974). Civic engagement behavior refers to social and political contributions to community and society (Barrett & Pachi, 2019; Checkoway & Aldana, 2013; Ekman & Amnå, 2012; Haste & Hogan, 2006; Sherrod & Lauckhardt, 2009; Wray-Lake et al., 2017).

Sense of community and civic engagement are interrelated constructs because the feeling of belonging can foster participation in activities, communities, and institutions, and this participation in turn can reciprocally enhance the sense of community (Barrett & Pachi, 2019; Choudhary & Gupta, 2017). Moreover, individuals who show a higher level of civic competence and a highly developed interdependent self-construal are more likely to align their personal interests to the collective, because they tend more easily to perceive themselves as members of a wider social matrix (e.g., their community). As a result, they show a greater sense of belonging to this community and are more likely to take on the responsibility of community well-being.

### 3 | THE ROLE OF POLITICAL AND HEALTH AUTHORITIES IN MANAGING THE PANDEMIC

As outlined by Lerner et al. (2014), there is a bidirectional social contract in which individuals contribute to social institutions whilst the institutions support the individual. During times of public crisis, citizens and governments must establish trusted relationships with each other to increase the community’s well-being. The task of governments is to act effectively to provide public services and to make citizens more prone to follow the calls of epidemiologists and experts despite behavioral and psychological burdens. At the same time, the task of citizens is to engage in cooperative and responsible actions. They must understand that taking care of others’ health and safety benefits oneself. Both sides work in a reciprocal manner and influence each other.
According to many authors (Cao et al., 2020; Germani et al., 2020; Horesh & Brown, 2020; Lee, 2020), in times of epidemic outbreak, people, especially those at risk of infection, are extremely vulnerable, emotionally fragile, and feel ambivalent emotions. They feel fear and panic, but also skepticism and disregard. Under these circumstances, individuals have difficulty processing information and may think of and behave for themselves as individuals rather than as connected to others. As Han et al. (2020) have highlighted, governments face the hard task of explaining danger and advising people how to act without spreading panic in the population. Hence, governments have to plan effective measures (Public Health Emergency Management—PHEM) to manage public health threats to minimize health and economic impacts. A credible PHEM is a key element to reduce threat, to prevent increases in anxiety and other negative emotions and distrust in public decisions.

However, individuals may vary in their appraisal of the measures developed by governments based on their own psychological characteristics. For instance, people who tend to feel part of a community and to commit themselves to pursuing its well-being are likely to evaluate more favorably government provisions to protect citizens’ health, even if the provisions restrict personal freedom. Finally, positive attitudes toward PHEM policies ought to lead to an individual following rules that protect oneself and the community (Al-Hasan et al., 2020; Chen & Chen, 2020; Quah & Hin-Peng, 2004).

4 | INDIVIDUAL DIFFERENCE FACTORS

In this study, we used gender, age and occupational status as control variables. This was because there are differences between males and females in interdependent self-construal (Alexander et al., 2020; Foels & Tomcho, 2009), empathy (Van der Graaff et al., 2018), sense of community (Cicognani et al., 2012; Talò et al., 2014), and civic engagement (Amnà et al., 2009; Barrett & Pachi, 2019). Similarly, studies have found mixed results about the relations of age with empathy and prosocial behavior (Padilla-Walker, 2016; Wieck & Kunzmann, 2015), interdependent self-construal (Liga et al., 2015; Watkins et al., 2000), sense of community (Cicognani et al., 2015; Ross & Searle, 2019), and civic engagement (Amnà, 2012; Amnà et al., 2009). Finally, we were concerned that appraisal of COVID-19 PHEM could differ depending on whether participants were students or workers during the lockdown.

5 | THE PRESENT STUDY

Given that joint efforts from individuals and government systems must align personal and collective interests, the aim of the present study examined the relations between emerging adults’ personal (civic competence and interdependent self-construal) and community-based (sense of community and civic engagement behavior) factors. These factors were then investigated as predictors of appraisal of PHEM, which was then expected to predict attitudes toward behaviors that prevent contagion during the COVID-19 pandemic and, specifically, the lockdown phase from March to May 2020 in Italy. It was hypothesized that civic competence and interdependent self-construal would be related to appraisal of PHEM indirectly by way of sense of community and civic engagement behavior and that both personal and community-based factors would be linked to attitudes toward behaviors that prevent contagion indirectly by way of appraisal of PHEM.

In terms of direct links, as shown by Figure 1a, we hypothesized that:

1. Civic competence and interdependent self-construal would be positively associated with each other.
2. Civic competence and interdependent self-construal would be positively associated with sense of community and civic engagement behavior.
3. Sense of community and civic engagement behavior would be positively associated with each other.
FIGURE 1  Theoretical models to be compared. The key study variables and their related paths and covariances are presented in bold black. Control variables and their related paths are presented in gray.
4. Sense of community and civic engagement behavior would predict appraisal of COVID-19 PHEM.
5. Appraisal of COVID-19 PHEM would predict attitudes toward behaviors that prevent contagion.

We also tested two alternative models in which both civic competence and interdependent self-construal mediate the relations between sense of community and civic engagement, on the one hand, and appraisal of PHEM and attitudes toward behaviors to prevent contagion, on the other (Figure 1b). Specifically, the first alternative model tested whether experiencing a sense of community and civic engagement might lead emerging adults to perceive higher civic competence and interdependent self-construal, which, in turn, might be related to a higher trust of the authorities in managing the health emergency as well as to a higher attitude toward behaviors to prevent contagion. Another alternative model could be the one, less parsimonious, in which appraisal of PHEM and attitudes toward behaviors to prevent contagion are simply correlated, with no specific regression path linking these two outcomes (see Figure 1c).

6 | METHOD

6.1 | Participants

Participants included 2873 emerging adults aged 19–30 years (M_age = 22.67, SD = 2.82; 70.9% females) recruited from Southern (85.9%), Central (2.1%), and Northern (12.0%) Italy. This sample was gathered by a snowball sampling approach, initially involving university students attending psychology or social science courses (80% of these courses were in Southern and 20% in Northern Italy). In Italy, these courses are characterized by a high female prevalence (more than 80%, see AlmaLaurea, 2017) and this explains the gender distribution of the sample. Given the sampling procedure, 84.3% of participants were university students, 0.8% high school students, and 14.9% workers. Among university students 78.2% were attending undergraduate studies and 21.8% graduate schools, while among workers 2.8% had completed primary schooling, 50.0% secondary schooling, and 47.2% their degree. More than 99% of both students and workers were unmarried and had no children. Furthermore, 93.5% of students and 75.5% of workers were living with their parents. During the Italian lockdown (see above), 92.3% of students attended online courses, while 36.6% of the workers were able to work from home, 22.9% worked in their workplaces, 24.5% did not work and did not receive any income, 16.0% did not work but received an income.

7 | MEASURES

7.1 | Civic competence

Following the RFCDC (Barrett et al., 2018a, 2018b), civic competence was defined in terms of the following indicators: empathy, cooperation, flexibility-adaptability, responsibility, civic-mindedness, and respect. Empathy was assessed by using six items from two subscales of the Brief Interpersonal Reactivity Index (B-IRI; Davis, 1980, 1983; Ingoglia et al., 2016): (a) Empathic concern (EC; three items, e.g., “When I see someone being taken advantage of, I feel kind of protective toward them”), and (b) Perspective Taking (PT; three items e.g., “When I’m upset at someone, I usually try to “put myself in his shoes” for a while”). Respondents answered on a five-point Likert scale from never true for me (1) to always true for me (5). Reliability and validity for the B-IRI have been provided in several studies, also including Italian samples (e.g., see Ingoglia et al., 2016). To test the factorial validity of the briefer version used in this study, we conducted a confirmatory factor analysis (CFA; see the “Data Analysis Plan” section for model fit criteria) based on a maximum likelihood estimation procedure that supported a second-order factor structure (i.e., EC and PT factors loading onto a higher order empathy factor), $\chi^2(8) = 59.54, p < 0.001, \text{CFI} = 0.983, \text{RMSEA} = 0.046,$
SRMR = 0.025. The internal consistency reliability scores calculated by the factor determinacy (Muthén & Muthén, 2012) were good (0.86 for EC and PT, and 0.71 for the higher factor of empathy) and the Cronbach’s alpha (\( \alpha \)) coefficients were \( \approx 0.72 \) for both EC and PT as well as for the general empathy. Cooperation, flexibility-adaptability, responsibility, civic-mindedness, and respect were assessed by using a subset of 15 validated and scaled descriptors provided by the RFCDC (see Barrett et al., 2018b; Barrett, 2021). Each dimension included three items, for example: (a) “When working as a member of a group, I build positive relationships with other people of the group” for Cooperation, (b) “I adapt to new situations” for Flexibility-Adaptability, (c) “I take responsibility for my own behavior” for Responsibility, (d) “I accept the obligations resulting from belonging to a community” for Civic-mindedness, and (e) “I respect people who hold different opinions, worldviews and lifestyles from myself” for Respect. Respondents answered on a five-point Likert scale from very untrue (1) to very true (5). However, because RFCDC descriptors were developed in English and to be adapted for a variety of ages and educational levels (from primary and secondary schools to higher education and vocational training institutions), it was questionable whether they could be applied to Italian emerging adults. Thus, after translating the items according to the recommendations of the International Test Commission (2005) and performing content validity using qualitative method and opinions of five psychology experts (educational field), the latent structure of the selected items was initially determined through a principal component analysis using oblimin rotation. Results suggested a five-factor solution explaining 60.92% of the total variance. To further test the factorial validity of this RFCDC-related scale, and to take into account the multivariate non-normality of items, we conducted a CFA based on a robust maximum likelihood estimation procedure that supported the expected correlated five-factor structure, \( \chi^2(80) = 480.53, p < 0.001, \text{CFI} = 0.945, \text{RMSEA} = 0.042, \text{SRMR} = 0.044 \) (see item content and factor loadings in Appendix). The factor determinacy scores were good for all the subscales: 0.84 for cooperation, 0.81 for flexibility-adaptability, 0.91 for responsibility, 0.82 for civic-mindedness, and 0.88 for respect. Also, Cronbach’s \( \alpha \) coefficients were all \( \approx 0.65 \). Given these results, we used scores of empathy, cooperation, flexibility-adaptability, responsibility, civic-mindedness, and respect as indicators of civic competence in the subsequent analyzes.

7.2 | Interdependent self-construal

Self-construal was assessed by using four items of the Connected Self subscale from the relationship self inventory (RSI; Pearson et al., 1998). The items (e.g., “It is important for me to take care of other people”) were rated on a five-point Likert scale from very untrue (1) to very true (5). The Italian version of the Connected Self subscale demonstrated good internal consistency reliability in previous studies (e.g., Liga et al., 2015). To test the factorial validity of the brief version used in this study, we conducted a CFA based on a maximum likelihood estimation procedure that supported a one-factor structure, \( \chi^2(2) = 21.56, p < 0.001, \text{CFI} = 0.992, \text{RMSEA} = 0.058, \text{SRMR} = 0.013 \). The factor determinacy score was good (0.92), and the Cronbach’s \( \alpha \) coefficient was 0.80. Hence, we used this measurement model of interdependent self-construal in the subsequent analyzes.

7.3 | Sense of community

Sense of community was assessed by using nine items derived from three subscales of the Sense of Community Scale (SCS; Albanesi et al., 2007): (a) Sense of belonging (SoB; three items, e.g., “I feel like I belong to this town”), (b) Support and emotional connection in the community (SECC; three items, e.g., “People in my town collaborate together”), and (c) Opportunity for influence (OfI; three items, e.g., “If only we had the opportunity, I think that we could organize something special for our town”). Respondents answered on a five-point Likert scale from very weak (1) to very strong (5). The SCS was developed in the Italian context and showed good stability over time \( (r = 0.88) \) and good construct validity (see Albanesi et al., 2007; Cicognani et al., 2006). To test the factorial validity of the
brief version used in this study, we conducted a CFA based on a maximum likelihood estimation procedure that supported a correlated three-factor structure, $\chi^2(24) = 341.99$, $p < 0.001$, CFI = 0.969, RMSEA = 0.068, SRMR = 0.039. The factor determinacy scores were good for all the subscales (0.92 for SoB, 0.96 for SECC, and 0.93 for OfI) and Cronbach’s α coefficients were all ≃ 0.85. Thus, we used scores of SoB, SECC, and OfI as indicators of sense of community in the subsequent analyzes.

7.4 | Civic engagement behavior

Civic engagement behavior was assessed by using three items from the Civic Engagement Scale (CES; Doolittle & Faul, 2013). Specifically, the items referred to the subscale of Civic engagement behavior (CEB; e.g., “When working with others, I make positive changes in the community”). Respondents answered on a five-point Likert scale from strongly disagree/never (1) to strongly agree/always (5). The Italian version of the CES subscales demonstrated good internal consistency reliability in previous studies (e.g., Procentese et al., 2019). To test the factorial validity of the brief version used in this study, we conducted a CFA based on a maximum likelihood estimation procedure (we constrained the two freely estimated factor loadings to be equal) that supported a one-factor structure, $\chi^2(1) = 2.75$, $p = 0.10$, CFI = 0.999, RMSEA = 0.025, SRMR = 0.016. The factor determinacy score was good (0.91), and Cronbach’s α coefficient was 0.78. Therefore, we used this measurement model of CEB in the subsequent analyzes.

7.5 | Appraisal of the public health emergency management (PHEM)

Appraisal of PHEM was assessed by measuring trust in the public authorities (political and health) managing of the COVID-19 emergency as well as the perception of the adequacy of the rules adopted by the Italian government during this crisis. Trust in public political authorities (TPPA) and Trust in public health authorities (TPHA) were assessed by using two indexes constructed on the basis of 5 and 3 items, respectively, that measure trust in a series of political and health authorities. Specifically, participants were invited to reflect on the state of emergency in Italy and on the way in which the public authorities were managing the emergency. Then, they were asked to answer their level of trust toward the following political and health authorities (“I think citizens should trust...”): the President of the Republic, the President of the Council of Ministers, the President of the Region, the Mayor of the city, and the European Union (political); the Civil Protection, the Higher Institute of Health, and the World Health Organization (health). Respondents answered on a five-point Likert scale from not at all (1) to completely (5). To test the factorial validity of this measure, we conducted a CFA based on a robust maximum likelihood estimation procedure that supported a correlated two-factor structure, $\chi^2(17) = 251.54$, $p < 0.001$, CFI = 0.961, RMSEA = 0.069, SRMR = 0.035. The factor determinacy scores were good for both subscales (0.92 for TPPA and 0.89 for TPHA) and Cronbach’s α coefficients were all ≃ 0.82. Perception of the adequacy of the rules adopted by the Italian government (PARIG) was assessed by seven items. Participants were asked to answer their level of agreement about whether the rules were adequate (“Rules provided by the Italian government are adequate to...”) to: protect the health of all citizens, support families, make the tax payment practicable, protect workers, protect and support all the retail and hospitality businesses, support schools, universities and students, and support local authorities (regions and municipalities). Respondents answered on a five-point Likert scale from strongly disagree (1) to strongly agree (5). To test the factorial validity of this measure, and to take into account the multivariate non-normality of items, we conducted a CFA based on a robust maximum likelihood estimation procedure that supported a one-factor structure, $\chi^2(12) = 171.34$, $p < 0.001$, CFI = 0.978, RMSEA = 0.068, SRMR = 0.026. The factor determinacy score was good (0.94), and the Cronbach’s α coefficient was 0.88. Based on these results, we used scores of TPPA, TPHA, and PARIG as indicators of appraisal of PHEM in the subsequent analyzes.
7.6 | Attitudes toward behaviors to prevent contagion

These attitudes were assessed with seven items related to the perception of appropriateness of actions to prevent the spread of the COVID-19 in three domains: hygiene and distance (three items), work and study (two items), freedom of movement (two items). Participants were asked to answer their level of agreement on the use of the following behaviors: "It is appropriate to...": wearing a mask when having contact with other people, washing hands as soon as returning home, keeping distance of one meter from others, working or studying at home if possible, and going out as little as possible (i.e., going to the supermarket or to exercise). Respondents answered on a five-point Likert scale from strongly disagree (1) to strongly agree (5). To test the factorial validity of this measure, and to take into account the multivariate non-normality of items, we conducted a CFA based on a robust maximum likelihood estimation procedure that supported a correlated three-factor structure, \( \chi^2(11) = 51.28, p < 0.001, \text{CFI} = 0.977, \text{RMSEA} = 0.036, \text{SRMR} = 0.020. \) The factor determinacy scores were good (ranging 0.89–0.92), as well as the Cronbach's \( \alpha \) coefficients were \( \approx 0.64. \) We used scores on the three domains of behaviors (hygiene and distance, work and study, and freedom of movement) as indicators of attitudes toward behaviors to prevent contagion in the subsequent analyzes.

8 | PROCEDURE

The Institutional Review Boards (IRB) of the University of [blinded for the review process] approved this study, which was conducted following the guidelines for the ethical treatment of human participants of the Italian Association of Psychology (2015). Participation in the study was voluntary and anonymous, and participants received no compensation. All participants received written information about the study, and they provided informed consent to participate. An online survey was conducted from March 31 to April 30, 2020, using the Qualtrics web-based platform (http://www.qualtrics.com).

9 | DATA ANALYSIS PLAN

All analyzes (including CFAs run for each study variable) were performed using Mplus 7 (Muthén & Muthén, 2012). Descriptive statistics for the observed variables were initially calculated. Specifically, mean scores, standard deviations, and normality statistics were computed.

Subsequently, we run the CFAs for each study variable to test the factorial validity; results are reported in "Measures" section. By acknowledging the potential limitation of the chi-square test (\( \chi^2 \) should be nonsignificant with \( p > 0.05 \)), due to its tendency to reject the null hypothesis with large sample sizes and complex models, we relied on well-known goodness-of-fit indices and their associated cut-offs to evaluate model fit (e.g., Kline, 2015): CFI \( \geq 0.90 \) for acceptable and \( \geq 0.95 \) for good fit, RMSEA \( \leq 0.08 \) for acceptable and \( \leq 0.05 \) for good fit, and SRMR \( \leq 0.10 \) for acceptable and \( \leq 0.05 \) for good fit.

Afterward, a series of structural equation models (SEMs) were estimated. First, we performed a SEM to test a measurement model including the latent variables for civic competence, interdependent self-construal, sense of community, civic engagement behavior, appraisal of PHEM, and attitudes toward behaviors to prevent contagion (see the Measures section for the respective indicators), as well as all their potential covariances. After introducing the control variables of age, gender (0 = male, 1 = female), and occupational status (0 = student, 1 = worker) in this model, we obtained the bivariate correlations for all the variables of interest. Second, we estimated a full mediation SEM to test our hypothesized model as illustrated in Figure 1a; age, gender, and occupational status were controlled by allowing them to predict all the latent variables. All indirect paths were tested. To assess whether the mediating variables fully accounted for the indirect relations of the hypothesized model, we also estimated a partial mediation...
SEM including direct paths from civic competence and interdependent self-construal to appraisal of PHEM and attitudes toward behaviors to prevent contagion as well as from sense of community and civic engagement behavior to attitudes toward behaviors to prevent contagion. Third, the two alternative models as presented in Figure 1b,c were evaluated. To ascertain significant differences between nested models (the more vs. less restrictive model), at least two of these four criteria had to be satisfied (Kline, 2015): $\Delta \chi^2$ significant at $p < 0.05$, $\Delta$CFI $\leq -0.010$, $\Delta$RMSEA $\geq 0.015$, and $\Delta$SRMR $\geq 0.010$. A significant improvement of fit between the non-nested alternative versus hypothesized models was established when the following criterion were met: smaller values of at least one of AIC (Akaike information criterion) and BIC (Bayesian information criterion), indicating negative (vs. positive) values for $\Delta$AIC and $\Delta$BIC.

10 | RESULTS

10.1 | Preliminary analyzes

Table 1 summarizes the descriptive statistics and shows how some observed variables were not normally distributed with skewness and kurtosis values $>|1.00|$ (Kline, 2015). As multivariate non-normality was also evidenced (Mardia’s multivariate kurtosis coefficient was 715.36 vs. the critical value of 624, see Barbaranelli & D’Olimpio, 2006) and missing information was present (0.001%), the data were subsequently analyzed using robust full information maximum likelihood estimation methods. Both the measurement model, $\chi^2_{(195)} = 1169.54$, $p < 0.001$, CFI = 0.933, RMSEA = 0.042, SRMR = 0.040, and the SEM specifying all the covariances among latent and control variables, $\chi^2_{(243)} = 1468.48$, $p < 0.001$, CFI = 0.922, RMSEA = 0.042, SRMR = 0.039, fit the data acceptably. Bivariate correlations are reported in Table 2.

11 | TESTING THE HYPOTHEZIZED MODEL

We estimated the full and partial mediation models. In the initial estimate of the full mediation model, age was significantly correlated with civic competence, gender with civic competence, interdependent self-construal, civic engagement behavior, and attitudes toward behaviors to prevent contagion, and the occupational status with civic engagement behavior and appraisal of PHEM. All other associations between control and latent variables were nonsignificant. In light of this, only the significant paths were retained, and the model was re-estimated. This full mediation model fit the data adequately, $\chi^2_{(262)} = 1662.87$, $p < 0.001$, CFI = 0.909, RMSEA = 0.043, SRMR = 0.050. When comparing the full and the partial mediation models, no significant differences were found, $\Delta \chi^2_{(6)} = 110.19$, $p < 0.001$, $\Delta$CFI $= -0.007$, $\Delta$RMSEA $= 0.001$, and $\Delta$SRMR $= 0.008$. Thus, the full mediation model was considered the final model. Figure 2 shows that the direct associations (in terms of standardized regression coefficients) among the latent variables were positive and significant: civic competence and interdependent self-construal were linked to both sense of community and civic engagement behavior which were related to appraisal of PHEM; in turn, appraisal of PHEM was connected to attitudes toward behaviors to prevent contagion. Also, Figure 2 shows (a) higher levels of civic competence in the older than younger participants (but $\beta$ was $< 0.10$), (b) higher levels of civic competence, interdependent self-construal and attitudes toward behaviors to prevent contagion in females than males, (c) a higher level of civic engagement behavior in males than females ($\beta$ $< 0.10$), and (d) a higher level of civic engagement behavior ($\beta$ $< 0.10$) but a lower level of appraisal of PHEM among worker than students. In terms of indirect relations, the model showed that: (a) civic competence was indirectly and significantly linked to appraisal of PHEM through both sense of community ($\beta = 0.03$, $p = 0.004$) and civic engagement behavior ($\beta = 0.05$, $p < 0.001$); (b) interdependent self-construal was indirectly and significantly linked to appraisal of PHEM through both sense of community ($\beta = 0.05$, $p < 0.001$) and civic engagement behavior ($\beta = 0.05$, $p < 0.001$); (c) sense of community was
| Observed variable | Mean | Standard deviation | Skewness | Kurtosis |
|-------------------|------|--------------------|----------|----------|
| Civic competence  |      |                    |          |          |
| Empathy (scored 1–5) | 4.08 | 0.53               | -0.50    | 0.34     |
| Cooperation (scored 1–5) | 4.45 | 0.48               | -0.73    | 0.54     |
| Flexibility-adaptability (scored 1–5) | 4.00 | 0.54               | -0.36    | 0.07     |
| Responsibility (scored 1–5) | 4.44 | 0.55               | -0.87    | 0.63     |
| Civic-mindedness (scored 1–5) | 3.99 | 0.63               | -0.50    | 0.07     |
| Respect (scored 1–5) | 4.58 | 0.48               | -1.27    | 1.53     |
| Interdependent self-construal |      |                    |          |          |
| Item_1            | 4.27 | 0.77               | -0.84    | 0.42     |
| Item_2            | 4.12 | 0.91               | -0.84    | 0.17     |
| Item_3            | 4.21 | 0.78               | -0.74    | 0.21     |
| Item_4            | 4.15 | 0.83               | -0.70    | -0.08    |
| Sense of community |      |                    |          |          |
| Sense of belonging | 3.38 | 1.05               | -0.44    | -0.57    |
| Support and emotional connection in the community | 2.84 | 0.93               | -0.01    | -0.34    |
| Opportunity for influence | 4.05 | 0.86               | -0.85    | 0.45     |
| Civic engagement behavior |      |                    |          |          |
| Item_1            | 3.09 | 1.08               | -0.19    | -0.36    |
| Item_2            | 2.92 | 1.12               | -0.03    | -0.53    |
| Item_3            | 2.27 | 1.18               | 0.55     | -0.59    |
| Appraisal of public health emergency management |      |                    |          |          |
| Trust in public political authorities | 3.68 | 0.82               | -0.61    | 0.47     |
| Trust in public health authorities | 4.39 | 0.71               | -1.43    | 2.48     |
| Perception of the adequacy of the rules adopted by the Italian government | 3.14 | 0.78               | -0.04    | -0.10    |
| Attitudes toward behaviors to prevent contagion |      |                    |          |          |
| Behaviors related to hygiene and distance | 4.76 | 0.46               | -2.57    | 8.07     |
| Behaviors related to work and study | 4.82 | 0.47               | -3.37    | 13.18    |
| Behaviors related to freedom of movement | 4.66 | 0.67               | -2.18    | 4.45     |
| Socio-demographics |      |                    |          |          |
| Age               | 22.67| 2.82               | 0.69     | -0.034   |
| Gender (0 = male, 1 = female) | 0.71 | 0.45               | -0.92    | -1.15    |
| Occupational status (0 = student, 1 = worker) | 0.15 | 0.36               | 1.97     | 1.89     |
indirectly and significantly linked to attitudes toward behaviors to prevent contagion through appraisal of PHEM ($\beta = 0.07$, $p < 0.001$); (d) civic engagement behavior was indirectly and significantly linked to attitudes toward behaviors to prevent contagion through appraisal of PHEM ($\beta = 0.06$, $p < 0.001$); (e) civic competence was indirectly and significantly linked to attitudes toward behaviors to prevent contagion through both sense of community and

![Table 2]

| 1. Civic competence | 2. Interdependent self-construal | 3. Sense of community | 4. Civic engagement behavior | 5. Appraisal of public health emergency management | 6. Attitudes toward behaviors to prevent contagion | 7. Age | 8. Gender (0 = male, 1 = female) | 9. Occupational status (0 = student, 1 = worker) |
|---------------------|---------------------------------|---------------------|-----------------------------|-----------------------------------------------|-----------------------------------------------|------|-----------------------------|-----------------------------------------------|
|                     |                                 | 0.68***             | 0.29***                     | 0.41***                                      | 0.32**                                        | 0.27**| 0.09***                     | 0.18***                                      | 0.03                                           |
|                     |                                 |                     | 0.31***                     | 0.40***                                      | 0.28**                                        | 0.18**| 0.01                        | 0.22***                                      | -0.02                                          |
|                     |                                 |                     |                             | 0.39***                                      | 0.28**                                        | 0.10**| 0.01                        | -0.07**                                      | 0.02                                           |
|                     |                                 |                     |                             |                                             | 0.35**                                        | 0.06**| 0.06**                      | 0.07**                                       | 0.01                                           |
|                     |                                 |                     |                             |                                             |                                               | 0.01  | 0.06**                      | 0.07**                                       | 0.03                                           |
|                     |                                 |                     |                             |                                             |                                               | 0.01  | 0.36***                     | -0.05**                                      | -0.17***                                     |

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

**Figure 2** Estimated structural equation model for the final model. Maximum likelihood standardized regression coefficients are shown. The key study latent variables and their related paths and covariances are presented in bold black. Indicators of latent variables, control variables, and their related paths are represented in gray. All the covariances among the control variables were permitted but are not presented for reasons of parsimony. All the factor loadings are significant at $p < 0.001$. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$
appraisal of PHEM (β = 0.01, p = 0.006) as well as through civic engagement behavior and appraisal of PHEM
(β = 0.02, p < 0.001); (f) interdependent self-construal was indirectly and significantly linked to attitudes toward
behaviors to prevent contagion through both sense of community and appraisal of PHEM (β = 0.02, p < 0.001) as
well as through civic engagement behavior and appraisal of PHEM (β = 0.02, p < 0.001).

12 | TESTING THE ALTERNATIVE MODELS

We estimated the alternative models presented in Figure 1b (first) and Figure 1c (second). The comparison of the
first, ΔAIC and ΔBIC = 18.16, and the second, ΔAIC = 0.49 and ΔBIC = 12.41, alternative models with the proposed
full mediation model provided a worse fit than our proposed model. Accordingly, both the model positing an inverse
relationship of civic competence and interdependent self-construal with sense of community and civic engagement
behavior as well as the model in which appraisal of PHEM and attitudes toward behaviors to prevent contagion are
simply correlated to each other were rejected, and the hypothesized model was retained.

13 | DISCUSSION

Emerging adulthood is an important and understudied developmental stage for the study and promotion of healthy
and responsible behaviors toward self and others (Nelson et al., 2008; Schwartz & Petrova, 2019; Sirois, 2015;
Steinberg, 2008). According to Sirois (2015), the period of transition into adulthood is very relevant for studying
engagement in healthy behaviors because of the strengthening of self-regulation capacity and identity development
(Arnett, 2015; Casey et al., 2008). Moreover, during this transitional period, individuals increase their ability to
formulate civic values and beliefs (Chan & Mak, 2020; Finlay et al., 2010) and this may result in a more pronounced
sense of civic competence and in a bigger engagement with the community. In light of the current situation related
to COVID-19 pandemic, we studied which psychological resources are associated with emerging adults' adherence
to preventative behaviors and guidelines designed by the government to prevent the spread of infection.

The current study represents one of the first endeavors to analyze emerging adults' psychological resources
associated with preventative behaviors related to COVID-19. The study was grounded in Lerner's PYD model
(Lerner, 2004; Lerner et al., 2005) and the RFCDC (Barrett et al., 2018a). In support of our hypotheses, the present
study found that emerging adults' personal psychological resources and community-based factors were related to
each other and predicted appraisal of COVID-19 PHEM, which in turn predicted attitudes toward behaviors to
prevent contagion. As expected, civic competence and interdependent self-construal were positively associated with each other, as well as with both sense of community and civic engagement behavior. In line with Lerner's framework of PYD (Lerner, 2004; Lerner et al., 2000), the availability of important personal resources, like empathy, cooperation, flexibility-adaptability, responsibility, civic-mindedness, respect, and interdependent sense of self, was positively associated with both sense of belonging to community and civic engagement behavior. Being able to rely on personal skills enabled emerging adults to better understand other people and to be more engaged civically, along with the capacity to view relationships as integral parts of their true being. These skills lead emerging adults to develop awareness that they are part of a community (Crocetti et al., 2014; Sherrod et al., 2005). In other words, emerging adults who show a greater civic competence and a stronger interdependent self-construal seem to be more likely to adjust their personal interests to the collective, because they perceive themselves as members of a wider community. Consequently, they are likely to show a higher sense of belonging to the community as well as higher levels of responsibility toward community well-being.

Moreover, in line with our predictions, sense of community and civic engagement behavior predicted appraisal
of COVID-19 PHEM. Emerging adults' feeling of belonging to the community and their involvement in responsible
behaviors toward society also predicted appraisal of COVID-19 PHEM. Perhaps people who perceive themselves as part of a community and who are committed to community well-being are more likely to perceive provisions made by the governmental authorities positively because they believe that decisions are made for the common good. Additionally, this positive appraisal is associated with more favorable attitudes toward appropriate behaviors to prevent contagion. Indeed, as shown by other studies when governmental measures are perceived as effective and are trusted, people are more likely to adhere to restrictions and follow prevention guidelines (Al-Hasan et al., 2020; Chen & Chen, 2020; Quah & Hin-Peng, 2004).

In addition to these results regarding the direct associations among the study variables, the findings also confirm the indirect associations hypothesized in the model. Indeed, both civic competence and interdependent self-construal were indirectly and significantly linked to appraisal of PHEM through sense of community and civic engagement behavior. Moreover, civic competence and interdependent self-construal were also indirectly and significantly linked to attitudes toward behaviors to prevent contagion through the mediation of sense of community, civic engagement behavior, and appraisal of PHEM.

Taken together, these findings can be explained using Lerner’s PYD model (Crocetti et al., 2014; Lerner, 2004; Lerner et al., 2005). From this model, emerging adults are more likely to become civicly engaged and to behave for the well-being of the community when they feel connected to other people. The nature of civic societies is based on a social contract in which individuals support a social world that, in turn, acts to support individuals (Lerner et al., 2014). Thus, civic competence and interdependent self-construal are personal psychological resources positively associated with emerging adults’ attitudes toward adherence to COVID-19 preventative behaviors.

However, our findings highlight that these resources are not directly associated with the attitude toward preventative behaviors, but this association is mediated by community-based psychological resources (feeling of belonging to and commitment toward their own community) and civic engagement behavior that seem to act as a bridge toward a more positive openness on the work of public authorities and a more careful attitude in preventing contagion. In sum, when emerging adults feel connected to others, they are more likely to be socially and civicly engaged. At the same time, these skills lead to more trust in the political and health institutions and their work, which ultimately increase positive attitudes toward adhering to government guidelines. As a result, emerging adults prioritize collective interests over personal interests and move away from the so called “zero-sum thinking” to build a different understanding in which individual and collective needs function as aligned and strictly intertwined (van Bavel et al., 2020).

This study had limitations. First, the use of self-reflective surveys creates the potential for self-report bias and culturally sensitive social desirability. Moreover, participant online recruitment may have limited participation to those individuals who were current internet users and who are more likely to be familiar with online health and self-management tools. The snowball sampling approach may also have biased the results. Participants’ recruitment initially involved university students attending psychology or social science classes; in Italy, these courses are characterized by a high female prevalence. So, the final sample was largely composed of female university students (unfortunately, we did not collect information about the courses they attended at the university). Even though we controlled for the university student status through the “occupational status” control variable (dichotomized as student and worker), we can imagine that university students, especially enrolled in psychology and social science classes, may be different than the general population on sense of community and civic engagement. As recently outlined by Hylton (2018), students in social sciences tend to report higher levels of civic engagement than other university students; this result may reflect greater interest in civic matters and expectations for involvement in their communities. Furthermore, we did not examine differences between the subcultures of Northern, Central and Southern Italy, and between urban, rural, and suburban youth. Replication of the study with other more diverse samples is clearly required to ascertain the generalizability of the present findings. Also, the cross-sectional design does not allow us to support causal relations between the variables. Although, we have tested our theoretical model against two other models, this in itself does not ensure that the directions between the variables we have theoretically established are the only possible ones, especially as the differences in the AIC and BIC indices were...
relatively small. Finally, our findings should be interpreted also taking into account the period in which the data were collected (from March 31 to April 30, 2020), at the beginning of the COVID-19 outbreak in Italy. On the one hand, the novelty of the phenomenon may have led to the perception of an imminent danger, which could have led young people to a higher adherence to the rules imposed by the national government. On the other hand, the greater attention that was initially placed on the impact of virus on the elderly may have led young people to show less interest in prevention measures. Future research should be conducted to probe these possibilities.

Despite these shortcomings, the current study represents one attempt to analyze a relatively understudied issue, the association between emerging adults’ psychological and behavioral resources (i.e., civic competence, interdependent self-construal, sense of community, and civic engagement behavior), their appraisal of COVID-19 PHEM, and their attitudes toward behaviors to prevent infection. To our knowledge, it is the first study that focuses on these topics during emerging adulthood, a particularly important time for defining one’s role as a member of the society as well as to consolidate civic engagement behavior and civic competence (Barrett & Pachi, 2019; Chan & Mak, 2020; Finlay et al., 2010).

Overall, our findings have relevant practical implications. The current study underscores that adherence to policy recommendations and guidelines aimed at preventing COVID-19 spread depends also on the availability of both personal and community-based resources at the individual level like civic competence, interdependent self-construal, sense of community and civic engagement behavior. Thus, the efficacy and outcomes of policy recommendations depend on emerging adults’ capacity to perceive and to feel themselves as active members of a democratic community. In this way, efforts should be made to leverage people’s sense of contribution to society, translating this feeling into civic engagement behavior to make more effective the prevention policies. Our study also highlights the importance of promoting citizenship education, because fostering civic competences and the sense of belonging to a community may have a general protective role for people’s well-being and for their compliance to prevention programs and health recommendations developed by governmental institutions regardless of their subject (i.e., COVID-19, other infections, cancer, cardiovascular diseases, etc.). These psychological resources should be improved in emerging adults through a set of practical actions inspired by PYD framework (Lerner et al., 2014). According to Mueller et al. (2011), such actions should be based on the principles of inclusion and belonging, providing emerging adults with opportunities to develop the necessary skills to contribute to a fair and supportive society. These kinds of activities should give voice to emerging adults letting them practice social initiatives or services for the community in real-life contexts aimed to take care of other people (i.e., people at risk of social exclusion like older people, people with disabilities, low-income people, migrants), to feel connected with others in the community, to navigate in new responsible and civic roles through volunteering, to build social and psychological capital, and to develop a sense of trust in Institutions. In other words, to act as responsible citizens. This kind of activities are likely to mobilize emerging adults’ resources and to encourage a shift from a personal identity to a shared identity where the “us” prevails on the “me.” And that is very important, especially in a time of pandemic when a real risk exists that “everyone for oneself” could be the prevalent mantra (van Bavel et al., 2020). Furthermore, it could be argued that the mass mobilization of community solidarity behaviors and the mutually supportive relationships that have been observed during COVID-19 pandemic (Walker, 2020) through the implementation of such programs may be reinforced and made stable and lasting over time.

In conclusion, our work suggests that to overcome the current pandemic, and above all to prepare ourselves for possible new emergencies, it is crucial to invest both in people’s individual civic competences and in the capacity of our human societies to enhance the psychological resources of belonging and involvement. If we feel open and interconnected to others in a system that values our civic competences, then it will be easier to contribute to our communities (which must, however, know how to accept this active contribution) and rely more on the choices that the political community puts in place. As a result, societies can be improved through teaching individuals to be more responsible for each other.

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 on request from the corresponding author.

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