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The interplay of community resilience potential, trust in the future and social well-being

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Abstract

Community resilience (CR) has been mainly investigated as the ability of the community to respond to far-reaching circumstances. Relatively less attention has been given to the understanding of CR as the ability of the community to deal with everyday problems, that is, community resilience potential (CRP). Using partial least squares path modelling, this study aims to elucidate how communities deal with issues that trouble their everyday functioning by investigating how this is related to social well-being and trust in the future in a sample of 1278 subjects across 10 Italian communities with different population size and density. Results revealed that CRP was significantly associated with both social well-being and trust in the future. Furthermore, in the more densely and heavily populated territorial communities, the link between CRP and social well-being was stronger than in smaller and less dense communities. The findings suggested that social well-being can be taken as a reliable community psychological resilient outcome. Moreover, CRP enables communities to respond positively to a wide range of phenomena, both large-scale crises and everyday problems with variability across diverse contexts. Please refer to the Supplementary Material section to find this article's Community and Social Impact Statement.

KEYWORDS
community resilience, multigroup comparison, resilient outcomes, social well-being, trust in the future

1 | INTRODUCTION

Collective emergency situations, the last of which the COVID-19 pandemic, have clearly demonstrated the importance for communities to be persistently capable of rebounding from unexpected adversities and withstanding long-term disruption. The capacity of communities to creatively cope with and recover from crises whose destructive impact may persist over time can be referred to as community resilience (CR; Patel, Rogers, Amlôt, & Rubin, 2017).

In the last two decades, CR has attracted growing interest from scholars (Koliou et al., 2020; Paton et al., 200; South, Stansfield, Amlôt, & Weston, 2020) and a number of conceptualizations and theories have been proposed (Patel et al., 2017) so CR is anything but a univocal construct. In fact, there is still little agreement among researchers and practitioners on the definition, operationalization and measurement of this notion (Carpenter, Walker, Anderies, & Abel, 2001; Klein, Nicholls, & Thomalla, 2003; Matarrita-Cascante, Trejos, Qin, Joo, & Debner, 2017) and there is productive and composite scientific debate on the antecedents and outcomes of CR (Folke, 2006). As far as CR outcomes are concerned, in line with Bonanno et al. (2015), it is worth noticing that communities are compelled to cope, sometimes even simultaneously, with both acute and chronic stressors with the former indicating 'a relatively isolated but potentially traumatic life event that … exerts its primary impact over a relatively transient period' (p. 142), whereas the latter denotes 'an event or related series of events that exerts repeated and cumulative impact on resources and adaptation and persists for many months and typically considerably longer' (p. 142). In this regard, natural disasters, terrorist attacks and health emergencies are examples of acute stressors (Magis, 2010; Ostadtaghizadeh, Ardalan, Paton, Jabbari, & Khankeh, 2015; Paton, Millar, & Johnston, 2001), whereas unemployment, poverty or immigration can be taken as examples of chronic stressors (Verbena, Rochira, & Mannarini, 2021). Indeed, given the variety of stressors that can trouble community life, it is important to understand the outcomes of the process of resilience not only by examining community functioning in the aftermath of acute stressors but also within everyday life conditions. In other words, it is crucial to consider resilience as the process through which communities pursue perpetual adjustment in the face of daily problems (i.e., community resilience potential [CRP]).

Accordingly, this study aims to advance the understanding of CRP by ascertaining the resilient processes and responses at the community level in normal conditions, namely beyond acute stressors. In particular, by examining social well-being (SWB) and trust in the future (FUTRUST) as the prospective outcomes of a successful CR process, this study seeks to elucidate how resilience responses vary across communities with different population size and density.

2 | CR: CONCEPTUALIZATIONS AND OUTCOMES

Despite the absence of a final clear-cut shared definition of CR, the majority of scholars agree that CR should be conceptualized as a process that opens up too many possible desirable outcome states (Gunderson, 2000; Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008). Further, it has been highlighted that its conceptualization should be akin to the idea of adaptability, capturing the principle that CR does not stand for the complete absence of adverse and risky circumstances, but for the ability of the community to respond to challenges and engage in both positive and negative responses at the same time. To be precise, all communities, be they vulnerable or not, have resources to use when faced with unexpected threats, revealing both strengths and vulnerabilities (Imperiale & Vanclay, 2021), as well as the potential to learn and grow (Verbena et al., 2021).

For the purpose of the present study, CR is conceived of as an enduring process that enables dynamic systems, such as communities, to respond and adapt to both acute and chronic adversities (Bonanno et al., 2015) and pursue

progress, well-being and growth (i.e., CRP). Indeed, CRP is seen as a potential to learn and activate positive and transformative trajectories through which communities can mitigate risks and improve the living conditions and well-being of their members (Imperiale & Vanclay, 2021; Matarrita-Cascante et al., 2017).

As for resilience outcomes, Bonanno and colleagues have pointed out (2015) that the scientific literature still fails to clearly identify post-adversity resilient outcomes, which can be measured to account for community baseline adjustment. Precisely, whereas research focused on resilience at the individual level or in family contexts has identified desired outcomes following threatening circumstances (Masten & Narayan, 2012; Stratta et al., 2015), less is known about resilience outcomes at the community level. Examples of actual outcomes of CR include both indicators of intraindividual adjustment (Kimhi & Shomai, 2004), such as life satisfaction, perceived self-efficacy and socio-ecological functioning, for instance, economic development, disaster management capacity, basic resources availability and accessibility for all community members (Adger, 2000; Bakić, 2019; Cutter et al., 2008).

Bonanno and colleague (2015) made a clear proposal as regards 'how to define resilient outcomes in response to [adverse] circumstances' (p. 142) contending that, although it is well known that 'a collection of resilient individuals does not guarantee a resilient community' (Norris et al., 2008, p. 128), aggregate data can be used to ascertain to what extent the community successfully adjusts to adversities. In particular, the authors argued that the level of population well-being (Norris et al., 2008) can be regarded as a reliable outcome of a resilient adjustment of the community, for three main reasons. First, a high level of population well-being can indicate the ability of the community to adjust to adverse circumstances. Second, it can be easily measured and, in turn, offers information about how to allocate resources. Third, reliable and valid conceptualization and measurement of population well-being are available, hence it can be theoretically and empirically distinguished from those factors that are regarded as predictors of CR adjustment (Bonanno et al., 2015).

The social nature of well-being is well highlighted by White (2010), who pointed out that well-being 'may be assessed at individual and collective levels, but at the base is something that happens in the relationship—between individual and collective; between local and global; between people and state' (p. 158). Further, it applies to a variety of contexts and types of stressors, hence allowing for comparisons among diverse communities. Armitage, Béné, Charles, Johnson, and Allison (2012) emphasized that a social conception of well-being links the narrower individualistic dimension that values basic human needs (e.g., material needs) to the broader social dimension encompassing socio-psychological and cultural needs.

According to Keyes (1998), SWB can be equated to social adaptation. Individuals with a high level of SWB have abilities and beliefs that allow them to establish a healthy relationship with the social environment in which they live. According to Keyes (Keyes, 1998), SWB encompasses some key dimensions of people functioning in social life. In particular, healthier persons have a deep sense of belonging and strong social bonds (*social integration* [SI]), trust in themselves and others, accepting both negative and positive aspects (*social acceptance* [SA]), value their contribution to society and believe that others do the same (*social contribution* [SCB]), are confident about their capacity of understanding the world in which they live (*social coherence* [SC]) and believe that the society has the potential to evolve 'through its institutions and citizens' (p. 123; *social actualization* [SACT]).

In this sense, in the context of local communities, we argue that the population's SWB may signal the successful adaptation of the community. Consistently with the arguments, discussed by Bonanno et al. (2015), that are reported above, we contend that FUTRUST can be regarded as an indicator of population well-being and, consequently, as a prospective manifestation of CRP. To be precise, in line with the model presented by Scheier and Carver (1985), FUTRUST is defined in this article as generalized favourable expectations for living conditions and quality of life for oneself and others in the future, which might vary across time and situations. The literature on psychological resilience has shown robust evidence that the maintenance of positive expectations towards the future (Carver, Scheier, & Segerstrom, 2010) is related to successful adaptation with respect to a varied range of stressful situations (Ahmad et al., 2010; Smithson et al., 2022) and significant life transitions (Brissette, Scheier, & Carver, 2002). Furthermore, positive expectations towards future outcomes have been associated with better physical and

psychological well-being (Uskul & Greenglass, 2005) also for the likelihood that people who cultivate positive orientations towards the future are more prone to make efforts to change adverse external circumstances and adopt health protective behaviours (Laranjeira & Querido, 2022).

To the best of our knowledge, there is no evidence concerning the relationship between the process underlying resilience at the community level and people's hopeful attitudes towards the future. Indeed, our study is a first step towards a better understanding of such a connection. To be precise, it revolves around the question of whether the perception of living in a resilient community, namely a community endowed with a compound set of resources (Pasca, De Simone, Ciavolino, Rochira, & Mannarini, 2023), is associated with a higher level of FUTRUST with the latter taken as a proxy of population well-being (Bonanno et al., 2015).

3 | CURRENT STUDY

Drawing on this literature, this article investigates SWB and FUTRUST as outcomes of a flourishing CRP. Indeed, the main aim of this study was to ascertain whether CRP is associated with a high level of SWB among community members as well as with higher confidence about the future. Accordingly, we tested the following hypotheses:

H1. CRP would be positively associated with SWB and FUTRUST. We expected that the potential of the community for successful adaptation would manifest in SWB and FUTRUST.

H2. CRP would be positively associated with SWB both directly and indirectly, through the mediation of FUTRUST. Indeed, we hypothesized that in the case of community potential for positive functioning, people would exhibit greater confidence about the future and, in turn, this would reflect in a more positive integration with the social context and positive functioning in society. In other words, along with the existing evidence on the relation between optimism, psychological resilience and well-being, we hypothesized that CRP endows individuals with internal and interpersonal resources, skills and competencies that encourage them to cultivate positive expectations towards the future which, in turn, bolsters their satisfaction with the functioning in society (Kimhi & Shomai, 2004).

H3. *H1* and *H2* vary across communities according to their population size and density.

Furthermore, following Bonanno et al. (2015) who emphasize the importance of gaining comprehensive knowledge about the way communities cope with adverse events by combining 'population wellness with non-psychological indicator variables' (p. 150), this study aimed to analyse possible variations across communities taking into consideration the characteristics of the community's population.

4 | METHOD

4.1 | Participants and procedures

A self-report questionnaire was distributed to a convenience sample of 1278 subjects ($M_{AGE} = 38.51$, $SD_{AGE} = 18.33$; $F = 661$, $M = 618$) residing in 10 different Italian cities (North Italy: 39%, $n = 501$; Centre Italy: 22%, $n = 281$; South Italy: 38%, $n = 492$). The cities were purposely selected according to their dimension and socio-economic profile to draw participation from a compound range of community contexts diversified by size and socio-economic characteristics; in addition, the cities were chosen based on the established networks of the research team, which would offer support in data collection. In order to address potential variations across diverse community units, the cities were

grouped into three categories, namely high, medium and low, depending on their population size and density. For this purpose, the following thresholds were set by the research team. As far as population size is concerned, (1) cities that registered a resident population below 200,000 inhabitants were grouped in the low category (i.e., Lecce, Taranto and Matera); (2) cities with resident population estimated to be between 200,000 and 800,000 were grouped in the medium category (i.e., Florence, Bologna, Turin and Padua); (3) cities with population size above 800,000 inhabitants were grouped in the high category. With regard to population density (i.e., the number of inhabitants per square kilometre), the low category includes cities with a population density below 500,000 inhabitants per square kilometre (i.e., Lecce, Taranto and Matera), the medium category covers cities with a population density of between 500,000 and 2,000,000 per km^2, whereas the high category includes cities with a population density of over 2 million per km^2.

The features of the cities are reported in Table 1.

The sample of participants was balanced by age, sex assigned at birth and city of residence (as reported in Table 2).

They were recruited by combining convenience and snowball sampling techniques and were asked to fill in an online questionnaire on the Survey Monkey platform. Participants were recruited by the research team members through their own networks via word of mouth, social networks and local associations and were invited to take part in a study on communities and their ability to cope with everyday situations. Before filling out the questionnaire, participants were informed about the purpose of the research, the voluntary nature of their participation, the expected duration and the procedures of data collection and received reassurance that their information would be processed in full compliance with current privacy laws. They were also informed about whom to contact for questions and the right to withdraw from the questionnaire at any moment, according to Standard 3.10, Informed Consent, as stated in APA ethical guidelines. Further, they gave oral and written informed consent. All procedures performed in the study were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards, the ethical code of the Italian Psychology Association (AIP; http://www.aipass.org/node/26) and the Italian Code concerning the protection of personal data (Legislative decree No 101/2018). Data collection lasted about 9 months, between January and September 2018. Filling out the questionnaire took about 20 min, and no incentive was given. All respondents fully filled it in, so there is no missing data.

4.2 | Instruments

Data were collected using a self-report questionnaire including several instruments and a section for background information. For the purpose of this study, the following variables were considered:

Social Well-Being Scale (SWS; $\alpha = .750$). The SWB Scale developed by Keyes was adopted (Keyes, 1998). It consists of 15 items reflecting five sub-dimensions in sets of three: SC, SACT, SI, SCB and SA. Items are measured on a 5-point scale, ranging from 1 'Very Untrue' to 5 'Very True'. Examples of items are 'People who do a favor don't expect anything in return'; 'I feel close to other people in my community'.

Trust in the future (FUTRUST; $\alpha = .817$). Four ad hoc items were developed to assess the participants' confidence in the future. Items were rated on a 5-point Likert-type scale ranging from 1 'Strongly Disagree' to 5 'Strongly Agree'. Examples of items are 'It will be more difficult to satisfy everyone's essential needs in a year'; 'Next year, people will face even greater economic problems'.

4.2.1 | Community resilience potential

CR in everyday life conditions was measured by the *CRP Scale* (Pasca et al., 2023), which integrates socio-economic assets, structural and functional potential (SFP), social capital and community competence as dimensions of CRP.

TABLE 1 Cities characteristics.

City	N	Area	Resident Population[a]		Population Density		Per capita income[b]	Number of foreigners[c]	Inhabitants/ foreigners ratio (%)
Bologna	62	North	390,636	Medium	2780.21	Medium	28.05 €	60,352	15.45
Milan	150	North	1,385,023	High	7623.84	High	34.05 €	268,215	19.37
Padua	142	North	212,244	Medium	2281.46	Medium	28.25 €	34,619	16.31
Turin	147	North	875,698	Medium	6735.62	High	25.02 €	133,099	15.20
Florence	135	Centre	379,563	Medium	3709.57	Medium	26.5 €	60,101	15.83
Rome	150	Centre	2,856,133	High	2218.60	Medium	28.24 €	382,577	13.39
Matera	54	South	60,404	Low	154.02	Low	20.59 €	2794	4.63
Lecce	150	South	95,269	Low	398.81	Low	23.42 €	7895	8.29
Taranto	150	South	196,702	Low	783.7	Low	21.06 €	4075	2.07
Naples	138	South	959,188	High	8179.31	High	22.43 €	60,260	6.28

[a]Data source: http://dati.istat.it/Index.aspx?DataSetCode=DCISPOPSTRRES1.
[b]Data source: ilSole24Ore https://lab24.ilsole24ore.com/mappaRedditi/index.html.
[c]Data source: http://dati.istat.it/Index.aspx?DataSetCode=DCISPOPSTRRES.

TABLE 2 Sample sociodemographic characteristics.

City	N	Mean age	M	F
Bologna	62	38.81	27	35
Milan	150	38.09	74	76
Padua	142	39.47	63	79
Turin	147	37.8	72	75
Florence	135	38.77	70	65
Rome	150	40.01	80	70
Matera	54	43.66	22	32
Lecce	150	36.27	75	75
Taranto	150	33.84	75	75
Naples	138	38.44	59	79
Total	1,278	38.516	617	661

Inspired by Norris et al. (2008), the CRP Scale (Pasca et al., 2023) consists of 48 items and included the following subscale dimensions:

Community participation (PBS; $\alpha = .748$). The *civic participation* and *activism* sub-dimensions of the *Participatory Behaviour Scale* (PBS; Talò & Mannarini, 2014) consist of five items on a 5-point Likert scale with 1 corresponding to 'Never' and 5 to 'Many times'. Items assessed formal political participation, civic participation, activism and disengagement (e.g., 'Volunteering in a social/civic/religious organization', 'Be active in a movement/forum' and 'Participate in strikes, protests, street demonstrations').

Sense of community (BSCS; $\alpha = .886$). The Brief Sense of Community Scale (BSCS; Peterson et al., 2007) was used. It consists of eight items on a 5-point Likert scale with 1 standing for 'Totally disagree and 5 standing for 'Totally agree'. Item examples are 'In my community, I find what I need'; 'I feel that I belong to this community'.

Perceived social support (SPSS; $\alpha = .939$). The subscale referring to significant others of the Multidimensional Scale of Perceived Social Support (SPSS; Zimet et al., 1988) was employed. It comprises 4 items on a 5-point Likert scale where 1 corresponds to 'Totally disagree' and 5 to 'Totally agree'. Examples of items are 'In the community where I live there are people who are available when I need some help' and 'In the community where I live there are people who care about my feelings'.

Institutional leadership (INLEAD; $\alpha = .961$). A subscale of the *conjoint community resiliency assessment measure* (Leykin et al., 2013) assessing the perceived reliability of the INLEAD was used. It consists of 6 items based on a 5-point Likert scale ranging from 1 'Totally disagree' to 5 'Totally agree'. Examples of items were 'The municipal administration in my city works well' and 'In my city, the administration cares about citizens' needs'.

Collective efficacy (COLEFF; $\alpha = .931$). The Collective Efficacy Scale (Carroll & Reese, 2003) was used. It is made up of 13 items on a 5-point Likert scale where 1 matches 'Totally disagree' and 5 matches 'Totally agree'. An example of items is 'Our community can improve the quality of educational services (e.g. schools) without regional or government help'.

Community networking (COMNET; $\alpha = .724$). This subscale comprises 5 ad hoc items on a 5-point Likert scale ranging from 1 'Never' to 5 'Always', stating the propensity of individuals, groups, associations and institutions to network, share goals and resources, collaborate and overcome competition or conflict. Examples of items are 'Groups, associations, and institutions in my community collaborate and network'.

Transformative competence (TRANSF; $\alpha = .828$). Two ad hoc items on a 5-point Likert scale where 1 corresponds to 'Totally disagree' and 5 to 'Totally agree' served to rate the perceived ability of the community to adapt, change and quickly evolve. Items are 'My community is constantly and rapidly evolving' and 'My community successfully adapts to changes'.

Socio-economic potential (SEP; $\alpha = .837$). Six ad hoc items on a 7-point Likert scale, regarded the variety of economic sectors, illegal work, private enterprises, the overall economic situation, tourism, prospects of employment for

young people, poverty, social marginalization and cultural barriers. Two examples of items with their respective answer points are: 'In my community, poverty is' *1* 'Widespread' *to 7* 'Completely absent'; 'All in all, the economy in my community is' *1* 'In a crisis' to 7 'Growing'.

Structural and functional potential (SFP; $\alpha = .820$). Nine ad hoc items on a 5-point Likert scale with 1 corresponding to 'Totally disagree' and 5 corresponding to 'Totally agree' were used to assess accessibility and care for green spaces and historical areas; infrastructures; connections and public transportation; basic activities and services; waste management; pollution; urban degradation; security; cultural and entertaining activities. Examples of items were 'My community has excellent infrastructure (road connections, bridges, sewers, electrical wiring, etc.)'; 'My community is served by an excellent public transportation network'.

5 | DATA ANALYSIS

Research hypotheses were tested via a widely used variance-based estimator, partial least squares structural equation modelling (PLS-SEM; Wold, 1985) for testing measurement invariance and multigroup comparisons (Hair, Hult, Ringle, Sarstedt, & Thiele, 2017). PLS-SEM has become a fully fledged estimator for SEM over the past decade (Ciavolino et al., 2023). Not only does it relax the narrow assumptions about distribution and research design but it also openly models constructs as proxies of theoretical concepts, rather than as the theoretical concepts themselves (Hair et al., 2017); indeed, this makes it closer to the social sciences. Large simulation studies highlighted how efficient PLS-SEM estimates are, also in comparison to traditional structural equation models (Sarstedt, Hair, Ringle, Thiele, & Gudergan, 2016). Furthermore, intensive scientific work is ongoing to improve the algorithm: one example is the more recently improved version, that is, consistent PLS (Dijkstra & Henseler, 2015), which is more robust and less prone to different types of errors under nonnormal data conditions. This latter version is the one used in the

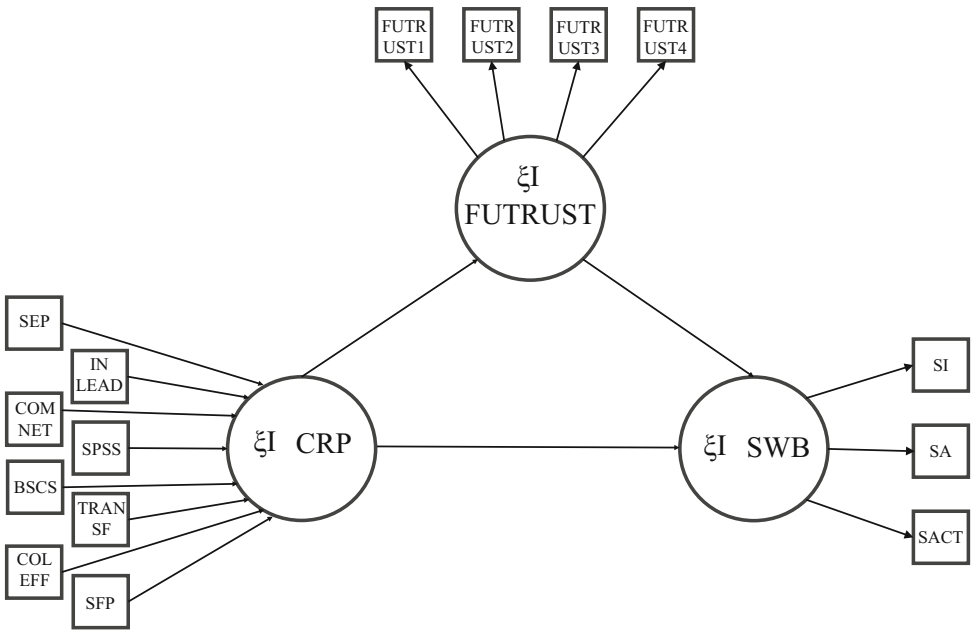

FIGURE 1 Full model. BSCS, Brief Sense of Community Scale; COLEFF, collective efficacy; COMNET, community networking; CRP, community resilience potential; FUTRUST, trust in the future; INLEAD, institutional leadership; SA, social acceptance; SACT, social actualization; SEP, socio-economic potential; SFP, structural and functional potential; SI, social integration; SPSS, Scale of Perceived Social Support; SWB, social well-being; TRANSF, transformative competence.

present work. Figure 1 illustrates the full structure of the hypothesized mediation model. The initial factorial structure of each of the constructs involved was examined. In Pasca et al. (2023), CRP was theorized as a *third-order* construct, specified in a formative way. However, as in the present work, CRP is placed in a system of relationships, and composite scores of each of the *first*-order latent variables are used as indicators of CRP (SEP, INLEAD, COMNET, SPSS, BSCS, TRANSF, COLEFF, SFP and PBS). FUTRUST is considered a mediator variable, measured by its respective indicators, while SWB represents the endogenous latent variable, measured by its *first*-order latent variables (SACT, SI, SA, SC and SCB).

The relationships illustrated reflect the research hypotheses: the direct effect of CRP on both SWB and FUTRUST (*H1*), and the mediated effect of CRP on SWB via FUTRUST (*H2*). All analyses were carried out by means of the SmartPLS software (Ringle et al., 2015): in particular, the measurement model evaluation was carried out with the *confirmatory composite analysis* based on *partial least squares* (PLS-CCA; Hair, Howard, & Nitzl, 2020; Ciavolino et al., 2023). Structural model evaluation, measurement invariance and the multigroup analysis (Ciavolino et al., 2019) in three different *population* and *population density* groups (*low*, *medium*, *high*) were carried out through two nonparametric procedures: bootstrapping (5000 samples) and permutation (1000 resampling), respectively (Hair et al., 2017). In terms of sample size, considering a statistical power of 80%, a significance level $\alpha = .05$, a minimum of 90 participants per group would be needed, in order to observe an R^2 of at least .10 in any endogenous variable (Hair et al., 2017). This requirement was largely met in the present study, where the smallest sample size is $N_{min} = 354$ and the largest $N_{max} = 489$.

6 | RESULTS

6.1 | Measurement model evaluation

6.1.1 | Reflective part

Latent variables specified reflectively are SWB and FUTRUST. Among the subdimensions of the latent variable SWB, items of the SC and SCB presented loadings issues: SWB4 and SWB12 showed loadings lower than 0.40 and negative loading, respectively. Their deletion from the model resulted in unacceptable loading for item SWB14 in the SA subdimension (0.380), while the removal of both SC and SCB left the other subdimensions (SA, SI and SACT) intact. The latter solution represented a better trade-off between psychometrics and theory, considering that the subdimensions of SWB consist of three items each. All the items of the latent variable FUTRUST showed acceptable loadings (≥0.7, as in Hair et al., 2017) and were all statistically significant ($p < .001$). Cronbach's α and a Dijkstra–Henseler's ρ higher than .7 showed internal consistency and composite reliability, while an average extracted variance (AVE) of 0.50 or higher indicated the convergent validity. Table 3 reports the heterotrait–monotrait ratio: it represents the correlation between the constructs if they were perfectly measured (Hair et al., 2017). All the indexes were far below the strictest recommended threshold of 0.85 (Henseler & Sarstedt, 2013); in addition, the heterotrait-monotrait ratio of correlation (HTMT) inference test being statistically significant (Franke & Sarstedt, 2019) corroborates discriminant validity.

TABLE 3 Discriminant validity assessment using the HTMT criterion.

	1	2	3
CRP	1.000		
FUTRUST	0.407 [0.345; 0.466]	1.000	
SWB	0.794 [0.749; 0.834]	0.607 [0.550; 0.663]	1.000

Note: The 95% bias-corrected and accelerated confidence intervals of the HTMT values are reported in square brackets. Obtained by running the bootstrapping routine with 5000 samples, they all not contain 0, therefore providing support for statistical significance.
Abbreviations: CRP, community resilience potential; FUTRUST, trust in future; SWB, social well-being.

6.1.2 | Formative part

CRP was the only latent variable specified formatively, in line with the previous validation study (Pasca et al., 2023), which underlines how constituents of CRP cannot be considered intercorrelated: just to mention one example, economic potential, as well as social capital of a community could rather be seen as distinct aspects of a more abstract theoretical concept, thus making a formative model specification more appropriate. As a first step, the PLS-CCA procedure (Hair et al., 2020) entails a redundancy analysis to assess convergent validity: the formatively measured construct should be correlated with a reflective measure of the same construct. Redundancy analyses, each of which obtained by the bootstrap routine with 5000 samples (Aguirre-Urreta & Rönkkö, 2018), yielded a path coefficient estimate of $0.801_{[0.778;0.817]}$, above the recommended minimum threshold of 0.70 (Hair et al., 2017). This estimate translates into a satisfying R^2 of .64. Second, multicollinearity issues must be assessed: the indicators showed variance inflation factor of 1.741 for SEP, 1.937 for INLEAD, 1.436 for COMNET, 1.316 for SPSS, 1.645 for BSCS, 1.807 for COLEFF, 1.948 for SFP and 1.094 for PBS, far below the most conservative threshold of 3 (Hair et al., 2020). Third, indicator importance should be evaluated: all indicators showed significant and high outer weights, except for PBS (−0.018 and $p = .612$), SEP (−0.075 and $p = .096$), SFP (−0.035 and $p = .453$) and COLEFF (0.092 and $p = .069$). However, the further examination of their outer loadings (i.e., the indicator of the absolute importance of the construct as a constituent of the latent variable) led researchers to retain COLEFF, SEP and SFP: their loadings were 0.50 or higher and all statistically significant. Although the factorial structure and psychometric properties of PBS were examined and validated by Pasca et al. (2023), in the present work, it needed to be removed as its loading was consistently below 0.5 (0.171).

6.2 | Structural model evaluation

6.2.1 | Measurement invariance

Before drawing conclusions from the overall general model, it is important to check that the psychological constructs are perceived evenly across population groups. Pasca et al. (2023) tested and exhibited full measurement invariance of the CRP scale across different geographical areas. In line with the aim of the present work, measurement invariance was tested in pairwise comparisons with respect to *population* and *population density* (*low* vs. *high*, *low* vs. *med* and *med* vs. *high*) through a three-step permutation-based procedure: the *measurement invariance of composite models* (MICOM, Henseler & Sarstedt, 2013). MICOM procedure is based on the scores of latent variables, which are represented as linear combinations of indicators and weights of indicators estimated with the PLS-SEM algorithm (Hair et al., 2017). Such a procedure consists of three stages, which are hierarchically related.

The first step sheds light on configural invariance. Specifically, it aims at verifying that each latent variable in the model has been specified in the same way. Once the configural invariance has been confirmed, the procedure moves to the second step, that is, compositional invariance.

The second step focuses on compositional invariance and aims at evaluating whether the composite scores differ significantly between the groups measuring the correlation c between them. The starting hypothesis is $c = 1$; if this occurs, then it can be assumed that there is composite invariance. In hypothesis testing, if c falls within the 95% confidence interval (with a *p*-value >.05), the null hypothesis is accepted, and the next step can be performed.

The third step concerns equality of composite mean values and variances; in particular, it examines whether the mean values and variances between the composite scores of the first group and the composite scores of the second group differ. Complete measurement invariance occurs when there are no significant differences in mean values and variances between the two groups. This happens when the confidence intervals derived from the permutation of differences in mean values and variances include the original differences in mean values and variances obtained from the estimate of the original model (i.e., without permutation) and variances obtained from the estimate of the original model (i.e., without permutation).

Invariance being corroborated, it would be possible to process and draw conclusions from the pooled data. If not, the models for the groups should instead be considered separately. The research design, scale administration and equal treatment across groups contribute to configural invariance. Table 4 reports the next steps of the MICOM procedure:

As can be seen, FUTRUST shows full invariance in all the pairwise comparisons and it is interesting to note that CRP and SWB show full measurement invariance only when the community dimension (in terms of both *population* and *population density*) is high (*med* vs. *high*). This may reveal that CRP (as well as SWB) may have different meanings depending on the size of the community, rather than on the geographical area (Pasca et al., 2023).[1] As some of the models only show partial invariance, Table 5 reports the results of models across the groups separately and the model using pooled data (for illustrative purposes only), while an extended version of Table 5, along with the results of the same analyses conducted with the covariance based-structural equation modeling (CB-SEM) approach (Table 5b),[2] is given in the Online appendix.

As for the hypotheses of our study, the results revealed the existence of a direct and significant connection of CRP with both FUTRUST and perceived SWB (*H1*), although the β coefficients appear to vary across groups of *population* and *population density*. In both the groups and in the overall model, results showed the existence of a complementary mediation (*H2*), where the indirect effects were statistically significant and pointed in the same direction, showing that the relationship between CRP and perceived SWB can be positively mediated by FUTRUST. Further elements to evaluate the structural model include the coefficient of determination R^2, effect size f^2 and predictive relevance (Q^2): for each group, CRP accounts for a small part of the variability of FUTRUST: R^2 ranges between .150 and .210. However, values above .1 can be considered acceptable in the social sciences (Ozili, 2022). In addition, coefficients of determination are all statistically significant at $p < .001$. As for SWB, a larger, substantial portion of its variability is explained by CRP, with an R^2 ranging from .634 to .697. The effect sizes f^2 range from medium ($f^2 > .150$, particularly for the relationship between CRP and FUTRUST) to large ($f^2 > .350$, for both the impact of FUTRUST on SWB and the impact of CRP on SWB, respectively). Finally, the Q^2 values, which give information about the predictive relevance of the models with respect to both endogenous constructs, FUTRUST and SWB, are always above 0: in particular, Q^2 ranges from .077 to .103 for FUTRUST and from .394 to .295 for SWB. In general, these results support the relevance and magnitude of the relationships examined. As regards the model fit, the SRMR values, that is, the root mean square discrepancy between the observed correlations and the model-implied correlations, are 0.069 or lower, below Hu and Bentler's (1998) threshold value of 0.08, suggesting a good model fit in all the groups considered (see Hair et al., 2017).

Finally, Table 6 reports the results of the PLS consistent multigroup analysis (PLSc-MGA).[3]

[1]Measurement invariance was also tested through a parametric approach: covariance-based SEMs using the robust maximum likelihood estimator. The authors considered the χ^2 difference between models, Δ Comparative Fit Index (CFI), Δ root mean square error of approximation (RMSEA), and Δ standardized root mean square residual (SRMR) (Cheung and Rensvold, 2002; Chen, 2007), which should not exceed the difference of 0.01, 0.015 and 0.030, respectively. In the Online Appendix, Table A4b shows that the differences between configural, metric, scalar and residual models fall within the proposed range, except for the Δ CFI between strict and scalar model of the LOW versus MED population density invariance. According to the CB-SEM approach, measurement invariance is respected.

[2]Essentially, the estimates remain very similar. The coefficients are always all positive and statistically significant, with the CRP → SWB relationship appeared to be stronger in terms of magnitude, while the CRP → FUTRUST relationship appears to be slightly weaker than FUTRUST → SWB, although in the case of HIGH POP and MED DENS POP, the proportions return to be similar in the two estimation methods. As for indirect effects, these also start from 0.1 as the minimum value and are all statistically significant, both in the overall model and in the models referring to individual groups. SRMR values are 0.07 for all the models.

[3]The CB-SEM approach has also been used to conduct multigroup analyses. As for *population*, only the MED versus HIGH groups show no substantial variation in the path coefficients, as the free model does not differ significantly from the constrained model ($\chi^2_{DIFF} = 9.889$, $DF_{DIFF} = 15$, $p = .826$). This suggests the data of the two groups could be used in aggregate form. Conversely, in LOW versus HIGH ($\chi^2_{DIFF} = 50.135$, $DF_{DIFF} = 15$, $p < .001$) and LOW versus MED ($\chi^2_{DIFF} = 29.795$, $DF_{DIFF} = 15$, $p < .01$) group comparisons, the free model significantly differs from the constrained model. Such results suggest that there are substantial variations in the path coefficients and that therefore the data of the groups cannot be pooled together. As far as it concerns *population dimension*, comparing *Low* versus *Medium*, a significant difference emerged as regards to the total mediation (CRP → SWB) ($\chi^2_{DIFF} = 14.694$, $DF_{DIFF} = 5$, $p = .01175$). This result paralleled the findings obtained with PLS approach. On the contrary, focusing on the comparison *Low* versus *High*, only the CB-SEM indicated a significant difference as regards to the Indirect effect (CRP → FUTRUST → SWB) ($\chi^2_{DIFF} = 9.469$, $DF_{DIFF} = 3$, $p = .02366$; $\beta = .140$ vs. $\beta = .099$). In particular, the lower the population numerosity, the greater the role of trust in future as mediator of the relationship between CRP and SWB.

Concerning the *population density*, the CB-SEM approach did not signal any significant difference as regards to the CRP → SWB path among groups; however, in accordance with the results obtained using PLS approach, a significant difference was found in the comparison *Low* versus *Medium* ($\chi^2_{DIFF} = 57.628$, $DF_{DIFF} = 15$, $p < .001$). In specifics, the significant difference concerned the indirect effect ($\chi^2_{DIFF} = 10.808$, $DF_{DIFF} = 3$, $p = .1281$) *Low* versus *Medium* ($\beta = .140$ vs. $\beta = .086$). Similarly to population numerosity, the lower the population density, the greater the role of trust in future as mediator of the relationship between CRP and SWB.

TABLE 4 Results of the measurement invariance of composite models (MICOM) procedure (1000 permutations).

	Compositional (step 2)			Means and variances (step 3)			
	c	5% quantile of c_u	Compositional invariance	Mean difference and $CI_{95\%}$	Equal mean values	Variance difference and $CI_{95\%}$	Equal variances
Population							
LV	LOW vs. HIGH			LOW vs. HIGH			
CRP	0.941	0.921	Yes	−0.201 [−0.143; 0.148]	No	−0.260 [−0.179; 0.171]	No
FUTRUST	0.999	0.996	Yes	0.018 [−0.137; 0.140]	Yes	0.085 [−0.201; 0.175]	Yes
SWB	0.999	0.998	Yes	−0.146 [−0.142; 0.148]	No	0.131 [−0.204; 0.192]	Yes
LV	LOW vs. MED			LOW vs. MED			
CRP	0.961	0.939	Yes	−0.147 [−0.131; 0.133]	No	−0.242 [−0.167; 0.168]	No
FUTRUST	0.999	0.994	Yes	−0.012 [−0.142; 0.138]	Yes	0.107 [−0.197; 0.185]	Yes
SWB	1.000	0.999	Yes	−0.120 [−0.132; 0.143]	Yes	0.060 [−0.203; 0.198]	Yes
LV	MED vs. HIGH			MED vs. HIGH			
CRP	0.989	0.955	Yes	−0.035 [−0.127; 0.117]	Yes	0.013 [−0.151; 0.157]	Yes
FUTRUST	1.000	0.995	Yes	0.032 [−0.128; 0.130]	Yes	−0.019 [−0.183; 0.176]	Yes
SWB	1.000	0.999	Yes	−0.024 [−0.136; 0.116]	Yes	0.072 [−0.197; 0.194]	Yes
Density population							
LV	LOW vs. HIGH			LOW vs. HIGH			
CRP	0.948	0.926	Yes	−0.152 [−0.140; 0.142]	No	−0.198 [−0.178; 0.176]	No
FUTRUST	0.999	0.996	Yes	0.009 [−0.136; 0.140]	Yes	0.096 [−0.188; 0.210]	Yes
SWB	0.999	0.998	Yes	−0.122 [−0.140; 138]	Yes	0.130 [−0.193; 0.222]	Yes
LV	LOW vs. MED			LOW vs. MED			
CRP	0.958	0.939	Yes	−0.192 [−0.136; 0.138]	No	−0.295 [−0.177; 0.165]	No
FUTRUST	0.999	0.995	Yes	−0.004 [−0.137; 0.132]	Yes	0.097 [−0.186; 0.176]	Yes
SWB	1.000	0.999	Yes	−0.141 [−0.143; 0.136]	Yes	0.060 [−0.186; 0.187]	Yes
LV	MED vs. HIGH			MED vs. HIGH			
CRP	0.996	0.957	Yes	0.048 [−0.150; 0.119]	Yes	0.115 [−0.156; 0.160]	Yes
FUTRUST	1.000	0.995	Yes	0.014 [−0.135; 0.123]	Yes	−0.001 [−0.181; 0.183]	Yes
SWB	1.000	0.998	Yes	0.022 [−0.131; 0.123]	Yes	0.070 [−0.178; 0.186]	Yes

Abbreviations: CRP, community resilience potential; FUTRUST, trust in future; SWB, social well-being.

TABLE 5 Direct, indirect and total effects of community resilience on social well-being through the mediation of trust in future for each group separately.

		Pop (low)	Pop (med)	Pop (high)	Dens pop (low)	Dens pop (med)	Dens pop (high)	Pooled
(a) Summary								
LVs								
CRP	ρ	1.000	1.000	1.000	1.000	0.893	1.000	1.000
	AVE	-	-	-	-	0.567		
FUTRUST	ρ	.823	.796	.840	.823	.812	.820	.817
	AVE	0.527	0.490	0.556	0.527	0.514	0.525	0.521
	R^2	.210	.171	.157	.210	.150	.173	.165
SWB	ρ	.762	.753	.749	.762	.769	.729	.754
	AVE	0.517	0.500	0.493	0.517	0.523	0.467	0.203
	R^2	.638	.837	.634	.638	.697	.799	.708
n		354	489	438	354	489	435	1,278
Paths								
Direct effects								
CRP → FUTRUST		0.461***	0.415***	0.399***	0.461***	0.390***	0.418***	0.407***
FUTRUST → SWB		0.408***	0.362***	0.285***	0.408***	0.275***	0.394***	0.356***
CRP → SWB		0.525***	0.704***	0.639***	0.525***	0.690***	0.655***	0.631***
Indirect effects								
CRP → FUTRUST → SWB		0.188***	0.150***	0.114***	0.188***	0.107***	0.165***	0.145***

Note: Reliability statistics, R^2 along with estimated β coefficients resulting from the bootstrap procedure are reported.
Abbreviations: CRP, community resilience potential; Dens Pop, population density; FUTRUST, trust in future; Pop, population numerosity; SWB, social well-being.
*p < .05; **p < .01; ***p < .001.

TABLE 6 Results of the PLS consistent multigroup analysis (PLSc-MGA).

Paths	Difference (low-high)	*p*-value	Difference (low-med)	*p*-value	Difference (med-high)	*p*-value
Population						
Direct effects						
CRP → FUTRUST	0.062	.352	0.046	.497	0.016	.809
FUTRUST → SWB	0.123	.116	0.046	.527	0.077	.261
CRP → SWB	−0.114	.096	−0.179**	.003	0.065	.260
Indirect effects						
CRP → FUTRUST → SWB	0.074	.077	0.038	.376	0.037	.304
Density population						
Paths						
Direct effects						
CRP → FUTRUST	0.043	0.517	0.071	.291	−0.028	.677
FUTRUST → SWB	0.014	.854	0.133	.076	−0.119	.082
CRP → SWB	−0.129*	.038	−0.164*	.012	0.035	.533
Indirect effects						
CRP → FUTRUST → SWB	0.023	.596	0.081[a]	.050	−0.058	.109

Abbreviations: CRP, community resilience potential; FUTRUST, trust in future; SWB, social well-being.
[a]$p = .05$.
*$p < .05$; **$p < .01$.

Among the pairwise comparisons (i.e., a traditional *t*-test was used to compare beta coefficients among groups), statistically significant differences emerge in the path coefficient of CRP → SWB: in particular, the difference between coefficients of *low* versus *medium* population dimension (*low population* $\beta = .525$ vs. *medium population* $\beta = 0.704$, $t = 2.905$, $p < .01$), *low* versus *high* and *low* versus *medium* density population ($\beta = .525$ vs. $\beta = .655$, $t = 2.571$ and $\beta = .525$ vs. $\beta = .690$, $t = 2.064$, respectively, $p < .05$), which proved significantly lower for smaller urban realities. CRP seems to be less connected to the perceived SWB in cities with low population, as well as low population density. Worth noting is the slightly significant difference between the path coefficients of the indirect effects for the *low* versus *medium* population density comparison ($\beta = .188$ vs. $\beta = .107$, $t = 2.008$, $p = .045$): the lower the population density, the greater the role of FUTRUST as a mediator between CRP and SWB. These results show that the above-mentioned relationships vary when comparing communities which differ in terms of population and population density (*H3*).

7 | DISCUSSION

The scientific debate on conceptualization (Norris et al., 2008), definition (Bonanno et al., 2015) and measurement (Ostadtaghizadeh et al., 2015) of CR is far from over. Among the various issues under scrutiny, the identification of reliable outcomes of resilience process at the community level remains a complex problem to solve.

Linking with existing literature (Bonanno et al., 2015), the present study investigated SWB (Keyes, 1998) and FUTRUST as psychologically resilient outcomes accounting for the capacity of communities to adjust successfully in the everyday circumstances that characterize community life, namely beyond far-reaching and acute stressors. Overall, consistently with our predictive model, the findings indicated that CRP was significantly associated with both SWB and FUTRUST (*H1*). Statistical results from both PLS and CB-SEM approaches provided support for *H1*. Indeed, our study took a step further along the direction indicated by Norris et al. (2008) testifying that SWB can be

taken as a reliable community psychological resilience outcome. In particular, it corroborates that the more individuals acknowledge that their community is capable and resourceful to adapt and take effective actions in the face of chronic and enduring stressors, the more they reflect positive social health, value their relationship to the community, are confident about its prospective growth and feel good about others (Ornelas, Vargas Moniz, Duarte, & Jorge-Monteiro, 2019).

These findings echo a health-based conception of resilience as the potential of people, organizations and institutions to promote 'long-term well-being of communities in the face of adversities and disasters' (Wulff, Donato, & Lurie, 2015, p. 363). CRP outcomes lie in people staying socially healthy and hopeful day to day. Thus, considering the potentiality of CR to be associated with SWB and FUTRUST, it might be the case to refer to it as a 'collective coping mechanism' (de la Sablonnière, 2017). As such, it may support people in coping not only with the impactful consequences of major disasters and calamities but also with the everyday problems that trouble the ordinary functioning of their localities.

In line with our predictions, a generally auspicious attitude towards positive outcomes in the future reinforces the positive association between the conviction that the community can successfully handle crises with its own resources and SWB (*H2*). In particular, our study specifically points out that the complementary mediation effect of FUTRUST between CRP and SWB is significant both at the overall level and across community units differentiated by their level of population size and population density. This finding dovetails with literature highlighting that a sense of hopefulness about the future is particularly important for resilience in the face of a varied range of stressful situations (Ahmad et al., 2010; Smithson et al., 2022) including harsh conditions (Bennett, Wood, Butterfield, Kraemer, & Goldhagen, 2014; Fletcher, 2018) as well as everyday problematic situations. At the same time, it corroborated that FUTRUST is linked with better subjective health outcomes encompassing not only physical and psychological well-being but also people's evaluations about 'the quality of their lives and personal functioning against social criteria' (Keyes & Shapiro, 2004, p. 352). Furthermore, it indicated that the sense that the community has the capacity to control its own destiny and eventually make progress in face of potential threats is crucial in promoting and preserving SWB.

The comparison of the relationships between CRP and outcomes across urban communities with different population size and density adds to prior studies that lay emphasis on the importance of examining resilience outcomes across diverse community systems (*H3*; Bonanno et al., 2015; Norris et al., 2008). Our three factors emerged to be related according to the same pattern whatever the size and density of the communities as well as whatever the approach used to analyse the data (i.e., PLS and CB-SEM); at the same time, differences emerged concerning the strength of each single relation, also depending on the method used to analyse the data. In detail, the findings indicated that in the more densely and heavily populated territorial communities, the link between CRP and SWB is stronger than in smaller and less dense communities. Diversely, the findings obtained using CB-SEM approach pointed out this pattern only in densely but not in heavily populated territorial communities. On the contrary, compared to medium density urban areas, in smaller communities, confidence in the future plays a stronger role as a mediator between CRP and SWB. In the same direction, the findings produced by the CB-SEM, but not by the PLS, approach provided further support towards such a conclusion highlighting the same pattern in lesser populated communities.

Although we lack sufficient information on the communities surveyed to fully explain these differences, we put forward at the speculative level the hypothesis that when communities reach a threshold of social complexity (provided that the population size and density are indicators of social complexity), they are likely to face a great number of situations and challenges (e.g., pollution, traffic, expensive living costs, crime, multiculturalism, etc.). Since problems call for solutions (irrespective of whether solutions are found or not), in this type of social environment, it is likely that the collective responses to community issues are perceived as the key factor of SWB, more than the subjective envisioning of the future. By contrast, a smaller and less dense community may provide individuals with a simpler life environment, where challenges may be either more affordable or communities more equipped to address them, so that the feeling of being well and well-connected to the society may respond less to the binomial

'problem-solutions' and more to a general positive attitude towards what in life is more significant. Besides, aligned with this specific result, research also provides evidence that living in small, low density urban areas is associated with higher happiness and life satisfaction (Ballas & Tranmer, 2012).

Overall, our study substantiated the conclusion that understanding the functioning and outcomes of CR requires taking into full account the specificity of each context and the variability across contexts (Matarrita-Cascante et al., 2017; Pfefferbaum et al., 2013; Verbena et al., 2021).

8 | CONCLUSION, LIMITATIONS AND STRENGTHS

There are limitations in our study that have to be acknowledged. A major limitation relates to the cross-sectional nature of the research, which prevents us from inferring causal relationships among the variables considered. In addition, our study relied on a convenience sample of participants recruited through snowball technique; indeed, social desirability bias might have imposed limitations on data quality. Furthermore, the cities selected for the purpose of the multigroup comparison were chosen on the judgement of the researchers, and the criteria adopted to cluster these cities in low, medium and high categories were also purposely established. Therefore, the results cannot be generalized to the broader population and are vulnerable to errors. Moreover, it is worth mentioning that another limitation relates to aggregating individual-level data to assess the resilience process at the community level. However, our findings are strengthened by the use of multigroup analysis, which allowed us to reach conclusions about the relationships investigated not only at the individual but also at the level of communities and comparisons between them. Finally, the use of an ad hoc measure to assess FUTRUST is a further limitation of our investigation. In the light of these methodological limitations, our findings should be considered with caution.

Notwithstanding these limitations, we believe that our study made an important contribution to the investigation of CR. In everyday circumstances, communities are compelled to deal with a varied range of problems and challenges that, despite seeming less explosive than disasters and calamities, have the potential to provoke serious damage to the environment and the communities' health. Affordability of social services and education, poverty and economic inequality, anthropic pressure, immigration and climate change is among the major problems that territorial communities face daily (ISTAT, 2020). These problems impact greatly on the baseline community functioning and, therefore, there is a need for an in-depth understanding of what psychosocial resources can allow and sustain successful resilient dynamics and outcomes (Imperiale & Vanclay, 2021). More specifically, our findings proved that SWB can be a sound indicator of the ability of communities to adapt and transform in the aftermath of everyday circumstances. Therefore, we believe that it is crucial to understand how to build day-to-day psychological well-being of the community's population (Arcidiacono & Di Martino, 2016; Wulff et al., 2015) in the intertwined physical, psychological and social dimensions.

Despite the fact that environmental, economic or sociopolitical challenges, such as unemployment, poverty, ageing or immigration just to name a few, are common to a significant number of localities all over the world, these manifest differently across community units and this variability should be taken into account by policymaking efforts to promote CR. Furthermore, the emphasis on variations across community units suggests that policymaking for CR should implement processes and activities at different scales and multiple levels. Finally, by focusing on CR as a 'collective coping mechanism' (de la Sablonnière, 2017), programs for fostering community ability to pursue progress, well-being and growth despite chronic challenges should recognize community members as active agents instead of passive recipients.

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CONFLICT OF INTEREST STATEMENT

The authors have no relevant financial or nonfinancial interests to disclose.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy and ethical restrictions.

ETHICS STATEMENT

All aspects of this study were scrutinized and approved by the University del Salento Institutional Review Board. The study was conducted in accordance with the Declaration of Helsinki.

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