Psychometric properties of the Italian version of the sense of community responsibility scale

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Abstract

The main aim of the present research was to examine the psychometric properties of adapted versions of the sense of community responsibility scale in three Italian samples. We examined the psychometric properties of three modified versions of the SOC-R scale. Consistent with the original scale, exploratory and confirmatory factor analyses demonstrated that the scale was unidimensional and exhibited excellent internal consistency. In addition, factor analyses revealed that sense of community responsibility and sense of community are two separate, albeit related, constructs. The results also provided evidence of discriminant validity of SOC and SOC-R on key outcomes. Taken together, these results provide support for a theory of community as resource and responsibility as well as for the adaptable nature of the SOC-R scale to the Italian context.

Keywords: sense of community, sense of community responsibility, validity, reliability, measurement, cross-cultural validation

Psychometric Properties of the Italian Version of the Sense of Community Responsibility Scale

McMillan and Chavis (1986, p. 9) defined sense of community (SOC) as "a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together." McMillan and Chavis' definition and model of the SOC remain the principal theoretical framework for most research in the field of community psychology (Mannarini & Fedi, 2009). The four-factor model (i.e., needs fulfillment, membership, influence, and shared emotional connection) of McMillan and Chavis (1986) conceptualizes the experience of community in terms of a resource for fulfilling vital psycho-social or physical needs.

Nowell and Boyd (2010) argue in their *Community Experience Model* that a needs theory framework is consistent with these prevailing conceptions and measurement of psychological sense of community that emphasizes a 'community as resource' perspective. Although such a needs theory perspective of sense of community has value, it is nevertheless incomplete in capturing the full essence of the experience of community. Nowell and Boyd (2010) provided the foundation for conceptualizing sense of community as responsibility in terms of a personal belief system (i.e., values, norms, beliefs ideals, standards of conduct) concerning what is appropriate within a given social context as an individual engages with it. More specifically, sense of community responsibility (SOC-R) can be defined "as a feeling of personal responsibility for the individual and collective well-being of a community of people not directly rooted in an expectation of personal gain" (Nowell & Boyd, 2014, p. 231). In doing so, they argue that the psychological experience of community is also a value-based rather than a solely needs-based phenomenon. According to Nowell and Boyd (2014) such feelings of responsibility for a community remained an under-theorized and under-studied characteristic of psychological sense

of community despite the fact that Sarason (1974) emphasized a sense of belonging and responsibility in his seminal book on sense of community. Consistent with this logic, Bahl and Hagen (2017) recently used thematic and discourse analysis to articulate that the experience of sense of community is consistent with the four dimensions in McMillan and Chavis (1986) theory, however, they also stressed the importance of responsibility to the community.

Correlates of SOC-R and SOC

Nowell and Boyd (2014) argue that SOC-R not only meaningfully advances existing theory in terms of understanding the experience of psychological sense of community but also provides explanatory power over and above existing measures of SOC. Although SOC and SOC-R likely share common variance, they are theorized to reflect distinct aspects of the community experience (Boyd, 2015; Nowell & Boyd, 2010, 2014). According to the Community Experience Model (Boyd & Nowell, 2017; Nowell & Boyd, 2014), indicators of psychological well-being and satisfaction are likely to be strongly associated with positive experiences of a SOC or meeting psychological and physical needs. However, because SOC is thought to operate through a mechanism of needs fulfillment, it should have an attenuated relationship to behavioral engagement if community members failed to recognize how their action would improve fulfillment of their needs. By contrast, SOC-R is posited to influence behavioral engagement through a mechanism of cognitive dissonance such that individuals who experience a strong SOC-R will be motivated to act in order to facilitate congruence between their social identity and their behavior. As Harmon-Jones and Harmon-Jones (2008) note, the drive to align one's sense of self with one's actions has been widely recognized as a strong driver of behavior.

SOC appears to be a salient aspect of a community experience that can lead to psychological satisfaction and well-being outcomes. For example, SOC has been empirically

demonstrated to have a stronger positive relationship to member satisfaction within a collaborative work setting (Boyd, 2014; Boyd & Nowell, 2017; Nowell & Boyd, 2014), job satisfaction and psychological well-being in large U.S. hospital systems (Boyd & Nowell, 2017; Boyd, Nowell, Yang, & Hano, 2018). From its very foundation (Boyd & Nowell, 2014), SOC-R has been linked to affective organizational commitment and team cohesion. Indeed, it emphasizes the congruence between one's personal belief system, identity and behavior within a social context, and is theorized as a more powerful predictor of community engagement, leadership behavior, and participation (Boyd, 2015; Nowell & Boyd, 2010, 2014). The Community Experience Model (Nowell & Boyd, 2014) has received preliminary support. Relative to SOC, empirical evidence in various organizational contexts shows that SOC-R is a stronger predictor of engagement behavior, organizational citizenship behavior, and participation (Boyd & Nowell, 2017; Boyd et al., 2018; Lowe, Stanley, & Stanley, 2016; Nowell & Boyd, 2014; Nowell, Izod, Ngaruiya, & Boyd, 2016).

In addition to clarifying the theoretical mechanisms by which SOC and SOC-R operate, authors have sought to understand the relationship of these constructs to other psychological constructs prominent in the literature. For example, psychological empowerment has been related to SOC in a variety of settings. Researchers found organizational SOC to be a predictor of intrapersonal empowerment (Hughey, Peterson, Lowe, & Oprescu, 2008) and interactional empowerment (Speer, Peterson, Armstead, & Allen, 2013), and both were found to predict social well-being among young people (Cicognani, Mazzoni, Albanesi, & Zani, 2015). In any case, to the best of our knowledge, the relationship between life satisfaction and SOC-R has never been investigated, despite workers' overall satisfaction can naturally comprehend satisfaction related to job (Erdogan, Bauer, Truxillo, & Mansfield, 2012). There is not even evidence that the SOC-R

relationship has ever been investigated with variables that indicate a negative relationship with the organizational context, e.g., work alienation, which showed empirical relations with individual and structural characteristics of the person-environment fit.

Neighborhood SOC was found to predict psychological empowerment directly and indirectly through its effect on participation in substance abuse prevention programs (Peterson & Reid, 2003).

Sense of responsible togetherness refers to how members of the same community represent their own ways of living together and managing their social relationships. It is characterized by equity and support among community members and from the institutional referents, the feeling of being an active member of the community and acting for the power, and the respect of the rules and for the others (Procentese, De Carlo, & Gatti, 2019; Procentese & Gatti, 2019). A recent study has revealed that sense of responsible togetherness can produce positive social outcomes (such as youth participation in community life) via the mediation of SOC (Procentese, Gatti, & Falanga, 2019).

The notion of social generativity, which refers to responsibility for future generations, comes from the work of Erikson (1963). Research (Ryff et al., 2007) has shown that social generativity is associated with prosocial behavior and also to feelings of attachment to the community (Cole & Stewart, 1996). To the best of our knowledge, no empirical study has investigated the relationship between SOC/SOC-R and social generativity.

Cohesion and entitativity are properties of community related to the extent to which people perceive their community as a unified social entity coherent in itself. Mannarini, Rochira, and Talò (2012), using both entitativity and cohesion as a proxy of community identification, showed that the perception of community cohesion and entitativity increased SOC both directly

and indirectly through the mediating role of outgroup community perception. Moreover, when referring to neighborhood as the unit of analysis, neighborhood cohesion has been also linked to SOC as its collective-level, complementary, attribute (Buckner, 1988).

The Present Study

The main aim of the current study was to contribute to the cross-cultural validation of self-report measures of sense of community responsibility in the Italian context using three different studies. Two versions of the SOC-R scale have been developed to assess (1) SOC-R in the context of community collaboratives (Nowell & Boyd, 2014) and (2) SOC-R in the context of organization and co-workers (Boyd & Nowell, 2017). These two versions consist of three similar and three different items. The psychometric properties of the SOC-R scale in the context of community collaboratives (Nowell & Boyd, 2014) have been investigated by Treitler, Andrew Peterson, Howell, and Powell (2018) among community-based substance abuse prevention coalition members in the northeastern United States. Their results revealed that the scale was reliable and unidimensional and exhibited moderately strong relationships with conceptually relevant variables, including SOC and participation.

To date, the two versions of the SOC-R scale have not been adapted to any other culture. Knowledge that an adapted version of a scale measures what is intended when the new target population differs from the original population in terms of cultural background and language is a required step before adapted measures might be used (Huang & Wong, 2014). In addition, the adaptation of an instrument to different languages, cultures, and people is an effective solution to allow for cross-cultural comparison of results, but also for use in international trials (Matsumoto & van de Vijver, 2012). We examined whether each version of SOC-R in Italian culture has the same theoretical structure and internal consistency for each sample. Moreover, we investigated

the convergent and discriminant validity of each Italian version of the SOC-R scales. More specifically, we examined the following research questions (RQ):

RQ1. Is the underlying factor structure of the Italian versions of the SOC-R scales unidimensional or multi-dimensional?

RQ2. Are the Italian versions of the SOC-R scales internally consistent?

RQ3. Do the Italian versions of the SOC-R scales demonstrate adequate convergent and discriminant validity with measures of SOC and key outcomes?

General Method

Overview

All procedures performed in the current study were in accordance with the ethical standards of the Italian Association of Psychology and with the 1964 Helsinki Declaration. In the studies reported here, we used samples drawn from three surveys to assess the psychometric properties of two versions of the SOC-R scale in Italy. The full-item content of the instruments used in these three studies are reported in Appendix 1. The translation procedure consisted of forward translation (into Italian) by an expert panel. The expert panel included the principal investigators and project collaborators who are (1) community psychologists, (2) familiar with terminology in the area covered by the instrument, and (3) knowledgeable of the English-speaking culture. Accuracy of translation was ensured by the consensus of all the expert panel members. The first study examined the psychometric properties of SOC-R in the context of organization and co-workers (Boyd & Nowell, 2017). The second study used a modified version of the SOC-R measure used in study 1 so that all items referenced the respondents' local community. The third study also examined the psychometric properties of SOC-R in local communities (as in study 2), but adapted the SOC-R items originally used to refer to community

collaboratives (Nowell & Boyd, 2014). Each study included distinct phases. First, the factor

structure of the scale is examined along with its internal consistency. We used both exploratory

factor analysis (EFA) and confirmatory factor analysis (CFA). Second, we reported the

correlation of SOC-R with other instruments assessing conceptually related constructs. In

addition, as Boyd and Nowell (2017) argue, SOC and SOC-R are considered distinct concepts. In

the second and third studies, we focused on testing the convergent validity of SOC and SOC-R

factor structures and investigating discriminant validity of SOC and SOC-R on key outcomes.

Statistical Analysis

To determine the dimensionality of this version of SOC-R, we conducted an exploratory

factor analysis using an oblique rotation. The sphericity was checked using Bartlett's test (a

significant test indicates that the correlations between the items are overall significantly different

from zero) and the adequacy of sampling using the Kaiser Meyer Olkin (KMO) measure.

According to Hutcheson and Sofroniou (1999), values of KMO between 0.7 and 0.8 are good,

whereas values above 0.8 are great. To determine the number of factors to retain in factor

analysis, we employed a combination of methods, including scree plots, parallel analysis, and

Velicer's MAP test. The scree plot was used to determine the point of inflexion of its curve

which represents the point for selecting factors as indicated by Cattell (1966). Parallel analysis

and Velicer's MAP test were carried out following the procedure recommended by O'Connor

(2000). These analyses were conducted using SPSS V25 and the SPSS R-Menu package (Basto

& Pereira, 2012).

The exploratory factor analysis was followed up by a confirmatory factor analysis as a

confirmatory test of the goodness of fit of the model that was built according to the results of

exploratory factor analysis. To investigate whether SOC and the SOC-R represent measures

reflecting two distinct constructs or a single construct, we compared the fit of two models: a model in which the items belonging to SOC and the SOC-R loaded on one latent factor (one-factor model) and another one in which the items belonging to SOC and SOC-R loaded on two correlated latent factors. To evaluate the model fit, different indices of fit were observed (MacCallum & Austin, 2000): the Comparative Fit Index (CFI), the Standardized Root Mean Square Residual (SRMR). For the CFI, values greater than or equal to .90 and .95 reflect respectively good or excellent fit indices; for the SRMR, values equal to or smaller than .06 and .08 reflect respectively good or reasonable fit indices (Hu & Bentler, 1998). Confirmatory factor analysis was performed using Mplus 7.4 or IBM SPSS AMOS.

We used the R package 'cocor' (Diedenhofen & Musch, 2015) to perform statistical comparisons between correlations. The cocor package comprises an implementation of the test by Zou (2007) that is based on the computation of confidence intervals. When the 95% confidence interval does not include 0 the difference between two correlations is significant.

Study 1

Following the evidence that community constructs can effectively be applied in organizational settings (Boyd, 2014; Boyd & Angelique, 2002), in the present study we tested the psychometric properties of the Italian version of SOC-R scale (Boyd & Nowell, 2017). Specifically, we aimed at verifying the unidimensionality of the scale and, in order to test convergent validity, its relations with variables theoretically linked to the construct. Following other recent studies (e.g., Boyd et al., 2018) we examined the relations of SOC-R scale with several affective variables (i.e., affective organizational commitment, job satisfaction, work alienation, and satisfaction with life). We expected positive relations with all the variables except work alienation.

Method

Participants and Procedure

The study was carried out in Turin, a city of 880,000 inhabitants located in north-west Italy. Participants were municipal employees who worked at the City Hall of Turin and they were recruited directly at their workplace. Participation in the study was voluntary and anonymity was guaranteed. The sampling method was theoretical, we chose to contact employees from eight different departments of the municipality in order to include in the sample the different kind of workers. Were involved about 500 individuals and less than 5% refused to participate. The data collection period covers about two months, from November 2017 to December 2017. The final sample comprised 479 public employees (64.3% female; average age = 52.86 years old, $SD = 8.46$). Regarding education, about one half the participants had a high school degree (50.5%), 35.7% graduated college, whereas the remaining 13.8% did not complete a high school degree. Most of the participants (62.8%) were married, 20.3% had never been married, 14.5% were divorced, and 2.4% were widowed. Participants work in different offices of the municipality: 26.5% in administration, 19.4% in educational services, 14.6% in cultural services, 13.5% in technical services, 12.4% in social services, and 13.6% in other sorts of services.

Measures

Data was collected by the researchers themselves and by a research assistant who was trained by the researchers. Data collection involved completing a self-report questionnaire that took approximately 20 minutes to complete. Along with a list of socio-demographic items (i.e., gender, age, educational level, marital status, trade union membership), the following indicators were used in the analyses:

Sense of community responsibility. We used the SOC-R scale (Boyd & Nowell, 2017) comprising six items (i.e., "I feel it is my duty to give to my organization without needing to receive anything in return") rated on a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The full-item content is provided in Table 1. Cronbach's alpha was .86 demonstrating good internal consistency.

Affective organizational commitment. We used a measure called affective organizational commitment (Wayne, Casper, Matthews, & Allen, 2013) that consisted of four items (e.g. "I am 'emotionally attached' to [organization name]") rated on a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) (α = .85).

Job satisfaction. We used a job satisfaction measure (McNichols, Stahl, & Manley, 1978) made of four items (i.e., "I feel satisfied with my job") scored on a 7-point Likert-type scale ranging from 1 (*never*), to 7 (*always*). The internal consistency of the scale was good (α = .86).

Work alienation. We used the work alienation scale (Nair & Vohra, 2009) including eight items (i.e., "Facing my daily tasks is a painful and boring experience") rated on a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Cronbach's alpha was good (.75).

Satisfaction with life. We used the Satisfaction with Life Scale (SLS; Diener, Emmons, Larsen, & Griffin, 1985) composed of 5 items (e.g., "The conditions of my life are excellent") rated on a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) Cronbach's alpha was good (α = .84).

Results

The missing values for each of the items of the SOC-R scale were less than 3% of the total. To handle missing data, we used full information maximum likelihood estimation of missing values as recommended (Graham, 2009). The scree plot of the EFA, parallel analysis, and Velicer's MAP scale suggested a one-factor structure, just one Eigenvalue was higher than 1. The analysis explained the 51.01% of the variance; the sphericity, $\chi^2 = 1161.11$; df = 15; $p <$ .001, and the adequacy of sampling, .846, were good. Table 1 reports the factor loadings of the items. Cronbach's alpha was satisfactory (.86).

After that, we performed a CFA by mean of structural equation modeling. As recommended (Hu & Bentler, 1998), we tested the model fit using different fit indexes: $\chi^2 (9) =$ 94.69, $p < .001$; CFI = .93; SRMR = 0.049. Given that the significance of χ^2 depends on the sample size and that our sample was quite large ($N = 479$), we considered this model to be satisfactory. All the estimated parameters were significant ($p < .001$). Factor loadings are reported in Table 1.

After the CFA, we correlated the scale score with some key correlates. As expected, SOC-R was positively related to affective organizational commitment ($r = .56$, $p < .001$), job satisfaction ($r = .32$, $p < .001$), and satisfaction with life ($r = .18$, $p < .001$). SOC-R was negatively related to work alienation ($r = -.18$, $p < .001$).

Study 2

SOC-R has been empirically measured mainly in organizational settings (Nowell & Boyd, 2014). However, feelings of personal responsibility and disinterested concern for the well-being of others can pertain to all types of collective settings and social roles. Moreover, as SOC applies to a variety of different communities, from neighborhoods and cities (Chavis & Wandersman, 1990; Mannarini, Talò, Mezzi, & Procentese, 2018; Prezza, Pacilli, Barbaranelli,

& Zampatti, 2009) to work organizations (Brodsky & Marx, 2001), schools (Admiraal &

Lockhorst, 2012), sport community (Scotto di Luzio, Guillet-Descas, Procentese, & Martinent,

2017) and online environments (Blanchard, 2008), it is reasonable to expect the same for SOC-

R.

In this study, we evaluated the psychometric properties of a modified version of the SOC-

R for co-workers (Boyd & Nowell, 2017), adapting the items so that they referenced the

participant's local community. We investigated the factor structure and reliability. In addition,

we examined discriminant validity of SOC and SOC-R on the following outcomes: well-being,

emotional well-being, social well-being, psychological well-being, poor mental health, and civic

and political participation. Consistent with the community experience framework (Nowell &

Boyd, 2010), we expected that SOC and SOC-R will be related yet unique constructs. Based on

the theory of sense of community and community responsibility (Boyd & Nowell, 2017; Nowell

& Boyd, 2010), we expected that SOC will be more highly correlated with measures of well-

being and mental health, while SOC-R will be more highly correlated with civic and political

participation.

Method

Participants and Procedure

Participants were recruited through snowball sampling as well as advertisements on a

social network (i.e., Facebook). Regarding snowball sampling, two researchers were asked to

recruit acquaintances and friends into the study. The recruits are then asked if they knew anyone

else (online or offline contact) who could participate in the study and the process continued. We

used both traditional and virtual snowball sampling method (Baltar, 2012). We used snowball

sampling because it seemed to intensify the interest and willingness of participants to participate

knowing that they were referred by someone they knew or trusted. Due to the use of an online link, an accurate response rate could not be calculated. The data collection period covers about six months, from November 2018 to May 2019. Respondents were asked to provide their informed consent by signing a consent form. Participation in the study was voluntary and small incentives (e.g., freebies, gadgets) were used to increase participation. Participants were 409 (61.4% women) mostly young Italian people living or studying in the north of Italy. Their mean age was 24.88 years, $SD = 6.13$, ranging from 19 to 67 years. Most of the participants were students (74.3%), while 17.1% were employees, 4.4% business owner or freelance, 3.4% unemployed, and 0.8% retired. Also, most of the participants were born in Italy (93.9%).

Measures

Five measures were employed in this study.

Sense of community responsibility (SOC-R). We used a modified version of the SOC-R (Nowell & Boyd, 2014) with modifications to the referent (i.e., participant's local community). Please refer to Table 2 for full-item content. We used a 7-point Likert-type response option format ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) for all SOC-R items. Cronbach's alpha was .86.

Sense of community (SOC). Sense of community was measured using the 20-item version of the Italian version of the SOC scale (Chiessi, Cicognani, & Sonn, 2010). Participants were asked to rate the frequency of every feeling in the past month on a 5-point scale ranging from 1 (*never*) to 5 (*always*). Responses were measured using a 5-point scale ranging from 1 (*completely disagree*) to 5 (*completely agree*). Cronbach's alpha was high ($\alpha = .91$).

Well-being. We used the Italian version of the Mental Health Continuum–Short Form (MHC–SF; Keyes, 2006; Keyes et al., 2008; Lamers, Westerhof, Bohlmeijer, ten Klooster, &

Keyes, 2011; Petrillo, Capone, Caso, & Keyes, 2015). The MHC–SF measures positive mental health and provides one total score for well-being ($\alpha = .84$) and three subscale scores for emotional well-being ($\alpha = .81$), social well-being ($\alpha = .71$), and psychological well-being ($\alpha = .65$). Participants were asked to rate the frequency of every feeling in the past month on a 5-point scale ranging from 1 (*never*) to 5 (*always*).

Mental health. To measure poor mental health, the Italian version of the 12-item General Health Questionnaire was used (GHQ-12; Piccinelli, Bisoffi, Bon, Cunico, & Tansella, 1993). Respondents were asked to report the frequency of mental health symptoms occurring during the past few weeks. Participants were asked to respond using a 4-point scale (from 0 to 3). High scores indicate poor mental health. Cronbach's alpha was satisfactory ($\alpha = .86$).

Participation. The Civic and Political Participation scale was used (CPP scale; Enchikova et al., 2019). It comprises 18 questions that measure conventional and non-conventional types of political and civic participation, such as civic volunteering, political actions, protest activities, and economic actions. We asked participants to respond using a 4-point scale from 1 (*never*) to 4 (*often*). Cronbach's alpha was good ($\alpha = .88$).

Results

The proportion of missing data was low ($\leq 5\%$). To handle missing data, we used full information maximum likelihood estimation of missing values as recommended by (Graham, 2009). First, we conducted an exploratory factor analysis. The Kaiser-Meyer-Olkin measure of sampling adequacy, .883, as well as the Bartlett's test of sphericity test, $\chi^2 (15) = 1017.86$, $p < .001$, indicated that factor analysis is suitable for our data. Scree plots, parallel analysis, and Velicer's MAP test indicated a one-factor solution. Using exploratory factor analysis (maximum likelihood method followed by an oblique Geomin rotation), a single factor accounted for

52.06% variance. The loadings of items were .63 or greater (Table 2). Reliability coefficient was .86.

The one-dimensional factor structure — with six items defined as indicators for one latent factor —was then validated by confirmatory factor analysis. The fit of the model was good, confirming the unidimensional structure of the scale, $\chi^2(9) = 22.76$, $p = 0.007$; CFI=0.98; SRMR = 0.027. In addition, we used confirmatory factor analysis to determine whether the measure of SOC-R is a related yet distinct measure of SOC. Specifically, we tested a model in which the five dimensions of SOC and the SOC-R were hypothesized to represent two distinct, but related constructs. The fit of the one-factor model was unsatisfactory, $\chi^2(296) = 1795.60$, $p < 0.001$; CFI=0.61; SRMR = 0.110. The satisfactory fit of the two-factor model provided favorable evidence that SOC-R is a related yet distinct construct to SOC, $\chi^2(290) = 492.03$, $p < 0.001$; CFI=0.95; SRMR = 0.056.

The correlation between SOC and SOC-R was .36, $p > .001$. Table 3 shows the correlations between SOC, SOC-R, and key correlates. SOC and SOC-R were significantly correlated with well-being, emotional well-being, social well-being, psychological well-being, and poor mental health. SOC-R was related to civic and political participation, while SOC was not associated with civic and political participation. Results of a comparison of two overlapping correlations based on dependent groups indicated that the correlation coefficient between SOC and social well-being was stronger than that between SOC-R and social well-being, Zou's 95% CI = 0.02, 0.21. In addition, the correlation coefficient between SOC and civic and political participation was smaller than that between SOC-R and social well-being, Zou's 95% CI = 0.15, 0.36.

Study 3

This multi-centered study was aimed at proposing and validating a version of the SOC-R scale – originally used for community collaboratives (Nowell & Boyd, 2014) – for neighborhood and town contexts. In addition, the study also intended to explore the relationships between SOC-R and a set of individual and community variables that are considered as correlates of SOC, namely: empowerment, sense of responsible togetherness (i.e., how members of the same community represent their own ways of living together and managing their social relationships; Procentese, De Carlo, et al., 2019; Procentese & Gatti, 2019; Procentese, Gatti, et al., 2019), social generativity (i.e., concern for future generations and contribution to the future of their community; Slater, 2003), social cohesion in the neighborhood and the community, and community entitativity (i.e., a property that shows to what extent people perceive their community as a unified social entity coherent in itself).

We expected SOC and SOC-R to be related yet separate constructs. We also expected, according to the theory of sense of community (McMillan & Chavis, 1986), that SOC would to be more highly correlated with social cohesion and community entitativity, while, based on sense of community responsibility theory (Boyd & Nowell, 2017; Nowell & Boyd, 2010), we expected that SOC-R would be more highly correlated with sense of responsible togetherness and social generativity. As for the relation with individual empowerment, we expected both SOC and SOC-R would be positively related, but we did not formulate a specific differential hypothesis.

Method

Participants and Procedure

The participants for the study were recruited through a snowball sampling technique in two southern Italian cities of different size: Naples (955,934 inhabitants) and Lecce (95,441 inhabitants).

With reference to Neapolitan participants, 350 citizens living in Naples were recruited to take part in the study with the collaboration of some students attending the Psychological Sciences and Techniques Bachelor's Degree at the University of Naples Federico II, during March and April 2019. The questionnaire was sent online; no IP address or identifying data were retained when administering it. It was introduced by an explanation about confidentiality and anonymity issues, conforming with the international applicable law (EU Reg. 2016/679). At the end of this explanation, every participant had to express his/her online informed consent to take part in the study. All the invited participants expressed their consent and took part in the study by completing the survey.

The Neapolitan participants ($n = 350$, 70.6% women) were aged between 18 and 65 ($M = 27.49$; $SD = 11.32$). Most of the participants were unmarried (81.13%) and childless (84%), while only 18% said they were married or cohabitant; only 0.6% were separated or divorced and 0.3% were a widower. Of them, 54.6% had high school degree, 38.6% a bachelor's degree and only 6.6% a had a post-bachelor's degree and 0.3% did not complete a high school degree; 73.7% were students and 16% employees; only 3.7% were freelances, 1.1% had managerial positions and 0.6% were business owners; 4.9% were currently unemployed.

With reference to the Lecce sub-sample, 480 citizens living in Lecce participated in the study. The convenience sample was recruited by means of a snowball design, according to a quota sampling by gender and age. The first wave of participants was contacted by trained university students within their personal social networks in January 2019. The data collection took about 2 months. Participants were asked to participate in a survey, informed about the purpose of the study and procedures, their right to withdraw from the research at any time, and invited to express their consent. After completing the paper questionnaire, which took

approximately 15 minutes, participants were asked to recruit further participants, which were successively contacted by the same trained university students. No incentives were given to participants for completing the task.

Of the 480 questionnaires gathered, 31 were excluded due to missing values which resulted in being not completely at random. Thus, the remaining participants recruited in Lecce ($n = 449$, 50.1% women) were aged between 17 and 75 ($M = 42.26$ years; $SD = 15.46$). More than a third (37.6%) were unmarried, 50.8% were married, and 53% had children. As for the education levels, 17.9% completed the second stage of basic education, 47.9% the upper secondary education (High School level), and 31.2% the tertiary education (Bachelor's, Master's or Doctoral level). Among them 13.6% were employees, 10.7% laborers, 8% freelance professionals, 6.2% self-employed, 6.9% schoolteachers, 5.1% business owners, and 1.6% in managerial positions. The percentage of non-working participants included retirees (8.2%), unemployed people (7.3%), housewives (9.4%), and students (18.7%).

Measures

Participants from both cities answered a self-report questionnaire including a socio-demographic section, the Brief Sense of Community Scale (BSCS; Peterson, Speer, & McMillan, 2008) and the Sense of Community Responsibility scale (see Table 4; Nowell & Boyd, 2014). The items of both scales were phrased to refer to "your neighborhood" in the Neapolitan sub-sample, and to "your town" in the Lecce sub-sample. Each questionnaire included different measures to test the relationships with the above-mentioned key correlates. Internal consistency estimates for the key correlates are shown in Tables 5 and 6.

Sense of community responsibility (SOC-R). The SOC-R scale (Nowell & Boyd, 2014) was used in both questionnaires. It is compounded by 6 items (see Table 2) designed to assess

the perceived responsibility towards the broader community. Sample items are "I am always ready to help out people in this community even if it creates hardship for me" and "I feel a strong personal obligation to improve this community". The full-item content is provided in Table 4. Respondents had to rate their agreement on a 7-points Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) with reference to their community of belonging. Internal consistency was high ($\alpha = .90$).

Sense of community (SOC). The BSCS (Peterson et al., 2008) was used in both questionnaires. It is comprised of eight items designed to assess the dimensions of needs fulfillment, group membership, influence, and emotional connection as defined in the model of McMillan and Chavis (1986). Sample items are "Many people in this neighborhood are available to provide help when someone needs it" and "I feel like I belong here". Respondents had to rate their agreement on a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) with reference to their neighborhood. Internal consistency was satisfactory ($\alpha = .88$).

Sense of responsible togetherness (SORT). The Sense of Responsible Togetherness Scale (Procentese, De Carlo, et al., 2019; Procentese & Gatti, 2019; Procentese, Gatti, et al., 2019) was used in the Neapolitan questionnaire. The scale is comprised of 33 items measured on a 4-points Likert-type scale ranging from 1 (*never*) to 4 (*often*), measuring the perception of equity, the feeling of being an active member of the community, the perceived support from the institutional referents, the respect of the rules, the respect for the Others, the support among community members, the freedom of opinion with reference to one's community of belonging. Sample items are "Respect the rules of togetherness in the neighborhood," "Get equal attention from the Institutional referents" and "Help new residents to become part of the neighborhood".

Neighborhood cohesion. The Neighborhood Cohesion Instrument (Buckner, 1988) was used in the Neapolitan questionnaire. It is comprised of 18 items measuring aspects of the attraction-to-neighborhood, the degree of neighboring and the psychological sense of community with reference to one's neighborhood on a 5-points Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Sample items are "I visit with my neighbors at their homes," "Overall, I am very attracted to living in this neighborhood" and "I feel like I belong to this neighborhood".

Community cohesion. An Italian adaptation of the Group Integration Scale by Chang, Duck, and Bordia (2006) was used to assess community cohesion ($\alpha = .70$) in the Lecce questionnaire. This scale comprised eight items measuring task cohesion, as related to the group objectives (e.g., "In this community, people are united in trying to reach their goals"), and social cohesion, which concerns individual motivation to preserve social relationships and join shared activities within a group (e.g., "In my community people rarely socialize together"). Participants were asked to indicate their agreement using seven alternatives, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Empowerment. The EMPO scale (Francescato, Mebane, Sorace, Vecchione, & Tomai, 2007) was used in the Neapolitan questionnaire. It is comprised of 24 items assessing individuals' ability to set some goals and effectively pursue them, their lack of hope and trust and their socio-political interest on a 6-point Likert-type scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Sample items are "When I engage, I am able to pursue the goals I set," "Being updated about International political news is important to me," and "I can't imagine a future wherein I realize my dreams".

Social generativity. The Social Generativity scale (Morselli & Passini, 2015) was used in the Neapolitan questionnaire. It is compounded by 6 items assessing participants' concerns for future generations and actual contributions to the future of their community, measured on a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Sample items are "I carry out activities in order to ensure a better world for future generations," and "I think that I am responsible for ensuring a state of well-being for future generations."

Community entitativity. Community entitativity was administered to participants recruited in Lecce. We used an adapted version of the Perception of Entitativity Scale by Crump, Hamilton, Sherman, Lickel, and Thakkar (2010). Examples items were: "People who live in this community…: share knowledge and information," "…: have strong personal bonds," "…: value their community." Participants were asked to answer each of the 5 items using a 7-point Likert-type scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Results

As data from Lecce included some missing values, Little's MCAR test was used. Its results, $\chi^2 (112) = 138.33$, $p = .04$, didn't confirm missing values being MCAR; thus, cases including missing values ($n = 31$) were excluded from the subsequent analyses.

From the EFA, a one-factor structure emerged for the SOC-R; the sphericity, $\chi^2 (15) = 2627.98$, $p < .001$, and the adequacy of sampling, .893, were good. Cronbach's alpha was .86. The factor loadings were always higher than .70 (see Table 4). The CFA (see Table 3) confirmed the unidimensional structure of the scale with good indices of model fit, $\chi^2 (9) = 200.96$, $p < .001$, CFI = .93, SRMR = .042.

Moreover, the comparison between the one-factor model (M1), $\chi^2 (77) = 2860.85$, $p < .001$, CFI = .58; SRMR = .13, and the two-factor model (M2), $\chi^2 (76) = 528.59$, $p < .001$, CFI =

.93, SRMR = .05, showed that the second one was a better fit for the data, confirming SOC and

SOC-R as two different yet related constructs; the correlation between them was .45, $p < .001$.

The average score for SOC was 3.43 ($SD = 1.33$) for the Neapolitan participants and 3.15

($SD = 0.78$) for the Lecce participants; the average score for the SOC-R was 3.65 ($SD = 1.44$) for

the Neapolitan participants and 4.58 ($SD = 1.36$) for the Lecce participants.

Tables 4 and 5 shows the descriptive statistics and the associations of some key correlates

with both SOC and SOC-R. As expected, SOC-R was more highly correlated than SOC both to

SORT and social generativity, though in the first case the difference was small; SOC was more

highly correlated than SOC-R both to community cohesion and entitativity, while on

neighborhood cohesion SOC-R showed a slightly higher correlation than SOC. They both were

positively associated to empowerment, with almost equivalent correlation values.

A comparison of two overlapping correlations based on dependent groups (see Tables 4

and 5) revealed that the correlation coefficients between SOC, community entitativity, and

community cohesion were stronger than those between SOC-R and community entitativity,

Zou's 95% CI = 0.14, 0.31, SOC-R and community cohesion, Zou's 95% CI = 0.26, 0.43.

Moreover, the correlation coefficient between SOC and social generativity was smaller than that

between SOC-R and social generativity, Zou's 95% CI = -0.24, -0.06.

Summary and Concluding Discussion

In the present study, our aim was to contribute to the adaptation of two versions of the

SOC-R scale in the Italian context using three studies. Specifically, in the first study, we

investigated the psychometric properties of the SOC-R in the context of organization and co-

workers (Boyd & Nowell, 2017). In the second study, we examine the psychometric properties

of the same scale that was, however, adapted so all items referenced the participant's local

community. In the third study, the psychometric properties of the SOC-R scale originally used in the context of community collaboratives was modified so as to apply to neighborhood and town contexts as well (Nowell & Boyd, 2014).

Though the versions of the SOC-R scale used varied slightly across the three studies, the cumulative evidence revealed that the SOC-R scale has a mono-factorial structure with good fit indices and excellent internal consistency. Evidence for mono-factorial structure was supported by both exploratory factor analysis (including the use of scree plots, parallel analysis, and Velicer's MAP test) and confirmatory factor analysis. This one-factor structure of the SOC-R is in line with the findings obtained in previous studies conducted in the United States (Boyd & Nowell, 2017; Nowell & Boyd, 2014; Treitler et al., 2018). Moreover, factor analyses indicated that SOC and SOC-R are two different yet related constructs. More important, the findings of these studies demonstrated discriminant validity of SOC and SOC-R on key outcomes at both the individual and community level with different strength. Taken together, these findings provide additional support for a theory of community as resource and responsibility (Boyd & Nowell, 2017; Nowell & Boyd, 2014).

Concerning the first study, to the best of our knowledge, no study has investigated the characteristics of the scale in a non-US organizational sample. The results confirmed the relations among SOC-R and similar constructs (e.g., affective organizational commitment, job satisfaction, work alienation, satisfaction with life). The findings of the study indicated that its item formulation and the rationale are consistent with the aims of the original instrument. Considered as a whole, the findings of the first study offer support to the assertion that community constructs have significant exportation capabilities in organizational settings (Boyd & Nowell, 2017).

Regarding the second study, we found that, compared to the SOC scale, the SOC-R scale exhibits a lower correlation coefficient with social well-being and a stronger association with civic and political participation. In line with a theory of community as resource and responsibility (Boyd & Nowell, 2017; Nowell & Boyd, 2014), SOC-R is more likely to have an indirect pattern of relationships to well-being, while is more likely to exhibit a stronger direct association to indices of participation and community engagement. It should be noted that a recent study of a health promotion partnership found that that SOC-R referred to a health promotion partnership did not have a significant effect on commitment to health promotion projects in the future (Cicognani, Albanesi, Valletta, & Prati, 2019). The authors concluded that SOC-R may have a greater impact on commitment at the present time, while SOC might become more important for long-term engagement. Future research that includes engagement at the present and in the future are needed to disentangle the role of SOC and SOC-R.

Finally, our third study revealed that the SOC-R scale proved to have stronger associations with two variables that also emphasize sense of responsibility towards the community and the others (i.e., social generativity and sense of responsible togetherness), while SOC, consistently with the similarity postulate that underlies its conceptualization, proved to be more strongly associated with two characteristics of the community – i.e., cohesion and entitativity – that imply the notion of similarity. The latter result confirmed what was found in a previous Italian study (Mannarini et al., 2012), where the perception of community cohesion and entitativity was proven to increase SOC. Finally, the results of the current study provide support for the hypothesized association between SOC and mental health (e.g., Davidson & Cotter, 1991; Farrell, Aubry, & Coulombe, 2004; Prati, Albanesi, & Pietrantoni, 2016; Pretty, Conroy, Dugay, Fowler, & Williams, 1996).

Findings of the present research must be interpreted in recognition of several limitations. First, its cross-sectional nature does not support causal understanding of the pattern of findings. Second, the generalizability of the present research is limited because we used nonrandom sampling procedures. Third, reported relationships in this research model may be inflated due to common method bias. To reduce the possibility of this bias, future studies should adopt appropriate procedural and statistical remedies to control the common method bias (e.g., Podsakoff, MacKenzie, & Podsakoff, 2012).

Conclusions and Implications

Despite these limitations, this study represents a significant step towards the adaptation of the SOC-R scale in non-English speaking countries and cultural groups that exhibit differences from the population involved in the development of the original instrument. We provided evidence of construct validity of the SOC-R scale adapted to the Italian context. To our knowledge, this is the first study to date documenting the adaptable nature of the SOC-R scale to different contexts. Taken together, the psychometric properties of the SOC-R scale were satisfactory in three different Italian samples. The findings of the current research have theoretical as well as practical implications. These versions of the SOC-R can be used by scientists and practitioners to investigate sense of community responsibility in diverse Italian contexts, such as organizational settings and local communities. We believe that the findings may be useful to researchers and practitioners to further evaluate, explore, and understand the role of sense of community in our lives. The findings of the present research demonstrated that the scale was reliable and unidimensional. Therefore, we suggest using the total score for the assessment of SOC-R. In addition, the findings of the present investigation are not only consistent with prior research on SOC-R but also support a theory of community as resource and

responsibility (Boyd & Nowell, 2017; Nowell & Boyd, 2014). Indeed, SOC and SOC-R showed different associations with key correlates in line with the predictions of the theory of community as resource and responsibility. Therefore, the current findings provide some evidence regarding the universality of the theory of community as resource and responsibility. Finally, the findings of the third study further develop our understanding of a theory of community as resource and responsibility (Boyd & Nowell, 2017; Nowell & Boyd, 2014). Specifically, community entitativity and cohesion are part of an individual's sense that the community provides resource for meeting key personal needs (e.g., the need for affiliation, influence, and connection), whereas social generativity, and sense of responsible togetherness are more likely to depend on a feeling of personal responsibility for the well-being of a community.

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Table 1

Study 1. Factor Loadings for EFA (Principal Axis Factoring) and CFA for the SOC-R.

Item	EFA	CFA
1. One of the best things I can do to improve my organization is to be of service to my co-workers	.63	.63
2. I am always ready to help out people in my organization even if it creates hardship for me	.63	.61
3. It is easy for me to put aside my own agenda in favor of the greater good of my organization.	.74	.45
4. When volunteers are needed by my organization, I feel like I should be one of the first to step up	.77	.39
5. I feel it is my duty to give to my organization without needing to receive anything in return	.73	.47
6. I often feel an obligation to do things that benefit my organization even if my costs outweigh any personal benefit I may receive	.76	.42
Explained variance (%)	51.01	

Note. EFA = exploratory factor analysis; CFA = confirmatory factor analysis.

Table 2

Study 2. Factor Loadings for EFA (Principal Axis Factoring) and CFA for the SOC-R.

Item	EFA	CFA
1. One of the best things I can do to improve my community is to be of service to community members	.63	.74
2. I am always ready to help out people in my community even if it creates hardship for me	.63	.75
3. It is easy for me to put aside my own agenda in favor of the greater good of my community.	.74	.63
4. When volunteers are needed by my community, I feel like I should be one of the first to step up	.77	.78
5. I feel it is my duty to give to my community without needing to receive anything in return	.73	.78
6. I often feel an obligation to do things that benefit my community even if my costs outweigh any personal benefit I may receive	.76	.65
Explained variance (%)	52.06	

Note. EFA = exploratory factor analysis; CFA = confirmatory factor analysis.

Table 3

Study 2. Correlations between SOC, SOC-R, and Key Correlates

	SOC	SOC-R	Zou's 95% CI
Well-being (MHC–SF)	.52***	.43***	-0.01, 0.17
Emotional well-being (MHC–SF)	.38***	.35***	-0.08, 0.12
Social well-being (MHC–SF)	.50***	.39***	0.02, 0.21
Psychological well-being (MHC–SF)	.37***	.31***	-0.05, 0.15
Poor mental health (GHQ-12)	-.18***	-.14**	-0.15, 0.07
Civic and political participation	.04	.30***	0.15, 0.36

Note. CI = Confidence Interval. MHC–SF = Mental Health Continuum–Short Form. GHQ = General Health Questionnaire.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Table 4

Study 3. Factor Loadings for EFA (Principal Axis Factoring) and CFA for the SOC-R.

Item	EFA	CFA
1. Relative to other communities I have belonged to, I feel more strongly about supporting the members in this community.	0.71	.69
2. One of the best things my community can do to improve community health is to be of service to this community.	0.71	.71
3. Relative to other communities I've been involved with, I feel a particularly strong sense of responsibility for the success of this community.	0.78	.76
4. I am always ready to help out people in this community even if it creates hardship for me.	0.77	.77
5. I feel a strong personal obligation to improve this community.	0.83	.84
6. I feel it is my duty to give to this community without needing to receive anything in return.	0.78	.80
Explained variance (%)	58.31	

Note. $n = 799$. All loadings were significant at $p < .001$.

Table 5

Study 3. Descriptive statistics and key correlations with SOC and SOC-R.

Variables	Range	*M*	*SD*	α	SOC	SOC-R	Zou's 95% CI
Sense of Responsible Togetherness (SORT)	1-4	2.57	0.5	.94	.41 **	.48 **	-0.16, 0.01
Empowerment	1-6	3.71	0.61	.84	.24 **	.29 **	-0.15, 0.03
Social generativity	1-7	4.16	1.42	.91	.27 **	.42 **	-0.24, -0.06
Neighborhood cohesion	1-5	2.75	0.80	.70	.60 **	.63 **	-0.10, 0.04

Note. CI = Confidence Interval.

$n = 350$.* $p < .05$; ** $p < .01$.

Table 6

Study 3. Descriptive statistics and key correlations with SOC and SOC-R.

Variables	Range	*M*	*SD*	α	SOC	SOC-R	Zou's 95% CI
Community entitativity	1-7	4.21	1.26	.87	.55 **	.33 **	0.14, 0.31
Community cohesion	1-7	3.7	0.91	.92	.56 **	.22 **	0.26, 0.43

Note. CI = Confidence Interval.

n = 449.

* *p* < .05; ** *p* < .01.