The Reciprocal Relationship between Sense of Community and Social Well-Being: A Cross-Lagged Panel Analysis

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Abstract

The aim of this study was to examine the directionality of the association between dimension of social well-being and sense of community. The present study investigated the nature of these relationships using a longitudinal cross-lagged design applied to data from a sample of 298 undergraduate/master students at an Italian public university. Correlations analysis revealed that the relationship between sense of community and social coherence was not significant. Using partial least squares structural equation modeling, we found that sense of community predicted follow up social integration and social contribution controlling for the effects of baseline social integration and social contribution use. In addition, baseline social integration predicted subsequent levels of sense of community controlling for baseline levels of sense of community. Contrary to expectations, sense of community at Time 1 did not predict social acceptance and social actualization at Time 2. Moreover, the cross-lagged relationships between Time 1 social acceptance, social actualization, and social contribution and Time 2 sense of community were not significant. These findings did not differ across gender.

Keywords: sense of community, social well-being, longitudinal, cross-lagged design

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McMillan and Chavis (1986) defined sense of community 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." Although, sense of community can be defined as a multidimensional construct, many scholars question that the dimensions that constitute sense of community are independent (Stevens et al. 2011) while others highlight that they are context sensitive (Nowell & Boyd 2010; Talò, Mannarini & Rochira, 2014), suggesting caution when using theoretical or empirical factors as predictors.

According to the human needs theory model of psychological sense of community (Nowell and Boyd 2010, 2011), when one is nested in a community context that meets one's psychological, social, and/or resource needs (e.g., feelings of belonging, influence, and connection), one is likely to experience greater well-being. In other words, within this perspective, psychological sense of community serves as a resource for well-being. Previous studies provided support for the role of sense of community in influencing well-being (e.g., Royal and Rossi 1996; Wilkinson 1979; Prezza and Costantini 1998; Davidson and Cotter 1991; Pretty et al. 1996; Chipuer and Pretty 1999; Chipuer et al. 2003). These studies investigated the relationship between sense of community and the measures of well-being as falling into the category of social adjustment (Larson 1993). Most research has investigated the effects of sense of community on individuals' well-being using indicators of subjective or psychological well-being. However, the relationship between sense of community and social well-being had been investigated to a lesser extent. For example, Albanesi et al. (2007) showed that sense of community was a predictor of social well-being. Similarly, in another study conducted on a sample of college students in three different countries (USA, Italy, and Iran), sense of community influenced social well-being in all the samples (Cicognani et al. 2008). More recently, Rollero et al. (2014) found that a positive perception of the living environment is a powerful predictor of quality of life and that the relationship between city attachment and social integration is stronger compared to the other dimensions of social well-being (Rollero and De Piccoli 2010). Mazzoni et al. (2014) identified sense of community and empowerment as two key processes that increase social well-being, in particular among members of civic organizations.

The construct of social well-being seems particularly promising to capture the influence of sense of community because it represents a socially oriented conceptualization of well-being and addresses the evaluation of self with respect to the social context. Moreover, the human needs theory model of psychological sense of

community (Nowell and Boyd 2010, 2011), emphasizes the role of sense of community in individual and social outcomes. According to Keyes (1998), social well-being can be defined as "the appraisal of one's circumstance and functioning in society." Specifically, Keyes identified five dimensions of social well-being: Social Integration (perceived quality of the relationship between the individual and the society and the community); Social Acceptance (favorable views of human nature and of trust on others); Social Contribution (the degree to which the individual feels that his or her achievement is valued by society and contributes to the common good); Social Actualization (belief in the progress and evolution of society); and Social Coherence (the perception of the society as meaningful, discernable, sensible, and predictable). According to Cicognani et al. (2008), they reflect people's views on their social context (social integration), on other people (social acceptance) and on the society at large (social actualization, and social coherence).

Although sense of community is conceptualized as a predictor of social well-being, many researchers (e.g., Albanesi et al. 2007; Cicognani et al. 2008) have understandably advocated the use of longitudinal designs to better answer the question of whether social well-being is a cause or a consequence of sense of community. Indeed, one could also argue that the direction of causality might be the opposite - that an individual's social well-being may influence his or her sense of community. The rationale for this hypothesis is based on the propositions of the human needs theory model of psychological sense of community (Nowell and Boyd 2010, 2011). Specifically, well-being is thought to influence community engagement that, in turn, affects the community context and sense of community. Based on the expectation of a social exchange relationship, the human needs theory model of psychological sense of community (Nowell and Boyd 2010, 2011) assumes that people with high levels of well-being are more likely to engage in community-oriented behaviors based on the expectation that such behaviors will improve their life within the community. Research also supports a relationship of social well-being to positive community-oriented behaviors and perceptions of a positive community context. People with higher levels of social well-being tend to be more predisposed toward civic engagement and prosocial behavior (Keyes and Ryff 1998), report higher community involvement, neighborhood quality (Keyes 1998), low helplessness, and positive social relationships that satisfy needs for belongingness (Keyes 2005).

Despite these interesting results, however, to our knowledge, no longitudinal data have been published regarding the reciprocal influence of sense of community and social well-being. In the present study, we examined the directionality of the association between social well-being and sense of community using longitudinal data and a

cross-lagged panel design based on structural equation modeling. Compared to cross-sectional data, longitudinal data allows for a more precise assessment of hypothesized direction of effects. To lend support to a causal claim, the temporal precedence of the cause before its effects is necessary. The cross-lagged panel design takes into account the temporal order of events. In a cross-lagged panel design, each construct is assessed at each time and it is possible to determine the relations between constructs at different time points once within-construct correlation is controlled for (Finkel 2004; Kenny 2005). The within-construct correlation represents the autoregressive effect that describes the stability of the constructs from one occasion to the next. The effect of a construct on another measured at a later occasion controlling for the prior levels of the outcome construct represents the cross-lagged effects. The fact that the cross-lagged effect is estimated while controlling for the prior level of the construct being predicted is important because it allows us to rule out the possibility that the relationship between predictor (at Time 1) and outcome (at Time 2) is simply due to the correlation between predictor and outcome at Time 1 (Selig and Little 2012). Finally, a full panel design (including all the cross-lagged effects) can be used to study the reciprocal relation of two or more variables (Kenny 2005).

In the present study, we tested two hypotheses:

Hypothesis 1. Sense of community at the first assessment point will predict subsequent dimensions of social well-being, after controlling for social well-being at baseline.

Hypothesis 2. Social well-being dimensions will predict later levels of sense of community, after controlling for sense of community at baseline.

In addition to these hypotheses, we were interested to investigate whether the hypothesized associations might differ between men and women. Rollero et al. (2014) found that sense of community operates as a determinant of quality of life in an equivalent manner between women and men. Therefore, it is possible to hypothesize that the expected relationships do not differ between men and women.

Hypothesis 3. We expect equivalences of the path coefficients between men and women.

Method

Participants

Undergraduate/master students ($N = 308$; 233 female, 73 male) at an Italian public university participated for course credit. At the class sessions, after a brief description of the study objectives, students were invited to participate. Ten individuals who failed to complete both T1 and T2 assessment were removed from the sample,

leaving a final sample of 298 individuals (228 female, 72 male). Students ranged in age from 21 to 62 years ($M =$ 26.00, $SD = 6.57$).

Measures

Participants were asked to fill out the same questionnaire at Time 1 and Time 2. In addition to the socio-demographic variables, the questionnaire included measures of social well-being and sense of community. Table 1 shows the descriptive statistics and reliability of the scales.

Sense of Community. Sense of Community was assessed by the Italian Sense of Community Scale (ISCS; Prezza et al. 2001) including 15 items (Tartaglia 2006). Response alternatives were on a five-point Likert scale from 1 = *strongly disagree* to 5 = *strongly agree*. An overall score of sense of community was created, after reversing the negatively worded items, so that higher scores indicated higher sense of community.

Social Well-Being. The Italian version of the social well-being scale (Cicognani et al. 2008; Keyes 1998) was used to measure social well being. Based on a social model of well-being, the scale includes 33 items (on a 7-point scale, from 1 = *strongly disagree* to 7 = *strongly agree*) and is structured in 5 dimensions that reflect positive social health.

Procedure

This research was conducted using a website accessible only to students. Each time participants logged into the study website, they read a consent form that explained the procedures of the study and their rights as participants (e.g., the voluntary and confidential nature of participation). After agreeing to take part and receiving their instructions, participants filled out the questionnaire at their convenience. Two months later, participants completed a second questionnaire with identical questions by again accessing the study's website at their convenience.

Statistical Analysis

Statistical analyses were conducted using R (R Core Team 2014). Missing values were less than 1% of the total number of cases, listwise deletion was preferred to imputation (Graham 2009). The partial least squares approach to structural equation models (PLS-SEM; Lohmoller 1988; Chin and Newsted 1999; Esposito Vinzi et al. 2010) was used to investigate the predictions of our cross-lagged panel study. Specifically, we employed the R package 'plspm' (Sanchez et al. 2013). PLS-SEM is an alternative variance-based approach for the analysis of structural equation modeling, which is considered as a *soft modeling* approach where many of the restrictive assumptions imposed, by the covariance-based approach (with respect to multivariate normal distribution, large

sample size, and maximum model complexity) are avoided. In particular, PLS-SEM has a greater statistical power

than that of covariance-based SEM. Power analysis based on the recommendations of Hair et al. (2014) and Cohen

(1992) revealed that our sample size is sufficient to detect minimum R^2 values of 0.10 in any of the endogenous

constructs in the structural model for significance levels of 5%, assuming the commonly used level of statistical

power of 80%.

To evaluate convergent validity, we evaluated internal consistency, individual indicator reliability, and

average variance extracted (AVE), while to assess discriminant validity, cross loadings were examined (Hair et al.

2014). To measure reliability of our measures, we used Cronbach's alpha and Dillon-Goldstein's rho, better known

as composite reliability. Although Cronbach's alpha is the most commonly reported measure of internal consistency,

composite reliability is a better indicator of the reliability (Chin 1998). The main reason is that, differently from

composite reliability, Cronbach's alpha may underestimate reliability when tau-equivalence (i.e., each manifest

variable is assumed to be equally important in expressing the latent variables) is violated, which is often the case.

A bootstrapping procedure (5,000 bootstrap samples) was employed to evaluate the significance of the

parameter estimates (Hair et al. 2014). A recent simulation study revealed that fit indices for the PLS approach are

not suitable for model validation (Henseler and Sarstedt 2013): therefore, we did not calculate any fit indices. To

investigate equivalences of the path coefficients between men and women, we conducted multi-group analysis.

Multiple group analysis was conducted using a permutation based procedure (Chin and Dibbern 2010).

Results

We tested for outliers for study variables. After the cases identified as outliers were removed from the

sample, the final model was run with and without cases identified as outliers. The removal of outliers produced no

changes to the interpretation. The intercorrelations among social well-being and sense of community measured at

Time 1 and 2 were, in general, statistically significant, in the expected direction, and large in size (Table 1). The

only exception was for the relationships between sense of community and social coherence. Therefore, social

coherence was excluded from subsequent analysis.

Before, testing the structural model, we examined the convergent and discriminant validity of the measures

used to represent each construct by testing the measurement model. All the internal consistency reliability indices

were greater than conventional cutoff criteria of .70 (Table 1). All loadings were significantly greater than zero and

equal or greater than .40, while the AVEs were .50 or greater, indicating that each latent variable explained on

average at least 50 per cent of the variance in its indicators as recommended. All the indicator outer loadings on their respective construct were higher than their cross loadings with other constructs (data on convergent and discriminant validity are availble from the first author upone request). Overall, these data provide evidence for the constructs' convergent and discriminant validity.

Table 2 shows the cross-lagged relationships between social well-being and sense of community at Times 1 and 2. Consistent with our first prediction, individuals' own baseline levels of sense of community predicted follow up social integration and social contribution controlling for the effects of baseline social integration and social contribution. However, the cross-lagged relationships between sense of community at Time 1 and social acceptance and social actualization at Time 2 were not significant. In line with our second prediction, social integration at Time 1 predicted subsequent levels of sense of community controlling for baseline levels of sense of community. However, social acceptance, social actualization, and social contribution did not predict subsequent levels of sense of community controlling for baseline levels of sense of community. Finally, multiple group analysis (Table 3) revealed that none of the path coefficients between female and male participants was significantly different (at the 5% level).

Discussion

Based on the human needs theory model of psychological sense of community (Nowell and Boyd 2010, 2011), the aim of the present study was to investigate the reciprocal relationship between social well-being and sense of community using a longitudinal study. Our results shed some light on the casual mechanism that we inspected. The main finding of the present study was that social well-being and sense of community can be both predictor and criterion constructs. However, on the one hand, sense of community did not predict all the dimensions of social well-being and, on the other hand, not all the dimensions of social well-being predicted sense of community.

Consistent with the findings of Rollero and De Piccoli (2010), we found that the dimension of social well-being that has the strongest (and significant in our study) relationship with sense of community is social integration. Keeping in mind the assumptions of the human needs theory model of psychological sense of community (Nowell and Boyd 2010, 2011), this result is not surprising. Among the dimensions of social well-being social integration is the one that reflects more the views and the experience of individuals of their proximal context: as such it is plausible that there is some circularity between the extent to which someone feels that he or she is part of the

community and his or her feeling of being a valuable member of the society. Moreover, there is evidence that both sense of community and social well-being benefit from involvement in participatory practices (Mazzoni et al. 2014), suggesting that the quality of individuals' relationships with the community and the society builds on having concrete opportunities to share thoughts and experience with other people. Another important finding concerns the direction of the relationship between social contribution and sense of community: sense of community increases the feeling that someone has something valuable to give to his/her own society and that this contribution is appreciated and rewarded. Also, in this case this finding is consistent with an idea that people's experience of being connected and belonging can foster self-confidence and empowerment.

Social well-being, however, does not refer only to people's views on their proximal context. Social acceptance reflects a favorable view on human nature, and the idea that people can generally be trusted. Interestingly, this view on society was not affected by sense of community (and does not affect it). This is less counterintuitive as it may appear. Having good experience with people within a local context does not support the idea that "wherever I go, I will have good experience with people." Sense of community has been often criticized because it emphasizes similarities among members and can be a driver of exclusion (typically for those who not belong). And even if it is widely recognized that people can feel that they belong to multiple communities, belonging is always based on a shared "something" (experiences, symbols, boundaries, practices) in a specific (geographical, relational, etc.) and defined context. Trust is a key process that is required to experience sense of community (McMillan and Chavis 1986), but a belonging experience may increase trust only among and toward people who can be identified as members, and with whom there are repeated interactions. Put it differently we can assume that sense of community increases relational trust (Couch and Jones 1997), but it can hardly affect perception of trust in human nature or trustworthiness of society as a whole, with its heterogeneity, its fragmentation and its diversities.

The remaining two dimensions of social well-being reflect people's views on society at large. Social actualization refers to the belief that the society is realizing its potential of progress, equity, and justice. Sense of community does not have any impact on this dimension of social well-being: we speculate that this depends on the fact that our participants (who are students at the university) are probably aware of many societal injustices, but consider them rather distant from their daily experience and extraneous to their proximal community. Further

research should examine the relationship between sense of community and social actualization targeting specific population, for example comparing activists to stand-by citizens (Ekman and Amnå 2012).

Rollero et al. (2014) demonstrated that sense of community affects quality of life in a similar fashion for men and women. In line with the findings of Rollero et al. (2014), we did not find gender differences. Specifically, the hypothesized path coefficients did not differ between female and male participants, suggesting that the influence of residential environment on perceived quality of life is equally important across genders. Scholars who found a different pattern of results on adult sample (women more sensitive to community/residential context and with higher sense of community; Prezza and Costantini 1998), explained it referring to the different amount of time women spend at home and in the surrounding area (e.g. growing children), that would make they well-being more dependent on local contextual factors. Research on young people (Cicognani et al. 2014), however, clearly showed that gender differences on sense of community tend to disappear in positive environments, which fosters quality of life for all citizens, offering them equal opportunities and access to resources. Our participants are mainly students at the university: in this context, probably young men and young women enjoy equal opportunities that contribute in a similar vein to their sense of belonging and well-being. We think that the analysis of the role played by gender differences on quality of life and well-being is important because it can shed light on biological and social factors underpinning inequalities between men and women and provide support for policies fostering gender equity.

Further studies should be conducted including broader segments of population and testing the relation between sense of community and social well-being in a wide array of community contexts (Rollero and De Piccoli 2010): our data were collected from a convenience sample (undergraduate/master students): even if involvement of students allowed us to attain high follow-up response rates, this sample has obvious limitations. Specifically, our sample is not representative of the Italian population. Most participants were young and attending university classes. This mean that they could represent a relatively privileged group, that benefits of more opportunities and resources compared to the general Italian population. In addition, the distribution of gender in the sample was not comparable with census data and differed significantly from the expected distribution. Although female participants outnumbered male participants, this difference did not affect our results since we did not find any gender differences in the hypothesized relationships. Additional strength would come from longitudinal studies where the causal mechanisms that link sense of community and social well-being are tested in the context of programs and intervention explicitly designed at that aim.

Despite the limitations, our study using the dimensions of social well-being instead of a global score, and a longitudinal design disentangled some of the mechanisms that link sense of community and social well-being, and reinforce the position of those scholars that consider sense of community a catalyst for community development. Based on the assumptions of the human needs theory model of psychological sense of community (Nowell and Boyd 2010, 2011), we provided evidence of a reciprocal relationship between sense of community and social well-being. The present study acknowledges that people's well-being can be nurtured by a sense of community that can increase people's perception of responsibility (and power) to understand (and to change, if necessary) their social environment.

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Table 1

Correlations Among and Descriptive Statistics for Key Study Variables (N = 298)

		M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1.	Sense of community (T1)	3.59	0.62	—	.78*	.53*	.25*	.22*	.32*	.11	.51*	.25*	.25*	.23*	.07
2.	Sense of community (T2)	3.65	0.55		—	.48*	.22*	.21*	.30*	.17*	.61*	.35*	.32*	.27*	.16*
3.	Social Integration (T1)	4.62	0.86			—	.45*	.61*	.43*	.29*	.70*	.34*	.50*	.30*	.21*
4.	Social Acceptance (T1)	4.00	0.96				—	.31*	.42*	.18*	.43*	.67*	.33*	.36*	.21*
5.	Social Contribution (T1)	4.62	0.82					—	.23*	.36*	.54*	.25*	.62*	.15*	.24*
6.	Social Actualization (T1)	4.20	0.84						—	.23*	.36*	.32*	.25*	.61*	.18*
7.	Social Coherence (T1)	4.86	0.78							—	.34*	.12*	.37*	.14*	.63*
8.	Social Integration (T2)	4.68	0.83								—	.47*	.71*	.43*	.38*
9.	Social Acceptance (T2)	4.02	0.90									—	.34*	.41*	.22*
10.	Social Contribution (T2)	4.64	0.80										—	.32*	.50*
11.	Social Actualization (T2)	4.27	0.82											—	.17*
12.	Social Coherence (T2)	4.88	0.78												—

Note. * $p < .05$.

Table 2

Results for PLS-SEM Analysis: Predictors of T2 Sense of Community and Social Well-Being Dimensions

Predictor	Outcome	β	SE	95% CI	
Sense of community (T1)	Sense of community (T2)	.70	0.04	[0.63, 0.76]	*
Sense of community (T1)	Social Integration (T2)	.20	0.05	[0.10, 0.30]	*
Sense of community (T1)	Social Acceptance (T2)	.10	0.05	[-0.01, 0.20]	ns
Sense of community (T1)	Social Contribution (T2)	.13	0.05	[0.03, 0.24]	*
Sense of community (T1)	Social Actualization (T2)	.05	0.05	[-0.06, 0.15]	ns
Social Integration (T1)	Sense of community (T2)	.14	0.07	[0.01, 0.26]	*
Social Integration (T1)	Social Integration (T2)	.60	0.04	[0.51, 0.69]	*
Social Acceptance (T1)	Sense of community (T2)	-.01	0.05	[-0.10, 0.09]	ns
Social Acceptance (T1)	Social Acceptance (T2)	.66	0.04	[0.58, 0.73]	*
Social Contribution (T1)	Sense of community (T2)	-.05	0.05	[-0.15, 0.04]	ns
Social Contribution (T1)	Social Contribution (T2)	.62	0.04	[0.53, 0.70]	*
Social Actualization (T1)	Sense of community (T2)	.04	0.04	[-0.05, 0.13]	ns
Social Actualization (T1)	Social Actualization (T2)	.62	0.04	[0.53, 0.69]	*

Note. CI = confidence interval; * $p < .05$.

Table 3

Results for Multiple Group Analysis across Gender

Predictor	Outcome	Males	Females	*p*
Sense of community (T1)	Sense of community (T2)	.65	.70	.567
Sense of community (T1)	Social Integration (T2)	.19	.21	.840
Sense of community (T1)	Social Acceptance (T2)	.14	.08	.666
Sense of community (T1)	Social Contribution (T2)	.10	.14	.760
Sense of community (T1)	Social Actualization (T2)	.03	.05	.849
Social Integration (T1)	Sense of community (T2)	.14	.14	.996
Social Integration (T1)	Social Integration (T2)	.65	.59	.565
Social Acceptance (T1)	Sense of community (T2)	-.09	.01	.375
Social Acceptance (T1)	Social Acceptance (T2)	.74	.64	.211
Social Contribution (T1)	Sense of community (T2)	.13	-.11	.053
Social Contribution (T1)	Social Contribution (T2)	.76	.56	.054
Social Actualization (T1)	Sense of community (T2)	.10	.04	.551
Social Actualization (T1)	Social Actualization (T2)	.68	.60	.388