

# MEASURING PERCEIVED COMMUNITY SUPPORT: FACTORIAL STRUCTURE, LONGITUDINAL INVARIANCE, AND PREDICTIVE VALIDITY OF THE PCSQ (PERCEIVED COMMUNITY SUPPORT QUESTIONNAIRE)

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*Social support from intimate and confiding relationships has received a great deal of attention; however, the study of the community as a relevant source of support has been comparatively lacking. In this article, we present a multidimensional measure of community support (Perceived Community Support Questionnaire, PCSQ). Through exploratory and confirmatory factor analyses on data from three samples of adult population (two-wave panel: sample 1, N = 1009 and sample 2, N = 780; and an independent sample 3, N = 440), results show that community integration, community participation, and use of community organizations are reliable indicators of the underlying construct of perceived community support. Also, community support is associated with a reduction of depressive symptoms after 6 months, once autoregression is controlled for. © 2007 Wiley Periodicals, Inc.*

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Social support research has focused traditionally on correlates of the provision, reception, and perception of social support from personal networks and intimate relationships. There is an impressive body of literature documenting the positive association between social support from close and intimate relationships and health and psychological well-being, and a sizeable number of psychometrically sound instruments are available to researchers (see, e.g., Vaux, 1992; Wills & Shinar, 2000, for revisions). However, social support research has seldom examined ties to other groups and the larger community through which support is also available (Adelman, Parks, & Albrecht, 1987; Felton & Shinn, 1992; Lin, Simeone, Ensel, & Kuo, 1979), as well as its influences on well-being. Also, few instruments measuring support from community ties and organizations have been developed and subjected to a thorough psychometric analysis.

### ELEMENTS OF COMMUNITY SUPPORT

The community as a setting that can foster interdependence, mutual commitment, and support has been the focus of the field of community psychology. Barrera (2000) considers that social support is a central concept in community psychology "that attempts to capture helping transactions that occur between people who share the same households, schools, neighborhoods, workplaces, organizations, and other community settings" (p. 215). Likewise, the concept of social support is connected to many fundamental concepts in community psychology, such as sense of community, neighboring, or social integration.

The concept of *sense of community* refers to the perception of belongingness and feeling that one is part of a larger structure, as well as the feeling of interdependence with others that is maintained by supporting or being supported (McMillan & Chavis, 1986; Sarason, 1974). McMillan and Chavis's (1986) sense of community model includes dimensions such as *fulfillment of needs* (the belief that needs can be met through the resources and cooperative behavior within the community), *influence* (reciprocal relationships), and *emotional connection* (emotional support stemming from community living), which parallel dimensions also traditionally linked to the concept of social support (emotional and instrumental support, and reciprocity). The sense of community is a resource stimulating not only community development, but also positive relations between members of a community (Farrel, Aubry, & Coulombe, 2004). The concept of sense of community, as it refers also to a relational network (Chipuer & Pretty, 1999), involves its supportive properties. In this respect, Dalton, Elias, and Wandersman (2001) consider that the stronger the sense of community, the more likely a person would expect support from others. For example, Pretty (1990) observed a significant relationship between the psychological sense of community and support characteristics of college students' social environment. On the other hand, the absence of a sense of community has been linked to feelings of isolation and loneliness, which are also feelings associated with the lack of social support (Sarason, 1974). In this respect, the psychological sense of community has been considered a positive resource for individuals and neighborhoods, promoting well-being. Research has supported the relationship between constructs related to the psychological sense of community and measures of well-being (Chavis & Wandersman, 1990; Davidson & Cotter, 1991; Farrel et al., 2004; McCarthy, Pretty, & Catano, 1990; Pretty, McCarthy, & Catano, 1992; Prezza & Costantini, 1998; Unger & Wandersman, 1985).

The concept of *neighboring*, although usually conceptualized as a behavioral variable reflecting social interactions and exchange of support between neighbors, tries to capture the sense of mutual aid that is also an essential aspect of being part of a community (Skjaevelan, Gärling, & Maeland, 1996; Unger & Wandersman, 1985). This notion receives some empirical support in Skjaevelan et al.'s (1996) study on the multidimensionality of neighboring; they concluded that "perhaps the manifest acts of neighboring are empirically indistinguishable from an attached sense of community, support, or mutual aid because they represent the same subjective experience" (Skjaeveland et al., 1996, p. 131).

The sense of belongingness or feelings of attachment to a community and the sense of mutual aid and support implied in concepts such as a sense of community and neighboring are also closely related to the concepts of perceived integration (Brissette, Cohen, & Seeman, 2000; Gracia & Herrero, 2004a), social-psychological integration (Herrero & Gracia, 2004; Moen, Dempster-McClain, & Williams, 1989), or feelings of attachment to one's community (Myers, 1999) in the *social integration* research tradition. Empirical findings in this tradition have consistently established the link between social relationships and health outcomes (e.g., Berkman, 1995; Cohen, Gottlieb, & Underwood, 2000; House, Umberson, & Landis, 1988). For Cohen et al. (2000), a possible reason why social integration promotes health is because socially integrated people have a better quality of social interactions and more diverse support resources to call on when under stress. This argument is in line with Antonovsky's (1979) view, in which social integration provides a "sense of coherence," a mechanism that reduces the reactivity to stress and represents an important component of psychological well-being in its own right (Turner & Turner, 1999). Antonovsky also pointed out the negative effect that lack of control over one's own life has on health, a mechanism suggested by Syme (1989) to explain the negative effects of social isolation on health. From this point of view, people not involved and lacking social support in organizations and groups in the community would reduce their chances of coping successfully in difficult life situations, increasing again the levels of stress (Cassel, 1976; Cohen & Wills, 1985; Kessler & McLeod, 1985), which suggests that the psychological sense of integration in the community might be a relevant dimension of community support.

Social capital theory has also emphasized the ability of communities to offer their members opportunities to increase their personal and family resources (Coleman, 1988). Social capital is defined as trust, norms, and networks that facilitate cooperation for mutual benefit (Putnam, 2000) and reflects accessibility and use of resources (material, informational, or emotional) through social ties, groups, and organizations (Lin, 2001). According to social capital theorists, community ties and participation in voluntary organizations and groups make up much of the social capital people use to deal with daily life, seize opportunities, reduce uncertainties, and achieve social support (Wellman & Wortley, 1990; White, 2002). For Putnam (2000), the degree of participation in voluntary associations indicates the extent of social capital; because social capital promotes and enhances collective norms and trust, it becomes central to the production and maintenance of the collective well-being (see also Lin, 2001). For example, available data suggest that social capital (measured by trust and participation in voluntary groups) correlates with better health outcomes (Kawachi, Kennedy, Lochner, & Prothrow-Stith, 1997). As Pearlin (1985) noted: "It is reasonable to assume that the greater level of attachment to and interaction with membership groups, the greater is the likelihood that they will provide the most fertile harvest of support of various kinds" (p. 45).

## THE SOCIAL ECOLOGY OF SUPPORT TRANSACTIONS

The social environment can be viewed as one of multiple levels of influence on health, referring to societal conditions that may include surroundings (i.e., communities) and support transactions within them (i.e., social networks and social groups; McLaren & Hawe, 2005). Following Bronfenbrenner's (1979) ecological framework and levels of analysis, Gottlieb (1981) and Lin (1986) have proposed an approach that distinguishes three different settings in which social support processes take place. Gottlieb distinguished three meanings and measures that have become attached to the social support construct. These meanings and measures correspond to three ecological levels of analysis—macro (social integration/participation approach), mezzo (social networks approach), and micro (intimate relationships approach)—in which the social integration/participation approach “concerns itself with people’s involvement with institutions, voluntary associations, and informal social life of their communities” (Gottlieb, p. 32). Similarly, in his conceptualization of social support, Lin (1986) argues that a definition of social support should reflect the individual’s linkage to the social environment, which can be represented at three distinct levels: the community, the social network, and intimate and confiding relationships. As Lin points out, this distinction

represent[s] three different layers of social relations. The outer and most general layer consists of relationships with the larger community, and reflects integration into, or a sense of belongingness in, the larger social structure. An individual’s participation in voluntary organizations (e.g., church and school, recreation and sports activities, clubs and services, political and civic associations) indicates the extent to which the individual identifies and participates in the social environment at large. (p. 19)

## THE PRESENT STUDY

Community support appears as different construct from that used at the level of close and intimate relationships. This recognition of community as a source of support notwithstanding, except for a few studies (e.g., Gracia & Musitu, 2003; Haines, Hurlbert, & Beggs, 1996; Lin et al., 1979; Lin, Dean, & Ensel, 1986; Turner, Pearlin, & Mullan, 1998), social support research traditionally has not considered this level of analysis and, therefore, the area of measurement development has been clearly lacking (see Lin et al., 1979; Lin, Dumin, & Woelfel, 1986, for exceptions).

In this article, we present a multidimensional measure of community support that includes three scales assessing three dimensions as indicators of community support: *community integration* (tapping parallel concepts, such as sense of community, feelings of attachment to one’s community, and sense of belongingness); *community participation* (tapping community involvement, active participation in community activities, or social participation); and use of *community organizations* (tapping perceived support, social capital, and use of resources from these organizations). Based both on the summarized theoretical review and the empirical precedents, we hypothesized that these three dimensions are indicators of an underlying construct of community support. In this article, the longitudinal invariance of the factor structure of the Perceived Community Support Questionnaire (PCSQ) also will be analyzed.

Another aim of this article is to analyze the predictive validity of the PCSQ. Past research has shown how the elements of community support discussed above are associated with individuals' psychological well-being. There is research showing that poor subjective well-being and mental health are common correlates of lack of sense of community in both adult (Davidson & Cotter, 1991; Farrel et al., 2004) and adolescent populations (Pretty, Conroy, Dugay, Fowler, & Williams, 1996). Likewise, neighboring (Prezza & Constantini, 1998), social integration (Cohen et al., 2000), social capital (Harpham, Grant, & Rodriguez, 2004), and community participation (Chavis & Wandersman, 1990; Herrero, Meneses, Valiente, & Rodríguez, 2004) have shown positive associations with psychological well-being.

To test for the predictive validity of the PCSQ in this research, we specifically focused on depression, a widely studied correlate of support from intimate and confidant relationships, as well as from community support (see reviews in Cohen & Syme, 1985; Cohen and Wills, 1985; Lin, Dean, & Ensel, 1986). We expect that PCSQ scores will be associated with depression, consistent with previous empirical research linking elements of community support and depression: sense of community (Stevens & Duttlinger, 1998), perceived integration (Gracia & Herrero, 2004a; Herrero & Gracia, 2004), social participation (Herrero et al., 2004), and social capital (see Almedom, 2005, for a review).

## METHOD

### *Participants*

For this study, we used data from three samples. The first two samples (Samples 1 and 2) were drawn from a two-wave urban community study carried out in Spain. Participants identified by in-person recruitment (door-to-door canvassing) were contacted and asked to collaborate in the study. Limits were placed on the number of interviews that could be obtained in any one block, and only one interview was allowed per household (see Gracia & Herrero, 2004a, for a detailed description). Trained personnel conducted interviews in the respondents' homes. For this study, we analyzed complete data for 1009 participants who responded to the PCSQ at Time 1, of whom 740 provided complete data for the same measure after 6 months (Time 2). Wave 2 respondents and dropouts ( $N = 271$ ) did not statistically differ in age, marital status, income, gender, or educational level.

A third community-based sample of 440 participants (Sample 3) was obtained from individuals living in an average socioeconomic neighborhood of a different urban area in Spain, following a similar procedure used for Samples 1 and 2. Data were obtained through home interviews, and 515 adults 18 years of age or older participated in the study. Here, we used participants' responses that provided complete data ( $N = 440$ ). This comparison sample was used to independently replicate findings from the first wave of the two-panel community-based samples (Sample 1). Sociodemographic characteristics for the three samples are presented in Table 1.

### *Measures*

*Perceived Community Support Questionnaire.* The instrument we present in this article is based on the definition and dimensions of community support proposed by Lin, Dumin,

Table 1. Sociodemographic Characteristics of Wave 1, Wave 2, and Independent Samples

Characteristic	Two-Wave Panel Data				Independent Sample Data	
	Sample 1 (T <sub>1</sub> ) N = 1009		Sample 2 (T <sub>2</sub> ) N = 780		Sample 3 (T <sub>1</sub> ) N = 440	
	%	N	%	N	%	N
Gender						
Male	46.1	464	45.9	366	44.3	195
Female	53.9	542	54.1	432	55.7	245
Marital status						
Single	41.7	416	42.6	336	43.6	192
Married	50.7	505	50.3	397	30.9	136
Divorced	1.4	14	1.3	10	5.3	23
Separated	2.0	20	1.6	13	6.5	28
Widowed	4.2	42	4.1	33	12.7	55
Educational level						
No formal education	2.7	27	2.2	23	8.6	38
Primary education	35.8	358	33.3	258	50.5	219
Secondary education	26.3	263	26.5	205	12.7	55
University education	35.2	352	37.2	288	28.9	121
Employment status						
Never employed	1.2	12	0.8	6	1.4	6
Unemployed	6.3	63	7.5	59	20.7	88
Employed	49.8	498	49.1	388	33.9	144
Retired	8.2	82	8.7	69	22.8	97
Housewife (only)	12.6	126	12.5	99	7.8	33
Student (only)	21.9	219	21.4	169	13.4	57
Average age (SD)	39.23 (16.69)		39.38 (16.71)		42.17 (19.47)	
Average family income	21,500 Euros		21,500 Euros		18,500 Euros	

and Woelfel (1986), and includes a revised version of different scales that have been used in previous research as independent variables predicting parenting behavior (e.g., Gracia, 1995; Gracia & Musitu, 1997, 2003) and social support from confiding and intimate relationships (Gracia & Herrero, 2004b), or as dependent variables as indicators of social integration in the community (e.g., Gracia, García, & Musitu, 1995; Gracia & Herrero, 2004a; Herrero & Gracia, 2004).

The PCSQ includes three scales assessing three dimensions of community support: social integration in the community, participation in the community, and use of community organizations. It consists of 14 items with responses rated on a 5-point scale from (1) *strongly disagree* to (5) *strongly agree*, covering three dimensions of perceived community support:

1. *Community integration*: A four-item scale that measures the sense of belongingness and/or identification to a community or a neighborhood. These four items are: "I identify with my community," "My opinions are valued in my community," "Few people in my community know who I am," and "I feel like my community is my own."

2. *Community participation*: A five-item scale that measures the degree to which the respondent is involved in social activities in the community. These five items are: “I collaborate in organizations and associations in my community,” “I take part in social activities in my community,” “I take part in some social or civic groups in my community,” “I respond to calls for support in my community,” and “I don’t take part in sociorecreational activities in my community.”
3. *Community organizations*: A five-item scale that measures the degree of support the respondent perceives from voluntary groups and organizations, such as recreational and sports clubs and services, political and civic associations in the community, and the like. These five items are: “I could find people that would help me feel better,” “I would find someone to listen to me when I feel down,” “I would find a source of satisfaction for myself,” “I would be able to cheer up and get into a better mood,” and “I would relax and easily forget my problems.”

*Psychological well-being.* To assess the predictive validity of the PCSQ we used a measure of depression—Center for Epidemiologic Studies Depression Scale (CES-D). The CES-D is a 20-item scale measuring depressive symptomatology (Radloff, 1977). Item responses were rated on a 4-point scale from (1) *rarely or none of the time (less than once a week)* to (4) *most or all of the time (5–7 days a week)*. Coefficients alpha for the depression scale in Samples 1–3 were 0.88, 0.86, and 0.90, respectively.

### Analyses

We first explored the empirical structure of the 14 items of the PCSQ using both exploratory and confirmatory factor analysis techniques. Exploratory factor analysis was used as a preliminary procedure to ascertain if the 14 items of the PCSQ equally clustered into theoretically meaningful factors in the three samples. Internal consistency analyses for the complete questionnaire and for each factor were performed at this step. Then, we used confirmatory factor analysis for in-depth examination of the measurement model, testing alternative measurement models, longitudinal factorial invariance (Samples 1 and 2), and replicability through cross-validation in an independent sample (Sample 1 and 3). In the next step, we included depression both at Time 1 and Time 2 in the model to estimate the predictive validity of the perceived community support measure. Here, we were interested in simultaneously analyzing both within-time correlations and causal paths from Time 1 to Time 2 measures.

We used the EQS (Bentler, 1995) structural equations program. The Maximum Likelihood estimator and Satorra-Bentler  $\chi^2$  for correcting departure from multinormality<sup>1</sup> (as indicated by the Mardia’s normalized estimate of multivariate kurtosis) were used for the calculation of robust fit indexes (Comparative Fit Index [CFI] and Root Mean Square Error of Approximation [RMSEA]), standard errors, and statistical significance of the parameters.

<sup>1</sup>The difference between two Satorra-Bentler scaled test statistics does not yield the correct SB scaled difference test statistic. For comparisons of nested models, we used a Satorra expression that permits scaling the difference test statistic (Satorra & Bentler, 1999).

## RESULTS

### *Principal Components and Internal Consistency Analyses*

Principal component analyses were carried out separately in the three samples and a solution of three components with eigenvalues greater than 1.0 was extracted and rotated obliquely (Promax-4). The Kaiser-Meyer-Olkin measure of sampling adequacy was of 0.88, 0.89, and 0.87, respectively. The Kaiser-Meyer-Olkin is a measure of the degree that a factor analysis of the variables might not be a good idea, since correlations between a pair of variables cannot be explained by the other variables. Kaiser (1974) characterized a measure of 0.80 as meritorious and considered 0.90 as marvelous. According to these standards, factor analysis was completely justified. Also, the Bartlett tests of sphericity were statistically significant (91,  $\chi^2$ 's > 2692.82,  $p$ 's < 0.001), indicating that it was really improbable that the correlation matrix was an identity matrix and that the factor model was inappropriate.

Results in Table 2 suggest a clear and clean structure of the 14 items of the PCSQ, which perfectly matched the theoretically relevant proposed dimensions of community support: social integration in the community, participation in the community, and community organizations. Also, this structure was neatly replicated in all three samples. Alpha coefficients for each factor and for the complete scale ( $\alpha$ 's > 0.75) indicated an adequate internal consistency.

### *Structural Equation Analyses*

*Confirmatory factor analyses.* We used Sample 1 data to first test a single factor model in which all 14 items of the PCSQ were indicators of a unique latent variable—community support. This model (Model 0) fit the data very poorly (see Table 3), indicating that a single-factor solution was not adequate to explain the sample data and that the PCSQ measure cannot be described as unidimensional. Next, we used the dimensions of community support theoretically proposed and empirically obtained through exploratory factor analysis to test a second-order factor model (see Figure 1). This model (Model 1) is equivalent to the model tested in the exploratory factor analyses, with the exception that a second-order factor is now explaining the covariations among the first-order factors.

Model 1 hypothesized that: (a) responses to the PCSQ could be explained by the three first-order factors (community integration, community participation, and community organizations) and one second-order factor (perceived community support); (b) each item had a nonzero loading on the first-order factor it was designed to measure and zero loadings on the other two first-order factors; (c) error terms associated with each item were uncorrelated; and (d) covariations among the three first-order factors were explained fully by their regression on the second-order factor. Mardia's normalized estimate was 44.26, indicating a significant departure from multinormality and suggesting the use of the Satorra-Bentler  $\chi^2$  to estimate fit indexes and standard errors. This model showed adequate fit (see Table 4). Unstandardized parameter estimates are presented in Table 3, while Figure 1 includes the standardized factor loadings.

All items loaded statistically significantly in their corresponding first-order factors, as seen by the large absolute  $z$  values (> |13.90|) associated with each unstandardized factor loading. Second-order unstandardized factor loadings are also presented in the bottom part of Table 2, and indicated that a second-order structure was adequately supported by the data, with second-order unstandardized factor loadings being highly significant ( $z$ 's >

**Table 2. Promax Rotation Solution for the Three Components and Cronbach's  $\alpha$  for the Four Items and for Each of the Three Factors<sup>a</sup>**

Item	Sample 1 (N = 1009) $\alpha = 0.88$			Sample 2 (N = 780) $\alpha = 0.86$			Sample 3 (N = 440) $\alpha = 0.88$		
	Factors								
	I	II	III	I	II	III	I	II	III
13. I would be able to cheer up and get into a better mood.	0.90			0.87			0.88		
12. I would find a source of satisfaction for myself.	0.85			0.85			0.84		
11. I would find someone to listen to me when I feel down.	0.81			0.75			0.77		
10. I could find people that would help me feel better.	0.77			0.76			0.81		
14. I would relax and easily forget my problems.	0.72			0.80			0.80		
6. I take in activities in my community.		0.86			0.91			0.79	
5. I collaborate in organizations and associations in my community.		0.86			0.81			0.83	
7. I take part in some social or civic groups in my community.		0.84			0.91			0.77	
9. I don't take part in sociorecreational activities in my community.		-0.71			-0.67			-0.71	
8. I respond to calls for support in my community.		0.52			0.57			0.60	
1. I identify with my community.			0.89			0.84			0.88
4. I feel like my community is my own.			0.81			0.83			0.83
2. My opinions are valued in my community.			0.75			0.78			0.76
3. Few people in my community know who I am.			-0.60			-0.54			-0.44
Unrotated explained variance %	39	14	8.0	40	14	8.0	36	15	9.0
Cronbach's $\alpha$	0.87	0.84	0.76	0.87	0.85	0.75	0.88	0.85	0.75

<sup>a</sup>Factor loadings smaller than 0.35 are omitted.

10.74,  $p$ 's < 0.001). Also, we found empirical support for this model in Sample 3 data (Model 1a) (see Table 3).

To further check the factorial invariance of the PCSQ in these two independent samples (Sample 1 and 3), we conducted multigroup confirmatory analyses. Two models were tested: (a) a constrained model that imposed equality constraints between first- and second-order factor loadings across Samples 1 and 3; and (b) an unconstrained model that imposed no constraints. The unconstrained model showed a significantly smaller chi-square than the restricted model:  $\Delta\chi^2(13) = 22.76$ ,  $p = 0.04$ . Multivariate Lagrange Multiplier tests revealed that releasing one constraint would contribute to a significant reduction in chi-square, making the unconstrained and constrained models statistically equivalent:  $\Delta\chi^2(12) = 12.67$ ,  $p = 0.39$ . The unstandardized regression estimate of the item

**Table 3. Confirmatory Factor Analysis Results: Unstandardized Factor Loadings for First-Order Factors and Second-Order Factor and Probability Associated<sup>a</sup>**

<i>Item</i>	<i>Factor I</i>	<i>Factor II</i>	<i>Factor III</i>	<i>Z<sup>b</sup></i>
13. I would be able to cheer up and get into a better mood.	1.44 (0.08)			18.47
12. I would find a source of satisfaction for myself.	1.44 (0.08)		18.01	19.81
11. I would find someone to listen to me when I feel down.	1.25 (0.06)			
10. I could find people that would help me feel better. <sup>c</sup>	1.00			
14. I would relax and easily forget my problems.	1.13 (0.07)			17.20
6. I take part in activities in my community.		0.96 (0.02)		48.34
5. I collaborate in organizations and associations in my community. <sup>c</sup>		1.00		
7. I take part in some social or civic groups in my community.		0.84 (0.03)		28.63
9. I don't take part in socio-recreational activities in my community.		-0.58 (0.04)		-15.72
8. I respond to calls for support in my community.		0.60 (0.03)		19.70
1. I identify with my community. <sup>c</sup>			1.00	
4. I feel like my community is my own.			1.11 (0.05)	21.63
2. My opinions are valued in my community.			0.71 (0.04)	16.82
3. Few people in my community know who I am.			-0.81 (0.06)	-13.91
	<i>Comm. Organizations</i>	<i>Comm. Participation</i>	<i>Comm. Integration</i>	<i>Z<sup>b</sup></i>
Second-order factor	0.30	0.90	0.59	> 10.74
Perceived community support <sup>d</sup>	(0.03)	(0.04)	(0.04)	

<sup>a</sup> Robust standard errors are listed parenthetically.

<sup>b</sup> All significant at  $p < 0.001$ .

<sup>c</sup> Unstandardized parameter fixed to 1.0 during estimation.

<sup>d</sup> Variance fixed to 1.0 during estimation.

"I feel like my community is my own" was greater in the Sample 3 data ( $b_3 = 0.997$ ,  $b_1 = 0.702$ ,  $p < 0.001$ ), although highly significant in both samples. Results from the multigroup analyses supported the factorial invariance of the PCSQ in two independent samples.

This second-order factor model was reestimated for Time 1 and Time 2 complete data ( $N = 740$ ) to analyze the longitudinal invariance of the factor structure after 6 months (Samples 1 and 2 data). In this model (Model 2), covariances of error and disturbance terms for the same manifest indicators across time were freely estimated. Two models were tested: In the unconstrained model, all of the first- and second-order factor loadings were freely estimated; in the constrained model, we restricted first- and second-

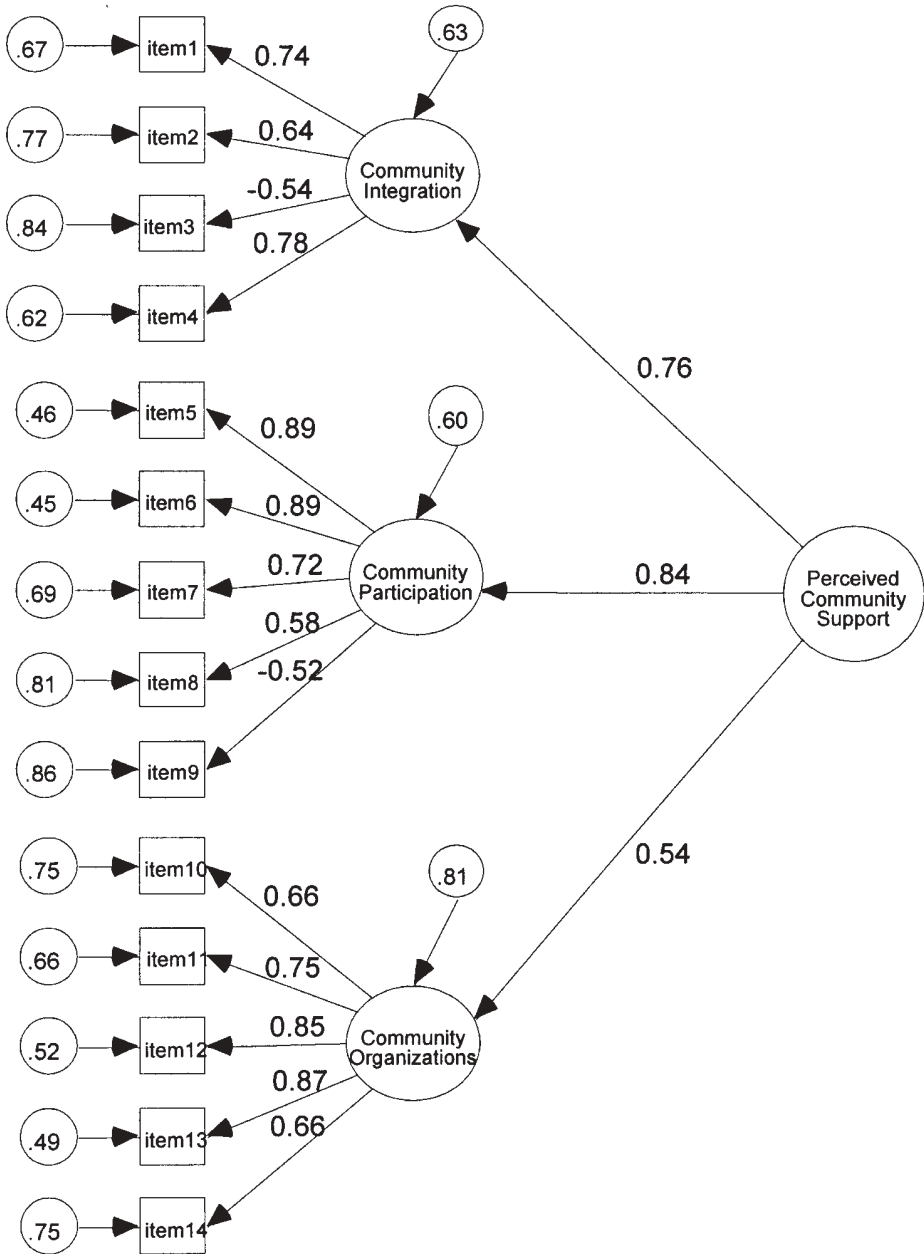


Figure 1. PCSQ-14 second-order model. All paths are statistically significant ( $p < 0.001$ ) (two-tailed test).

order factor loadings to be invariant across time. We found a significant difference between the two models,  $\Delta\chi^2(13, N = 740) = 27.16, p = 0.01$ . The Lagrange Multiplier Test indicated that 1 constraint out of 13 would significantly decrease  $\chi^2$  if released. After releasing this constraint, the unconstrained and the constrained model were statistically equivalent,  $\Delta\chi^2(12, N = 740) = 16.01, p = 0.19$ . The unstandardized regression estimate

Table 4. Satorra-Bentler  $\chi^2$ , Degrees of Freedom, Probability Associated, and Fit Indexes of Tested Models

	Description	N	S-B $\chi^2$	d.f.	p	Robust CFI	RMSEA (95% C.I.)	SRMR	GFI	AGFI
Model 0	Unidimensional	1009	1877.73	77	0.001	0.65	0.15 (0.15, 0.16)	0.12	0.66	0.54
Model 1	Second-order	1009	235.72	74	0.001	0.97	0.05 (0.04, 0.05)	0.04	0.96	0.94
Model 1a	Cross-validation in independent sample	440	145.54	74	0.001	0.97	0.05 (0.05, 0.06)	0.04	0.93	0.91
Model 2*	Longitudinal factor invariance	740	686.06	338	0.001	0.95	0.04 (0.03, 0.04)	0.04	0.96	0.92
Model 3	Cross-lagged effects	669	700.32	390	0.001	0.96	0.03 (0.03, 0.04)	0.04	0.96	0.92

\* Model with one constraint released.

of item "I would find someone to listen to me when I feel down" on the community organizations latent variable was greater in Time 1 than in Time 2 ( $b_{T1} = 1.28$ ;  $b_{T2} = 1.04$ ), although positive and highly significant in both occasions ( $p < 0.001$ ).

Overall, results supported the longitudinal invariance of the second-order factor model. This model with one constraint released provided an adequate fit to the data (see Table 4). The stability coefficient for the perceived community support latent variable was  $\beta = 0.83$  ( $p < 0.001$ ), indicating a high degree of stability of this measure after 6 months.

### Relationship with Depression

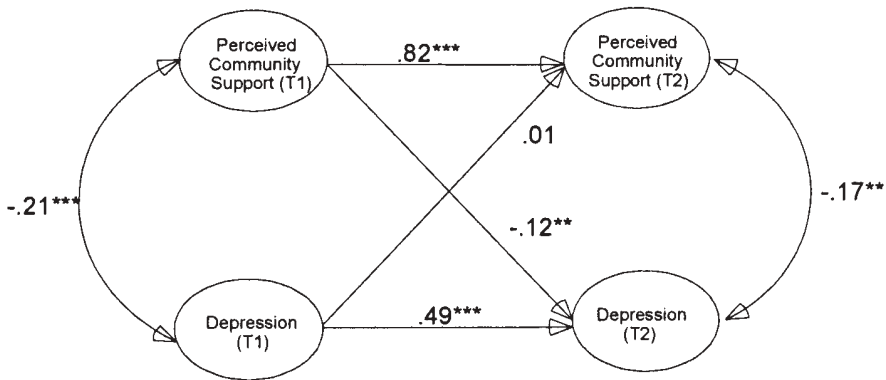
We estimated a final model (Model 3), including depression at Time 1 and Time 2 (see Figure 2), to test for predictive validity. In this model, we tested the relationships between perceived community support and depression across time, adding cross-lagged effects in which Time 1 levels of one variable (e.g., community support) were hypothesized to predict the Time 2 levels of the other variable (e.g., depression), while controlling for the stability of the other variable. The Satorra-Bentler correction was used for Model 3 (Mardia's normalized estimate = 67.77), which adequately fit the data (see Table 3). The standardized parameter estimates for the relationships among latent variables are presented in Figure 2. (For the sake of simplicity, manifest indicators and error/disturbance terms are not presented in Figure 2.)

Participants showed a fair amount of consistency in their levels of community support and depression across time ( $\beta = 0.82$ ,  $\beta = 0.49$ ,  $p$ 's  $< 0.001$ ). The cross-lagged path from Time 1 community support to Time 2 depression was significant ( $\beta = -0.12$ ,  $p < 0.01$ ), whereas the cross-lagged path from Time 1 depression to Time 2 community support was nonsignificant.

## DISCUSSION

### Methodological Considerations

Two-wave panel data ( $N_{T1} = 1009$ ;  $N_{T2} = 740$ ) and data from an independent correlational study ( $N = 440$ ) were used to evaluate the structure of the 14 items of the PCSQ and



**Figure 2.** Model 3: Cross-lagged effects of perceived community support and depression. T2 correlations are correlated disturbance terms. Manifest indicators and first-order factors are omitted (though see Figure 1).

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$  (two-tailed test).

to conduct a series of psychometric and validity analyses. Main results indicated that the PCSQ is a multidimensional measure of community support assessing community integration, community participation, and use of community organizations. Internal consistency was adequate for both the complete scale (14 items) ( $\alpha$ 's  $\geq 0.86$ ) and the three dimensions ( $0.75 \leq \alpha$ 's  $\leq 0.88$ ) in all samples. The PCSQ factor structure was invariant across time and across independent samples.

For examination of predictive validity, we tested the cross-lagged relationships of community support and depression through structural equation modeling. The results indicated that the more often participants perceived community support, the less their depression was after 6 months. Conversely, levels of Time 2 perceived community support remained unaffected by previous levels of Time 1 depression. These results suggest that there is a relationship between depression and perceived community support over time, but only in that earlier community support predicts later depression, not vice versa.

Given that community support and depression were concurrently related at Time 1, it seems that the impact of depression on community support over time was completely mediated by previous perceptions of community support. These results controlled for selection effects—that is, the fairly remote possibility that depressed individuals chose to live in unsupportive communities—and suggest that levels of depression among individuals do not affect their perceived support at the community level. Conversely, the perception of living in a supportive community is associated with lower levels of depression after 6 months. Although these relationships are not causal (because an underlying third factor could have influenced both variables in question), they nevertheless strongly suggest that this measure of perceived community support influences depression over time, and is indicative of its predictive validity. Overall, the PCSQ appears as a reliable and valid multidimensional measure of community support. Other research using a previous version of this measure has also found a significant relationship between mental health and social integration in the community after controlling for significant covariates, such as social support from confiding and intimate relationships and social self-esteem both in adult (Gracia & Herrero, 2004a) and college student populations (Herrero & Gracia, 2004; Herrero et al., 2004). What the

present study adds to previous research is that the three scales assessing community support are indeed indicators of an underlying construct (perceived community support), and that it may be reliably measured with only 14 items without losing predictive validity. Such properties make the PCSQ suitable for large-scale studies exploring the relationships between communities and mental health.

### *Theoretical Considerations*

The present research is anchored in the central idea that there is an underlying element of support in a diversity of concepts traditionally used in community research. Thus, community support may be described in terms of (a) the perception of being integrated in the community (sense of attachment to, sense of belongingness, or sense of community), (b) the perception of being an active member of the community (participation and involvement in the community), and (c) the perception that community organizations are a potential source of support in case of need.

*Community integration* is a significant element in a definition of support because it also indicates the extent to which people identify with the social environment at large (Lin, 1986), and may be linked to related concepts, such as sense of belongingness to, and being part of, the larger community. For Dalton et al. (2001), the sense of community or shared identity with other members of that community is relevant in social support terms, because the stronger this feeling is the more probable a person would expect significant help from others, even if they are unfamiliar. Research showing that individuals with higher levels of community attachment are more likely to provide support to others (Haines et al., 1996) seems to give some credit to Dalton et al.'s (2001) ideas. The concept of *community participation* may also reflect social support, because active involvement in community activities leads to expectations for both new opportunities for interpersonal interaction and creation of new relationships, thus increasing the opportunities for support exchange (Lin, Dumin, & Woefel, 1986). Participation in community activities and organizations may also provide ties that constitute social resources available to the person and that offer opportunities to realize interests, gather relevant information, and satisfy needs. The idea that community participation helps to develop more positive attitudes toward other community members has been long established (Litwak, 1961), and research consistently shows that neighbors who take part in community activities express a higher degree of satisfaction and sense of community (Wandersman & Florin, 2000). Also, understanding the value of this involvement in terms of support needs and resources available to the individual (perceived social support in the *community organizations*) better allows understanding of support processes in the community.

In summary, the sense of being integrated and being an active member of the community, and perceptions of voluntary organizations in the community as a source of support, may be thought of as indicators of a more general construct reflecting perceptions of support in the community. This perception of community support appears to be consistently related to psychological well-being and empirically exemplifies Cowen's (2000) ideas about the value of the informal sources of support in the community and their importance for mental health. Following Cowen's concept of "routes to psychological wellness," we consider that our findings are pointing to the community as a potentially important pathway to wellness (Cowen 2000), and thus may contribute to the debate about the social origins of health and well-being (Eckersley, Dixon, & Douglas, 2001).

Communities may include neighborhoods, mutual aid groups, religious organizations, cultural groups, and sports groups, as well as other social settings in which people spend substantial portion of time, offering a variety of settings and environments that can bring to the person new information and resources, in addition to exposure to a varied set of roles, subcultures, and thereby alternative sources of influence and support (Dalton et al., 2001; Shinn & Toohey, 2003). According to Cohen et al. (2000), support processes (at the community level in our study) can influence cognition, emotions, and behaviors, which, in the case of mental health, would regulate these systems preventing extreme responses associated with dysfunction. Other examples of possible pathways mentioned by these authors are the effects of relationships on the diversity of self-concepts, feelings of self-worth and personal control, and conformity to behavioral norms that have implications for health. However, our data set does not allow drawing conclusions in this respect or about which model (i.e., a stress-buffering model or a main effect model) is more appropriate to explain the relationship between community support and psychological well-being (Cohen & Wills, 1985; Schwarzer & Leppin, 1989). Further research considering these processes would be needed to disentangle these complex relationships.

### *Cautionary Notes*

It is premature to calibrate the degree to which the instrument used in the present research would contribute to the study of the relationship between community support and well-being. Although findings reported here from three samples (of which one was completely independent from the other two) leave some room for optimism, more work on this instrument is warranted. A preliminary agenda should include both psychometric and validity work in which new samples and new criteria variables allow researchers to further assess the construct validity of community support as measured by the PCSQ. Specially targeted populations (e.g., risk groups) and longitudinal designs would extend our knowledge about the potential correlates of community support (e.g., domestic violence, healthy behaviors, use of formal services in the community), as well as the consequences that changes in community support would have on residents' psychological well-being.

Also, the instrument presented here is based upon the supportive quality of the community as appraised by the individual. Combining this measure of community support with more objective community characteristics such as the availability of community services and social policies or crime rates, to mention a few, will broaden our comprehension of the interplay between the objective surroundings and their appraisal by individuals within it (Gracia & Herrero, in press). In this sense, Brodsky, O'Campo, and Aronson (1999) caution against making assumptions about the underlying objective conditions of a community; although they are often used as indicators of physical residential environment, they might not be indicative of the quality of social life or an individual's attachment to the community. For instance, Ross (2000) found in a probability sample of 2,482 households that community support (measured as informal ties to neighbors) buffered the negative association of neighborhood disorder with fear and mistrust. Undoubtedly, the combined use of more objective indicators and community support measures would improve our understanding of why similar objective conditions may have different effects in different communities (Chavis & Pretty, 1999)

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Item 2	3.12	0.85	.28	.43	-.24	.31	.27	.28	-.18	.22	.25	.21	.23	.22	.53	-														
(T <sub>2</sub> )																														
Item 3	2.69	1.10	-.20	-.25	.52	-.27	-.32	-.29	-.23	-.24	.16	-10	-.16	-.11	-.14	-.32	-.37	-												
(T <sub>2</sub> )																														
Item 4	3.15	1.05	.47	.34	-.34	.59	.37	.34	.26	.27	-.19	.18	.21	.22	.19	.22	.61	.45	-.36	-										
(T <sub>2</sub> )																														
Item 5	2.55	1.14	.33	.31	-.32	.37	.59	.55	.51	.36	-.35	.25	.24	.31	.24	.26	.47	.45	-.40	.48	-									
(T <sub>2</sub> )																														
Item 6	2.46	1.10	.30	.28	-.33	.35	.56	.57	.49	.37	-.40	.23	.24	.33	.24	.24	.43	.39	-.39	.42	.85	-								
(T <sub>2</sub> )																														
Item 7	2.40	1.18	.25	.22	-.22	.29	.52	.51	.60	.34	-.38	.24	.26	.30	.23	.22	.32	.30	-.26	.32	.66	.68	-							
(T <sub>2</sub> )																														
Item 8	2.99	1.02	.28	.29	-.26	.32	.44	.39	.34	.40	-.26	.19	.18	.19	.17	.19	.40	.33	-.33	.36	.56	.53	.47	-						
(T <sub>2</sub> )																														
Item 9	3.20	1.11	-.18	-.19	.21	-.23	-.36	-.37	-.31	-.26	.38	-.11	-.16	-.22	-.19	-.20	-.26	-.27	.30	-.26	-.44	-.49	-.45	-.39	-					
(T <sub>2</sub> )																														
Item 10	3.53	0.79	.15	.13	-.12	.13	.27	.25	.25	.15	-.17	.38	.36	.40	.35	.23	.23	.26	-.15	.21	.35	.31	.32	.23	-.26	-				
(T <sub>2</sub> )																														
Item 11	3.45	0.84	.14	.17	-.14	.13	.24	.25	.22	.20	-.15	.29	.34	.32	.28	.20	.22	.23	-.10	.22	.32	.27	.24	.26	.19	.59	-			
(T <sub>2</sub> )																														
Item 12	3.31	0.89	.14	.15	-.11	.14	.31	.34	.27	.18	-.19	.36	.36	.46	.39	.33	.30	.29	-.15	.27	.38	.34	.34	.29	-.28	.58	.57	-		
(T <sub>2</sub> )																														
Item 13	3.34	0.88	.16	.17	-.14	.14	.31	.31	.27	.20	-.17	.32	.36	.43	.41	.30	.30	.29	-.18	.28	.36	.33	.32	.28	-.26	.58	.55	.77	-	
(T <sub>2</sub> )																														
Item 14	3.15	0.95	.12	.17	-.13	.10	.23	.25	.23	.19	-.14	.28	.32	.40	.35	.37	.27	.23	-.10	.24	.30	.28	.23	.22	-.18	.44	.64	.67	-	
(T <sub>2</sub> )																														
Depression33	108.74	-.20	-.14	-.13	-.18	-.10	-.11	-.09	-.17	.10	-.05	-.15	-.09	-.08	-.09	-.17	-.12	.12	-.16	-.09	-.10	-.07	-.15	.10	-.04	-.03	-.05	-.03	-	
(T <sub>1</sub> )																														
Depression34	279.56	-.18	-.13	-.12	-.16	-.16	-.14	-.11	-.15	.07	.06	-.11	-.07	-.04	-.07	-.23	-.20	.17	-.17	-.16	-.16	-.13	-.14	.13	-.11	-.13	-.12	-.09	.52	-
(T <sub>2</sub> )																														

$r \geq |0.06|$ ;  $p < 0.05$ ;  $r \geq |0.09|$ ;  $p < 0.01$ ;  $r \geq |0.12|$ ;  $p < 0.001$  (two-tailed test).