

Title

Social capital and self-rated health in Colombia: the good, the bad and the ugly

Authors

David Hurtado

Ichiro Kawachi

John Sudarsky

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Abstract

Using nationally representative data from Colombia, this study assessed how different components of social capital relate to self-rated health. Results indicate that cognitive social capital and selected forms of associational membership are associated with better health, while other forms of participation may be linked to poorer health in specific social contexts.

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Author affiliation at the time of publication: Harvard University.

Social Capital and Self-Rated Health in Colombia: The Good, the Bad and the Ugly.

Abstract

Although there is increasing evidence supporting the associations between social capital and health, less is known of potential effects in Latin American countries. Our objective was to examine associations of different components of social capital with self-rated health in Colombia. The study had a cross-sectional design, using data of a survey applied to a nationally representative sample of 3,025 respondents, conducted in 2004-2005. Stratified random sampling was performed, based on town size, urban/rural origin, age, and sex. Examined indicators of social capital were interpersonal trust, reciprocity, associational membership, non-electoral political participation, civic activities and volunteering. Principal components analysis including different indicators of social capital distinguished three components: *structural-formal* (associational membership and non-electoral political participation), *structural-informal* (civic activities and volunteering) and *cognitive* (interpersonal trust and reciprocity). Multilevel analyses showed no significant variations of self-rated health at the regional level. After adjusting for sociodemographic covariates, interpersonal trust was statistically significantly associated with lower odds of poor/fair health [Odds Ratio (OR) 0.64; 95% Confidence Interval (CI) (0.48-0.85)], as well as the cognitive social capital component [OR 0.88 95% CI (0.79-0.98), per standard deviation change]. Members of farmers/agricultural or gender-related groups had higher odds of poor/fair health [OR 1.82 (95% CI 1.21-2.74) and OR 1.70 (95% CI 1.01-2.87)], respectively. Excluding these groups, however, associational membership was associated with lower odds of poor/fair health [OR 0.82 (95% CI 0.67-0.99)]. Likewise, in Colombians with

educational attainment higher than high school, reciprocity was associated with lower odds of fair/poor health [OR 0.53 (95% CI 0.28-0.98)]. Nevertheless, among rural respondents non-electoral political participation was associated with worse health [OR 1.51 (95% 1.09-2.09)]. In conclusion, cognitive social capital and associational membership were related to better health, and could represent important notions for health promotion. Human rights violation related to political violence and gender based discrimination may explain adverse associations with health.

Introduction

Although increasing empirical evidence from the last decade supports the link between social capital, defined as “the features of the social organization, such as the density of civic associations, levels of interpersonal trust, and norms of reciprocity, that facilitate collective action” (Kennedy, Kawachi, & Brainerd, 1999, p.262) and health (Kawachi, Subramanian, & Kim, 2008), less is known about plausible associations in Latin American countries, where the effects could vary according to socio-political and economical characteristics (Kawachi & Kennedy, 2002) and different disease distributions (Kim, Subramanian, & Kawachi, 2008; Krieger, Alegria, Almeida-Filho, Barbosa da Silva, Barreto, Beckfield, Berkman, Birn, Duncan, Franco, García, Gruskin, James, Laurell, Schmidt, & Walters, 2010). Particularly in Latin America, strengthening social capital could enhance policies or interventions aimed to reduce poverty and inequalities. By the same token, central notions of social capital like social cohesion, community participation and civic engagement could be relevant strategies in health promotion (Sapag & Kawachi, 2007). Despite this potential, however, research on social capital and health in the Latin American region, and particularly in Colombia, remains limited. A recent review of

the scientific literature from the region (Kripper & Sapag, 2009) showed that most studies have been conducted at the communitarian (Brune & Bossert, 2009; Harpham, Grant, Snoxell, & McKenzie, 2006; Poblete, Sapag, & Bossert, 2008; Sapag, Aracena, Villarroel, Poblete, Berrocal, Hoyos et al., 2008), or the ecological level (Idrovo, 2006; Idrovo & Ruíz-Rodríguez, 2007), with no research yet at the national level.

Besides expanding social capital research in Latin American public health, identifying differential components of social capital is a crucial task in order to gain clearer understanding of the pathways by which social capital could causally related to health. Harpham (2008), for example, distinguishes two components: 1) *structural social capital*, pertaining to behaviors (e.g. membership in associations, political participation) which could facilitate access and influence of networks that provide social support or other resources that could be beneficial for health; and 2) *cognitive social capital* that refers to perceptions or expectations in social behaviors, which could provide sense of community belonging and safe and stable representation of reality. Likewise, Putnam & Goss (2002) make a distinction between *formal* (e.g. organizations with structured procedures) and *informal* (e.g. spontaneous interactions with relatives, neighbors, colleagues or friends), two forms of social capital where reciprocity can be developed in networks to obtain benefits, either public or private.

In terms of measurement, some authors recommend the use of composite measures to capture different conceptual components of social capital, instead of single-item indicators (Lochner, Kawachi, & Kennedy, 1999; Harpham, 2008). In this regard, Principal Component Analysis (PCA) is a frequently used statistical technique (Akçomak & ter Weel, 2009), since it

allows simplification and reduction of data variability by grouping several observable indicators of social capital into a new independent component or index (Jolliffe, 2002). PCA is often used also because it facilitates the interpretation of latent constructs such as social capital, by considering how different observable indicators are clustered into a new component (Sabatini, 2009). In Latin America this measurement approach to derive independent social capital features has been applied in studies in Chile (Sapag, et al., 2008) and Colombia (Harpham, Grant, & Rodriguez, 2004).

Research on social capital in Colombia has a cardinal relevance because the Political Constitution of 1991 mandates civic and political participation and demands the State to encourage the formation and promotion of civic associations. Moreover, civil society has played an important role in several public policies, especially the pursuit of peace and the end of political violence. As an illustration, civic organizations have been key actors in former and ongoing negotiations for the demobilization of armed illegal groups and their reinsertion to public and civic life (Romero, 2002). Sudarsky has led the research on social capital in Colombia (Kalmanovitz, 2000). Based on the World Values Survey (Inglehart, 1997), Sudarsky developed an instrument, the Barometer of Social Capital, (BARCAS in Spanish), adding relevant items pertaining to forms of political and civic participation and political culture in Colombia (Sudarsky, 1999). The BARCAS was first used in 1997 (Sudarsky, 2001) and 2005 (Sudarsky, 2007), having a nationally representative sample on both occasions. Results from these studies highlighted the salience of associational membership, non-electoral political participation and higher educational attainment as predictors of social capital (Sudarsky, 2007).

In addition, Colombian research has inquired about the negative implications or the downsides of social capital. Some authors have concluded that these adverse effects are more than low stock of social capital, but rather collective organizations and actions that promote and reward antisocial behaviors. In this context, concepts like *perverse social capital* refer to social and economical incentives to engage in illegal activities (Rubio, 2007). In Colombia, an example of this concept is the rise of drug cartels, which fed upon pre-existing networks of institutions and social groups, whose power relations and informal norms of behaviors facilitated their spread across society, not only confined to marginalized populations but to privileged sectors as well. Some other authors have documented barriers to civic participation in Colombia. For example, an extensive qualitative study case regarding community budgeting and urban planning in low income neighborhoods in Bogotá, the capital city, revealed that citizen's participation was discouraged because resource allocation and priorities were decided by local government officials regardless of resident's consensus. Another barrier for communitarian participation was leadership issues, where some community spokespersons failed to sustain citizens' involvement. In addition, neighborhood associations were perceived as corrupted or useless (Hataya, 2007). Finally, political violence has been identified as an additional complexity in social capital investigations. Apart from being a threat for associational membership and collective civic actions, political violence destroys common bonds and erodes societal values, like decreasing rejection of the use of the violence as a mean to an end (Moser & McIlwaine, 2004; World Bank, 2000).

Regarding research on social capital and health in Colombia, only ecological (Idrovo, 2006; Idrovo & Ruiz-Rodríguez, 2007) or community specific (Harpham, Grant, & Rodriguez,

2004; Harpham, Snoxell, Grant, & Rodriguez, 2005) research has been conducted, but no initiatives yet at the national level. These studies have shown low to moderate positive associations between community disorganization and cancer mortality (Idrovo, 2006), interpersonal trust with life expectancy (Idrovo & Ruiz-Rodríguez, 2007) and lower prevalence of mental illnesses (Harpham, Grant, & Rodriguez, 2004).

Considering the need to provide evidence about social capital and health in developing countries and methodological indications regarding testing differential and independent components of social capital, the objective of our study is to analyze the associations between social capital and health in Colombia, having a valid outcome such as self-rated health (Idler & Benyamini, 1997). To our knowledge, this is the first study on this topic conducted in Colombia and Latin America that uses a nationally representative sample.

Methods

Cross-sectional study design that used data from a survey applied to a nationally representative sample of households, covering 27 of the 32 departments of Colombia and Bogotá, Capital District (Sudarsky, 2007). A stratified random sampling strategy was applied within the following strata: town population (more than 5,000 inhabitants), urban (70%) or rural origin, age (18 years or older), and sex (50% female). Urban/rural sampling was based on demographical estimates based on the 1993 Colombian Census, the most current census at the time (Pérez & Pérez, 2002). Structured personal interviews were performed at each household. The BARCAS survey instrument was first used in 1997 (Sudarsky, 1999) and then refined in a pretest with 400

participants before the application of the final version from December 2004 to April 2005. The margin of error for the final sample was estimated at 1.78%.

Self-rated health, the outcome of interest, was assessed with the following question: “*overall, how would you describe your state of health these days?*” We used a 4-point scale (very good, good, fair and poor). After examining a literature review on the associations between social capital and self-rated health (Kim, Kawachi, and Subramanian, 2008), we dichotomized responses as “*very good/good*” vs. “*fair/poor*”. Six binary social capital indicators were considered: 1) interpersonal trust, assessed as the proportion of respondents who considered that most people can be trusted, compared to those who responded that one “*needs to be very careful*”; 2) Reciprocity, examined as the proportion of respondents who agreed with the statement that “*people are helpful and reciprocal to each other*”; 3) Membership in at least one of nineteen voluntary associations, listed in table 1; 4) current volunteering activities; 5) having used or knowing someone who has used at least one mechanism of non-electoral political participation, also listed in table 1, and 6) having ever participated in public civic activities (signed a petition, attended a boycott or a peaceful demonstration). Considered socio-demographic covariates included age, sex, marital status, educational attainment, employment status, net household income and urban/rural origin.

Data Analysis

Descriptive and bivariate analyses were first performed. We next conducted a multilevel random intercept null model (Subramanian, Jones, & Duncan, 2003) to detect variations in self-reported health of individuals nested in departments. We followed performing a principal component

analysis with Varimax rotation to derive independent dimensions of social capital. We chose this rotation because its solution of data reduction gives a higher load or salience to few indicators and lower load to the rest (Jolliffe, 2002). Interpretation of the components was based on indicators with the higher loads. We next built logistic regressions models to estimate the odds ratios (OR) of fair/poor health. Three types of models were built; the first estimated the crude OR for each social capital indicator and the component scores. In the second model, sociodemographic covariates that were statistically significantly associated with exposure and outcome were included simultaneously. In a third set of models, interaction terms between social capital indicator with educational attainment and with urban/rural origin were introduced. Complementary stratified analyses on these potential modifiers were also conducted, adjusting for socio-demographic covariates. Higher educational attainment (more than high school) was included, following Sudarsky's (2007) finding about an "educational threshold" for increased political and civic participation in Colombia. Urban/rural interactions terms were included because previous social epidemiological research in Colombian on different types of capital (e.g. human, physical and public) has shown effect measure modification by these settings (González, Houweling, Marmot, & Brunner, 2010). All analyses were conducted at the individual level, with a two-sided level of significance of 0.05, and calculated using SPSS v.17 for Windows (SPSS Inc, 2008).

Ethics review and approval was done by the Antonio Restrepo Barco Foundation, Division of Research in Institutional Strengthening. The national survey was also reviewed and approved by the National Planning Department and the National Institute for the Development of Sciences and Technology (COLCIENCIAS).

Results

The final survey included 3,025 respondents, 50% women and 70% residing in urban areas. In table 1 we present descriptive statistics for sociodemographic covariates. Mean age was 36.9 (\pm 14.01) years and respondents were mostly cohabitating (31.5%) or married (27.6%). Educational attainment lower than high school was prevalent in 82.8% of Colombians; 67.5% were employed, and 72.6% reported monthly earnings less than \$261.21 2005 USD. Table 1 also summarizes the distribution of social capital indicators. A more detailed description of these variables can be found elsewhere (Sudarsky, 2007).

Most sociodemographic covariates exhibited differences in self-reported health. There was found an inverse socioeconomic status (SES) gradient in self-reported health (p for trend <0.001), where Colombians with the lowest education and income reported statistically significant worse health. Regarding social capital variables, bivariate analysis showed that respondents who considered others can be trusted, that are members of associations, that have participated in civic or non-electoral political activities were more likely to report better health. While most associations reported better health, members of farmers/agricultural and gender – related organizations (i.e., feminist or LGBT) were more likely to report fair or poor health ($p<0.001$).

The principal component analyses yielded three components with eigen values greater than 1 that explained 56.6% of the total variance. Components' Cronbach's alphas were satisfactory ranging from 0.76 to 0.84. Component interpretation was based on the highest load (Table 2) and followed Harpham (2008) and Putnam & Goss (2003) exposition. The first

component was interpreted as *structural-formal* social capital (membership at associations and use of non-electoral political participatory mechanisms). The second was considered *structural-informal* social capital (volunteering and civic activities), while the third component pertained to the *cognitive* dimension of social capital (perceptions of trust and reciprocity).

We fitted a multilevel random intercept null logistic regression model and found no significant variation of self-reported health at the departmental level ($u_{0j}=0.191$, standard error=0.067, $p>0.05$). Therefore, we examined the associations between self-rated health and social capital variables at the individual level. Most variables (5 out of 9) showed statistically significant associations with lower unadjusted odds of fair/poor health, most pronounced for non-electoral political participation, interpersonal trust, and formal social capital (Table 3). After adjustment of socio-demographic covariates, only interpersonal trust remained statistically significant, while cognitive social capital became statistically significantly associated with lower odds of fair/poor health.

Because associational membership was marginally significant, we conducted further examinations modeling each association independently. We found that members of farmers/agricultural ($n=205$) and gender-related organizations ($n=105$) had significantly higher odds of fair/poor health as compared to non members, holding all other memberships constant. In an additional logistic regression model including every organization, the adjusted OR of poor/fair health for members of farmers/agricultural and gender associations was 1.82 (95% CI 1.21-2.74, $p=0.004$) and 1.70 (95% CI 1.01-2.87, $p=0.047$) respectively. Furthermore, the association with fair/poor health, not counting members of these two organizations, was

inversely related to fair/poor health (Adjusted Odds Ratio (AOR) 0.82, 95% CI 0.67-0.99, $p < 0.05$). However, membership was not a mutually exclusive category (i.e. a person can belong to more than one organization).

In relation to urban/rural origin, none of the interaction terms with social capital variables were statistically significant. However, in complementary stratified analyses we found evidence of positive and negative associations with health. Among rural respondents ($n=828$), cognitive social capital was also associated with 22% higher odds of better health, but neither interpersonal trust nor reciprocity was significantly associated with health. On the contrary, rural non-electoral political participation was statistically associated with 51% higher odds of worse health. In a regression model introducing every association, rural members of religious ($n=405$) (AOR 0.63, 95% CI 0.44-0.88, $p=0.009$) and professional associations ($n=30$) (AOR 0.23, 95% CI 0.58-0.92, $p=0.037$) reported statistically significantly better health. However, rural members of farmers/agricultural associations ($n=139$) had higher likelihood of reporting worse health (AOR 2.29, 95% CI 1.36-3.85, $p=0.002$). Excluding these members, associational membership was associated with 15% lower odds of worse health, but not statistically significant (AOR 0.85, 95% CI 0.67-1.08). Regarding urban respondents, only trust was statistically significantly associated with better health (AOR 0.54, 95% CI 0.35-0.83, $p=0.006$).

In the final logistic regression model, the adjusted association between self-rated health and social capital measures was allowed to vary according to educational attainment, whether it was higher than high school. The interaction term was significant only for reciprocity (AOR 0.53; 95% CI 0.28-0.98, $p=0.045$).

Discussion

The objective of this study was to analyze the association between social capital and self-rated health using a nationally representative sample of Colombia. Results showed that different features of social capital were associated with better or worse self-rated health. Cognitive dimensions of social capital were associated with better self-rated health. Colombians who considered most people can be trusted had 36% lower odds of reporting fair/poor health, after adjusting for demographic covariates. In addition, higher educational attainment modified the effect of reciprocity; Colombians who completed high school and perceived reciprocity in social interactions had 47% lower odds of worse health, compared to respondents with the same perception but with lower educational level. Likewise, one standard deviation increase in the cognitive component was associated with 12% lower odds of fair/poor health.

Cognitive social capital could improve population's health by providing a sense of community belonging, by offering a secure and stable representation of reality, by diffusing health related information and by expanding the repertoire of coping strategies (Abbott & Freeth, 2008). The association between cognitive components of social capital and self-rated health has also been observed in other Latin America contexts (Sapag, et al., 2008), and the adjusted odds ratio of 0.68 for Colombia is similar to other developed countries (Kim, Subramanian, & Kawachi, 2008). However, these associations could be confounded by personality factors (Kawachi, Subramanian, & Kim, 2008), where people who have favorable opinions of others and society in general, could also be more likely to perceive themselves in a positive fashion, for example, as being more healthy.

There was evidence of mixed associations of structural social capital, particularly associational membership, with self-rated health. Our findings show that associational membership had borderline significance in relation to self-rated health. In other words, associational membership was associated with 19% lower odds of fair/poor health, excluding members of farmers/agricultural and gender-related organizations, the only two associations that had statistically significant higher odds of worse health. The component of structural social capital was not associated with self-rated health, even though formal and informal social capital could facilitate access to resources and enhance collective efficacy. Several studies have shown a positive association between associational membership and better self-rated health (Pollack & von dem Knesebeck, 2004). Kawachi and Berkman (2000) presented some mechanisms by which associational membership confers protective health effects, for instance, influencing and regulating health behaviors among its members, facilitating access to services and resources and buffering psychosocial stressors through the provision of social support.

Associational membership has a critical importance for social capital because they are scenarios to achieve consensus and to validate information regarding public matters (Sudarsky, 2001). Despite the 1991 Constitution facilitated the formation a myriad of civic associations (Romero, 2002), associational membership dropped 33% from 1997 to 2005 (Sudarsky, 2007). Reasons of the decline of civil society include but are not limited to: 1) the demands that the new Constitution implied to the political culture of Colombia, which was characterized by *clientelism* and political machineries rather than participatory agreements (Hataya, 2007; Romero, 2002); 2) low confidence in political parties and official institutions after evidence of nexus with drug cartels or paramilitary groups (Sudarsky, 2007); 3) failed peace negotiations with the FARC

guerrilla in 2002 (Romero, 2002) and 4) the influence and threats of illegal groups on civil associations (López, 2007), especially unions and left-winged political parties (Colombian Trade Union Federations, 2007).

It is an intriguing result that members of farmers/agricultural associations reported statistically significant worse health, especially in rural settings. This type of association, contrary to the rest of civil organizations, was the only one that increased in membership from 1997 to 2005, growing 58% (Sudarsky, 2007). Our data is limited in exploring specific hypothesis, but we conjecture that influence of illegal groups could partly explain increments in membership and the negative effects on health. For instance, similarly as paramilitary groups influenced Congress elections in 2002, forcing citizens to vote for certain candidates (López, 2007), it is also possible that illegal groups had some control over these members, for example forcing people to join in order to have greater access, presence and management of resources. Regarding the association of members of farmers/agricultural organizations and worse health and also with non-electoral political participation in rural settings, a potential explanation could also be the effect and implications of political violence, where rural members could have been victimized or threatened by illegal armed groups (Ramirez, 2001). For instance, the United Nations' Commission on Human Rights in Colombia gave voice to several peasant and agricultural associations, releasing a statement denouncing the worsening of human rights violations and the debilitation of the democratic legal State (United Nations, 2003). Notwithstanding, we conducted separate analysis including a measure of political violence, i.e. having had a lifetime experience of kidnapping, displacement or refugeeism without changing any of the estimates (data not shown). In relation to the findings among members of gender-

related associations, it is plausible that discrimination and other social barriers to the expression of gender rights in Colombia (Naciones Unidas, 2004) might explain why members reported worse health. However, discriminatory issues could also be a reason to join such association.

The strengths of this study include having a nationally representative and random sample, assessment of relevant and separate components of social capital, and the use of valid and reliable measures. In this vein, we hope our study represents an important contribution to Latin America's social epidemiology, investigating the associations between social capital and health at the national level. However, this study has several causal inference limitations, including the cross-sectional design, so that reverse causation bias cannot be excluded; i.e., poor health could have hindered social participation. In addition, we applied a four point scale of self-rated health, as opposed to the more frequently used 5 point scale (Mantzavinis, Papas, Dimoliatis, & Ionnidis 2005). Although we followed analytical strategies to model this outcome in statistical analyses (Kim, Kawachi, and Subramanian, 2008), we could have missed potential variance in the assessment of self-rated health by omitting "*excellent*" as a response option (Bailis, Segall, & Chipperfield, 2003). Also, since both exposure and outcome were self-reported, we cannot rule out common method variance bias. Likewise, in zones of political violence or electoral boycotts or coercion, it is also likely that respondents felt forced to respond in certain way, especially about political or civic participation (Corporación Nuevo Arco Iris, 2008). We cannot exclude uncontrolled and unmeasured confounding, yet compared to other Colombian studies on social capital and health (Harpham, et al., 2006; Idrovo, 2006), adjusting for violence, informal employment or health care regimen did not substantially change any of the estimates. Another consideration, finally, is that our sampling scheme of urban/rural distribution was based on the

1993 Census; however, the 2005 Census, concurrent to our study, showed a 7% reduction of rural residents given that respondents were slightly oversampled (30% of our sample vs. 23% national) (DANE, 2008). Although our sample did not end having an identical proportion of rural respondents, we consider positive having had a slightly oversampled rural proportion, so that we could have statistical power for further stratified and effect modification analyses.

A methodological interest of our study was to test associations between social capital and health using the PCA technique. In the adjusted regression models, only the cognitive social capital component was statistically associated with self-rated health. This was also the case for interpersonal trust, the variable with the highest load within the component. This situation may suggest that the marginal benefit of the PCA was relatively small, as its effect could be rather explained by its most salient variable. However, in stratified analysis among rural respondents, PCA allowed us to detect an independent association of the cognitive component. We note, though, that we included only six variables and we could have maximized the efficiency of PCA had we considered more social capital indicators. Nonetheless, PCA has shown to be useful in other Latin American social epidemiological research to analyze latent constructs like different types of capitals (e.g. human, physical or public) and socioeconomic position (González, Houweling, Marmot, & Brunner, 2010). Finally, another limitation of this study was the lack of contextual variables like income inequality or homicide rates which have been previously discussed in social capital and health research (Huisman & Oldehinkel, 2009; Mansyur, Amick, Harrist, & Franzini, 2008). Further research should incorporate these variables, for example, analyzing cross-level interactions to detect variation in health according to social and economical features.

In conclusion, in a country with a wide array of social and political problems, high levels of poverty and income inequality, the relevance of cognitive and structural components of social capital cannot be underestimated. In Colombia, cognitive components not only could be precursors of social cohesion and collective efficacy (Brune & Bossert, 2009), but also improve population's health by reducing the exposure and burden of psychosocial stressors (Abbott & Freeth, 2008). Structural components could facilitate access and redistribution of collective resources, favor accountability and governance, and advocate for the protection of the human rights like health (Abadía & Oviedo, 2009; Yamín, 2000). Negative associations of structural components with better health could be related to the implications of civic participation in Colombia, where members of certain associations could face constant security threats, especially in rural areas. Moreover, Colombian social capital is challenged by a history political violence and organized crime (Rubio, 1997), as well as a tradition of weak institutions (Bushnell, 1993; Kalmanovitz, 2000). Our results also show that low educated Colombian were more likely to report worse health, and that in high educated persons social capital features like reciprocity were associated with better health. Therefore, policies ought to address the interaction of the social conditions, especially for low SES and vulnerable populations in order to reduce health inequalities (Frohlich & Potvin, 2008). Furthermore, the State should make long terms investments in the social determinants of health, for example, guaranteeing basic education and encouraging associational membership, aspects that could benefit engagement and participation of the civil society (Chaux, Molano, & Podlesky, 2009). In terms of health promotion, binding health policies to civic associations could facilitate agreements, their efficacy as well as the administration and transparency of public health resources.

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Table 1.
Descriptive statistics of sociodemographic and social capital variables by self-rated health.

		Percentage	Very good/Good self-reported health (72.5%)	Fair/Poor self-reported health (27.5)
Age**	<i>Mean</i>	36.9	34.4	43.5
	<i>(SD)</i>	(14.0)	(12.9)	(14.6)
Sex**	Female	50	68.5	31.5
	Male	50	76.5	23.5
Marital status**	Married or cohabitating	59.1	70	30
Education**	None	3.6	54.1	45.9
	Elementary	16.9	56.4	43.6
	High School	35.8	79.1	20.9
	Some college or more	17.2	87.9	12.1
Monthly household income in 2005 USD**	Less than \$92.69	26.7	61.1	38.9
	\$92.70 to \$566.76	65.9	67.8	32.2
	More than \$566.77	7.4	83.5	16.5
Employment status	Employed	67.5	60	40
	Unemployed	32.5	66.3	33.7
Origin**	Urban	72.7	75.5	24.5
	Rural	27.3	64.6	35.4
Social capital variables [†]	Interpersonal trust*	14	78.3	21.7
	Reciprocity	73.1	72.9	27.1
	Associational membership*	65.8	73.8	26.2
	<i>Religious</i>	48.9	72.9	27.1
	<i>Recreational/sports**</i>	14.6	82.6	17.4
	<i>Cultural/arts*</i>	8.4	80.4	19.6
	<i>Educative*</i>	13.1	79.4	20.6
	<i>Union</i>	3.1	70.2	29.8
	<i>Farmers/agricultural**</i>	6.8	56.6	43.4
	<i>Political party</i>	6.7	75.9	24.1
	<i>Ecological/environmental*</i>	4.8	80.1	19.9
	<i>Professional/guild*</i>	4.5	85.2	14.8
	<i>Charity/humanitarian</i>	6.4	74.9	25.1
	<i>Cooperative*</i>	7.2	79.9	20.1
	<i>Neighborhood*</i>	11.3	64.9	35.1
	<i>Security</i>	3.7	75	25

<i>Health/health care</i>	4.8	76.7	23.3
<i>Gender (feminist/LGBT)*</i>	3.4	61.2	38.8
<i>Ethnic/minority</i>	2.4	68.5	31.5
<i>Consumer</i>	2.3	71.4	28.6
<i>Other</i>	2.3	69.1	30.9
Civic participation*	25.1	74.6	25.4
Volunteering	36.4	73.1	26.9
Non-electoral political participation**	61.9	75.4	25.6
<i>Healthcare oversights</i>	16.7	71.5	28.5
<i>Open council</i>	9.3	73.2	26.8
<i>Impeachment*</i>	10	79.2	20.8
<i>Territorial planning forums</i>	10.1	75.9	24.1
<i>Citizen's oversights*</i>	14.1	77.4	22.5
<i>Community Councils</i>	21.8	74.1	25.8
<i>Petition right**</i>	26.3	79.7	20.3
<i>Education oversights**</i>	38.9	76.9	23.1
<i>Citizen gatherings**</i>	18.3	78.3	21.7
<i>Rural planning forums</i>	14.9	75	25
<i>Referendum</i>	29.2	77.6	22.3
<i>Other*</i>	18.7	80.1	19.9

[†]Percentage of affirmative responses to the statements of the survey.

* Difference in self-rated health $p < 0.05$; ** $p < 0.001$

Table 2.

Principal components analyses[‡] and matrix of rotated correlations.

	Component 1 (Structural- formal)	Component 2 (Structural – informal)	Component 3 (Cognitive)
Interpersonal trust	0.26	-0.12	0.67
Reciprocity	-0.21	0.07	0.65
Associational membership	0.73	0.06	0.31
Civic participation	0.04	0.72	-0.17
Volunteering	-0.01	0.78	0.15
Non-electoral political participation	0.72	-0.01	-0.30
Percentage of explained variance	19.6	19.1	17.9

[‡]Varimax rotation and Eigen values > 1 .

Table 3. Associations between social capital and fair/poor health in Colombia.

	Crude OR (95% CI)	Adjusted [‡] OR (95% CI)	OR [‡] for Urban respondents (70%)	OR [‡] for Rural respondents (30%)
Interpersonal trust	0.69 (0.54-0.88)**	0.64 (0.48-0.85)**	0.54 (0.35-0.83)*	0.75 (0.52-1.09)
Reciprocity	0.98 (0.82-1.18)	0.88 (0.71-1.08)	0.89 (0.69-1.15)	0.88 (0.61-1.29)
Associational membership	0.83 (0.70-0.98)*	0.87 (0.69-1.10)	0.74 (0.53-1.05)	0.87 (0.69-1.10)
Civic participation	0.79 (0.65-0.98)*	0.80 (0.63-1.01)	0.73 (0.54-1.00)	0.92 (0.64-1.34)
Volunteering	0.95 (0.78-1.15)	0.96 (0.79-1.15)	0.98 (0.77-1.24)	0.89 (0.64-1.24)
Non-electoral political participation	0.68 (0.58-0.80)**	1.05 (0.87-1.23)	0.86 (0.68-1.10)	1.51 (1.09-2.09)*
Structural-formal social capital [†]	0.82 (0.75-0.90)**	0.92 (0.83-1.02)	0.92 (0.80-1.05)	0.97 (0.82-1.16)
Structural-informal social capital [†]	0.96 (0.87-1.06)	0.94 (0.85-1.04)	0.94 (0.82-1.07)	0.86 (0.81-1.14)
Cognitive social capital [†]	0.98 (0.90-1.07)	0.88 (0.79-0.98)*	0.93 (0.85-1.12)	0.78 (0.67-0.91)*

[‡]Adjusted for age, sex, marital status, educational attainment, employment, monthly income and urban/rural origin.

[†]OR (Odds Ratio) per one standard deviation increase of the principal components score.

* p = <0.05; ** p = <0.01.