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Social capital, social participation and life satisfaction among Chilean older adults

Capital social, participación en asociaciones y satisfacción personal de las personas mayores en Chile

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ABSTRACT

OBJECTIVE: To examine factors associated with social participation and their relationship with self-perceived well-being in older adults.

METHODS: This study was based on data obtained from the National Socioeconomic Characterization (CASEN) Survey conducted in Chile, in 2011, on a probability sample of households. We examined information of 31,428 older adults living in these households. Descriptive and explanatory analyses were performed using linear and multivariate logistic regression models. We assessed the respondents' participation in different types of associations: egotropic, sociotropic, and religious.

RESULTS: Social participation increased with advancing age and then declined after the age of 80. The main finding of this study was that family social capital is a major determinant of social participation of older adults. Their involvement was associated with high levels of self-perceived subjective well-being. We identified four settings as sources of social participation: home-based; rural community-based; social policy programs; and religious. Older adults were significantly more likely to participate when other members of the household were also involved in social activities evidencing an intergenerational transmission of social participation. Rural communities, especially territorial associations, were the most favorable setting for participation. There has been a steady increase in the rates of involvement of older adults in social groups in Chile, especially after retirement. Religiosity remains a major determinant of associativism. The proportion of participation was higher among older women than men but these proportions equaled after the age of 80.

CONCLUSIONS: Self-perceived subjective well-being is not only dependent upon objective factors such as health and income, but is also dependent upon active participation in social life, measured as participation in associations, though its effects are moderate.

DESCRIPTORS: Aged. Personal Satisfaction. Family Relations. Social Participation. Social Networking. Social Support. Social Conditions.

RESUMO

OBJETIVO: Analizar los factores relacionados con la participación en asociaciones y su vínculo con la percepción de bienestar en las personas mayores.

MÉTODOS: Se utilizan los datos de la Encuesta Nacional de Caracterización Socioeconómica de Chile del año 2011, basada en una muestra probabilística de los hogares chilenos. Se analizan los datos de 31.428 adultos mayores que viven en dichos hogares. Se realizaron análisis descriptivos y explicativos, utilizando modelos de regresión multivariada logística y lineal. Se distinguieron distintos tipos de participación: egotrópica, sociotrópica y religiosa.

RESULTADOS: Los porcentajes de participación en asociaciones aumentaron con la edad hasta los 80 años, para luego descender. El principal hallazgo del estudio consistió en la importancia que tenía el capital social familiar sobre la participación individual de los mayores. Se constató que esta participación se relacionaba con una mayor percepción de bienestar subjetivo. Se identificaron cuatro fuentes de participación social en la vejez: el hogar, el entorno rural, la política social y la religiosidad. Cuando en el hogar había otras personas que participaban se incrementaron significativamente las probabilidades de participar, transmitiéndose además el tipo de asociación en que se participaba. Los entornos rurales eran más propicios para la participación, principalmente de tipo territorial. Las agrupaciones de adultos mayores habían ido en continuo aumento en Chile, siendo más importantes después de la jubilación. La religiosidad seguía siendo una importante fuente de asociativismo. Las mujeres participaban más que los hombres, y sólo se equiparaban a los hombres después de los 80 años.

CONCLUSIONES: La percepción de bienestar subjetivo no depende únicamente de las condiciones objetivas de vida de como la salud e ingresos, sino también de una inserción activa en la sociedad, medida como participación en asociaciones, a pesar de que los efectos son moderados.

DESCRIPTORES: Anciano. Satisfacción Personal. Relaciones Familiares. Participación Social. Red Social. Apoyo Social. Condiciones Sociales.

INTRODUCTION

The pace of population aging is accelerated in Chile where 15.0% of its population are ages 60 and older. Chile ranks third, behind Argentina and Uruguay, as the Latin American countries with the largest population of older adults. Life expectancy at birth in Chile is 78.9 years and 23.2 years at age 60.[a] The question is whether aging adults can have a good quality of life and whether a more active social life – measured as social participation – translates into higher levels of well-being.

Nowadays, active aging is promoted in most societies. The United Nations has defined active aging as the process of optimizing opportunities for physical, social and mental well-being in order to enhance life expectancy, productivity and quality of life as people age.[14]

Social capital studies have examined social participation of older adults and its relationships with well-being. Social capital refers to the connections among individuals and research has shown that *higher levels of social capital* are associated with better health and well-being regardless of whether social capital is measured as a personal attribute or an attribute of social environment.[13,18,20,22] Thus, public health promotion should incorporate the social capital perspective to have a significant impact on people's lives.[8,15,21,23]

There are scarce studies on the impact of family social capital. Chang et al[4] (2009) reported an association between the availability of social capital in family environments and reading levels in the United States.

Ren & Hu[19] (2011), in Singapore, found an association between levels of family social capital and innovation and business success.

The aim of this study was to examine factors associated with social participation and their relationship with self-perceived well-being in older adults.

METHODS

Social participation was measured as the respondents' participation in three different types of associations: egotropic, sociotropic, and religious.[24,25] Egotropic associations directly benefit those involved, e.g., sports, women's, youth, older adults, and support groups; sociotropic associations have an out-group focus and benefit those involved and others as well, e.g., territorial associations and volunteer groups; and religious associations are focused on religion.

We hypothesized that social participation would be more likely among older adults who have good health, but are heavily dependent upon their families for socialization. Older adults would be more likely to actively participate when other family members would be involved as well, signifying an intergenerational transmission of participation in associations. We also postulated that active aging – measured as social participation – would be associated with higher levels of subjective well-being after controlling for socioeconomic conditions and health status.

This study was based on data obtained from the National Socioeconomic Characterization (CASEN) Survey conducted by the Chilean Ministry of Social Development in 2011. The CASEN survey is a primary source of sociodemographic information for analyses and public policy formulation in Chile. It uses a stratified probability sampling design and data is collected from all usual residents of the household, i.e., group of people sharing a living income.[b] Our sample comprised 31,428 respondents age 60 and older.

For assessing the variable social participation, we asked the following question: "Are you currently involved in an association or organized group?". Respondents were invited to select, from a card with a list of 11 different groups/associations, the most important one in which they considered they participated. These associations were categorized into religious; sociotropic (neighborhood groups; territorial associations or volunteer groups); and egotropic (sports or recreational club; artistic, cultural identity, women's, older adults or support groups).

For assessing self-perceived well-being, respondents were asked to rate their life satisfaction based on the question, "All things considered, how satisfied are you with your life as a whole these days?", on a scale of 1 to 10 where 1 means "completely dissatisfied" and 10 means "completely satisfied". Since the score were not normally distributed because of clustering for high values, we decided to dichotomize by a median split and perform an analysis using logistic regression models. Thus, we considered scores of eight, nine, and 10 as "very satisfied" (41.4% of respondents) and all the remaining ones as "not satisfied" (58.5%).

The following sociodemographic variables were studied: gender (male; female); age (dichotomized at 60-79 years; 80 years and older); and marital status (having no partner – single, separated, divorced, or widowed; having a partner – married or living together).

We assessed the following variables on living conditions: self-rated health (on a scale of 1 [poor] to 7 [excellent]); *per capita* household income decile, i.e., total household income divided by the number of members living in the household (all households were sorted from lowest to highest income and divided into deciles of one [lowest] to 10 [highest]; area of residence (urban; rural); work activity, i.e., did any work at all in the week preceding the interview for either *pay* or profit (no; yes); and living arrangements (alone; with others). Then, we added the variable family social capital at household level to include the number of members age 15 and older participating in any type of association. We created four variables, one for overall participation and three for different types of associations as follows: 0 = living alone; 1 = living with other people but no other member of the household is involved in the same association; 2 = living with other people who are also involved in the same association. The intermediate category was used as reference.

For the analysis, we first used binary logistic regression models to assess the correlation between the study variables and social participation. We constructed three models and ran them sequentially to assess social participation. The first model included only sociodemographic variables and those on living conditions. The second one included family social capital. And the third one included different interactions as follows: gender by age, assuming that the gender gap in social participation (higher participation of women than men) narrows with age; couples by gender, assuming that having a partner makes women less likely to participate while it makes men more likely to participate.

We then analyzed three models that included all predictive variables (complete model) and each form of social participation in associations as the dependent variable.

We also included the same form of social participation at household level as predictive variable.

We compared linear regression models with life satisfaction as the outcome (on a scale of one to 10) with binary logistic regression models with this variable dichotomized. For each one, we compared one model that included family social capital and the other one that did not include it. We conducted these regression analyses in a non-weighted sample while descriptive results were analyzed in an expanded sample.

RESULTS

The proportion of respondents reporting social participation was 32.0%, and it was higher among women. Participation increased steadily with age, with a peak at age 65-79 and then declined from age 80 (Table 1). The proportions of participation in each of the three types of associations were relatively similar (about 10.0%).

Of all respondents, 85.0% lived in urban areas; 57.0% were male and 43.0% female; 83.0% were age 60-79 years and 17.0% age 80 and older; 57.0% were living with a partner; and 25.0% reported work activity. The mean income decile was 5.3 and the mean score of self-rated health was 4.9 (Table 2).

In the bivariate analysis, all relationships of both social participation and life satisfaction were statistically significant (Table 2). Social participation was greater among respondents living in rural areas; women age 60-79; those having a partner; who did not engage in any work activity; who fell in the lowest income decile; and who reported better self-rated health. Higher life satisfaction was seen among those living in urban areas; men age 80 and older; those living with a partner; who engaged in work activities; who fell in the highest income decile; who reported better self-rated health; and who participated in associations especially of religious type.

As for bivariate relationships between family social capital and social participation (Table 3), those least involved were living with other people who were not involved in any association (85.0%), followed by those living alone (64.0%). The proportion of participation was much higher between older adults living with other people who participated (in these cases, only 37.0% did not participate). They mostly participated in sociotropic and religious associations.

Table 4 shows that the variable most often associated with social participation was involvement of other household members. Older adults were less likely to participate when other household members were not involved.

After controlling for all other variables, the likelihood of a respondent's participation increased 10.6 times when other household members were involved compared to those living with other people in the same household who were not involved. Those living alone were 3.7 times more likely to participate than those living with other members who were not involved. We found a relationship between the type of association household members were involved in and the type of association the respondents were involved in, reproducing at household level both the likelihood of participation and the type of association they participated in. We found a higher proportion of intergenerational transmission of participation in religious associations, followed by sociotropic and egotropic (Table 4, models 2, 3 and 4).

All other individual variables showed statistically significant though much less strong relationships than with family social capital. Living in rural areas, being female, having a partner, not engaging in work activities, and better self-rated health increased the likelihood of social participation. However, there were some exceptions depending on the type of association: those living urban areas were more likely to participate in religious associations and those reporting work activities were more likely to participate in sociotropic associations. We found a weak relationship with income decile.

There was a statistically significant negative coefficient on the interaction between gender and age indicating that gender differences in social participation narrowed as age increased. Differences in social participation at age 60-69 (higher among women than men) were smaller after age 80 (Table 4, model 1c). The interaction between gender and having a partner showed that having a partner encouraged participation especially among men while it decreased the likelihood of participation among women compared to those reporting no partner.

Regarding the relationship of social participation and well-being in older age, the mean score of life satisfaction was 6.99 (standard deviation [SD] of 2.2). However, this result may have been overestimated because only two-thirds of the respondents answered this question. We examined the characteristics of non-respondents and found that those who were less likely to answer this question were those who reported living with other people, having a partner, being male, being involved in an association, engaging in work activities, being older, poor self-rated health, and higher income. Thus, we could suppose that the main reasons for non-response included the respondent was not at home for the interview; she/he had a health condition that prevented her/him from answering it; and/or another adult answered the questionnaire on his/her behalf. To account for non-response bias for the question on life satisfaction, we performed a logistic regression analysis and estimated the predicted probability of non-response, which was included in the life satisfaction models as shown in Table 5.

The results of the linear regression and logistic regression analyses were consistent for all variables

Table 1. Proportion (%) of participation in associations among older adults by age and gender. Chile, 2011. (N = 31,428)

Variable/Age (years)		60-64	65-69	70-74	75-79	80-84	85+	Total 60+
Men	None	75.5	71.2	68.4	65.1	78.1	79.0	72.2
	Egotropic associations	7.8	10.0	11.9	14.3	8.3	5.2	9.8
	Sociotropic associations	9.5	11.1	8.9	11.9	7.5	10.3	9.9
	Religious associations	7.1	7.7	10.8	8.6	6.1	5.5	8.0
		100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Non-weighted N	4,019	3,494	2,604	1,755	1,225	780	13,877
Women	None	66.8	65.2	61.5	59.9	68.9	78.0	65.7
	Egotropic associations	9.7	15.3	19.7	17.9	15.5	7.2	14.3
	Sociotropic associations	10.8	9.7	9.2	10.2	6.0	2.2	8.9
	Religious associations	12.7	9.8	9.6	11.9	9.5	12.6	11.0
		100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Non-weighted N	4,936	3,959	3,198	2,305	1,724	1,429	17,551
Total	None	70.6	67.9	64.5	62.1	72.6	78.3	68.5
	Egotropic associations	8.9	12.9	16.3	16.4	12.6	6.5	12.4
	Sociotropic associations	10.2	10.3	9.1	10.9	6.6	4.8	9.4
	Religious associations	10.2	8.8	10.1	10.5	8.2	10.3	9.7
		100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Non-weighted N	8,955	7,453	5,802	4,060	2,949	2,209	31,428

Source: National Socioeconomic Characterization (CASEN) Survey, 2011. Created based on data obtained from the 2011 CASEN survey. Unit of analysis: individuals age 60 and older.

associated with life satisfaction as summarized below. As expected, better living conditions – higher income and, most importantly, better self-rated health – were associated to higher self-reported life satisfaction.

Participation in any type of association was positively associated with life satisfaction, and this relationship was relatively stronger for egotropic and religious associations.

The relationships between area of residence, age and having a partner and life satisfaction were no longer statistically significant after controlling for social participation (Table 5, models 2a and 2b). There was a change in the direction of association compared to that observed in the bivariate analysis in two instances: being female was associated with greater life satisfaction and engaging in work activities was associated with lower life satisfaction (Table 2).

DISCUSSION

This study showed that social participation increased with age among older people and then declined from age 80. Social engagement was a major source of well-being in this age group.

From our results, we identified four settings as sources of social participation: home-based; rural community-based; social policy programs; and religious.

The primary source of participation is home-based settings. We found that an individual was significantly more likely to participate when other household members were also involved. This finding corroborates Coleman's assumption[5] of a central role of the family setting in producing human capital. Hence, social participation may have contributed to the continuance of social inequalities within this context because socially excluded individuals would tend to group together, an outcome that is supported by Bourdieu's critical perspective of social capital.[2]

Similarly, the type of participation of one person and other household members tend to coincide. It suggests that the family setting would encourage a kind of homogeneous associativism where people tend to group together with their similars. Thus, this form of

Table 2. Social participation and life satisfaction according to demographic characteristics and living conditions among older adults. Chile, 2011. (N = 31,428)[a]

Variable		Participation in any association (% row)		Life satisfaction (% row)		Total (distribution of predictive variables)
		No participation	Participation	Not satisfied	Very satisfied	
Area	Urban	69.9	30.1	55.8	44.2	84.9
	Rural	60.9	39.1	62.8	37.2	15.1
Gender	Male	72.2	27.8	53.2	46.8	42.7
	Female	65.7	34.3	59.0	41.0	57.3
Age (years)	60-79	67.1	32.9	58.1	41.9	82.8
	80 +	75.2	24.8	50.0	50.0	17.2
Marital status	No partner	70.0	30.0	59.8	40.2	42.6
	Partner	67.4	32.6	54.4	45.6	57.4
Work activity	No	66.9	33.1	58.2	41.8	75.5
	Yes	73.6	26.4	51.9	48.1	24.5
Type of association	None			59.0	41.0	68.5
	Egotropic			53.3	46.7	12.4
	Sociotropic			56.5	43.5	9.4
	Religious			49.7	50.3	9.7
Mean income decile (1 to 10)		5.4	5.3	4.9	5.8	5.3
Mean score of self-rated health[b] on a scale of 1 (poor) to 7 (excellent)		4.9	5.0	4.7	5.3	4.9

Source: National Socioeconomic Characterization (CASEN) Survey, 2011. Created based on data obtained from the 2011 CASEN survey.
All Chi-square test results of relationships between nominal and dichotomous variables, and t-values of the mean difference in the last two rows of the table were statistically significant at $p < 0.01$.
[a] Non-weighed N = 31,428 individuals age 60 and older.
[b] N = 31,314 individuals age 60 and older.

social capital that is generated at household level does not necessarily help develop an extended network of contacts and potentially supporting resources. According to Putnam's proposed classification of social capital,[17] in this setting social participation would be binding rather than inclusive. Within the Chilean context, associativism arising in households would not cement "weak ties" because it does not necessarily help connecting with others.[3,7]

The second major source of associativism is rural community-based settings, especially territorial associations. It suggests that social cohesion works differently in rural and urban communities. Social cohesion – that can be defined as the integration of different members in a society – may be built through participation in local associations in rural communities while it may be built through participation in egotropic and religious associations in urban settings. The predominance of territorial associations in rural communities has been confirmed in qualitative assessments of social capital in Latin America.[6]

The third source of participation is social policy programs, particularly after retirement. Participation in egotropic associations, especially in clubs for older adults increases after retirement. The Chilean National Department of Services for Older Adults has actively supported several initiatives such as the Older Adults' Fund that have helped establish clubs and other associations for older adults currently reaching nearly 12,000 associations.[c]

The fourth source of participation is religious settings. Participation in religious associations seems largely intergenerationally transmitted. The central role of religiosity as a source of associativism is common in Latin America where it functions as a promoter of social capital rather than a barrier.[1]

[c] SENAMA. Catastro Nacional de Organizaciones Sociales de Adultos Mayores (redes comunales). Santiago de Chile: Servicio Nacional del Adulto Mayor; 2008.

Table 3. Proportion of one-person participation (%) according to family social capital characteristics among older adults. Chile, 2011.

Variable	Living alone	Living in a household where no other members are involved in an association	Living in a household where at least one member is involved in an association	Living in a household where other members are involved in egotropic associations	Living in a household where other members are involved in sociotropic associations	Living in a household where other members are involved in religious associations	Total
None	63.6	84.9	36.8	46.3	34.6	27.4	68.5
Participation in egotropic associations	18.4	7.9	19.1	39.1	7.2	5.6	12.4
Participation in sociotropic associations	9.1	3.9	20.8	9.0	55.0	4.5	9.4
Participation in religious associations	8.9	3.3	23.3	5.6	3.2	62.5	9.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Non-weighted N	3,934	17,550	9,944	3,855	3,755	3,033	31,428

Source: National Socioeconomic Characterization (CASEN) Survey, 2011. Created based on data obtained from the 2011 CASEN survey. Unit of analysis: individuals age 60 and older.

With regard to gender differences, social participation was higher among women than men, especially in egotropic and religious associations. Montes de Oca[12] has argued that this can be in part explained by men's difficulty establishing relationships and their own perception of group members and participation (members are mostly women; activities are not suitable for men; fear of rejection; and others). Given that, being a couple is key to facilitating male involvement. In contrast, because women are expected to respond to their partner's/husband's needs, being a couple discourages participation. When women are widowed, gender roles disappear and their participation increases because it is a major way to establishing new social relationships and combat loneliness.

Social participation of older adults becomes more relevant with increasing life expectancy because it can promote an extended healthy life and adequate social integration.[14]

A number of research studies have shown a positive association of high levels of social relations and quality of life among older adults. Yet, they have used different concepts of social relations.[9,16] Moreover, social participation has been associated with lower mortality risk.[10] Maier and Klumb[11] found that time spent with friends increases the odds of survival in individuals aged 70 and older.

At individual level, the present study found that social participation is associated with high levels of subjective well-being, although the strength of this association was not greater than that seen with other factors related to life satisfaction including health status and income.

Nevertheless, social participation is apparently a more important factor than others including area of residence, age, having a partner and work activity.

How can we explain the association between increased social participation and high levels of physical and emotional well-being? We did not examine in our study the forms of and intensity of participation (number of hours; type of involvement, supporting resources, among others), and thus our data do not allow to make inferences about mechanisms that mediate the relationship between associativism and life satisfaction. Putman[17] identified four different mechanisms through which social networks can produce a positive health impact: provision of material assistance aiming to reduce stress; reinforcement of healthy lifestyles; encouragement for seeking medical services, and immune system stimulation resultant from participation.

A number of limitations of the current study need to be considered. We assessed social capital through one dimension only, leaving out other dimensions such as trust and reciprocity. Moreover, the CASEN data comprise only information reported on the most important association older adults participated in but they may as well have been participating in two or more associations. Our results are consistent with those obtained from the National Survey of Quality of Life in Old Age conducted in Chile in 2010 that found that 25.0% of respondents participated in religious association, 18.0% in clubs for older adults, 17.0% in territorial associations, and 6.0% in sports clubs. These data

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Table 4. Logistic regressions of participation in associations among older adults. Chile, 2011. (N = 31,289)

Variable	Participation in any association						Participation in specific types of associations					
	Model 1a		Model 1b		Model 1c		Egotropic association		Sociotropic association		Religious association	
							Model 2		Model 3		Model 4	
	OR	95%CI	OR	95%CI	OR	95%CI	OR	95%CI	OR	95%CI	OR	95%CI
Rural area	1.57c	1.49;1.66	1.35c	1.27;1.43	1.35c	1.27;1.44	1.08a	0.99;1.18	1.88c	1.73;2.04	0.82b	0.73;0.92
Female	1.43c	1.36;1.51	1.85c	1.74;1.97	2.18c	1.97;2.42	1.71c	1.48;1.97	1.60c	1.38;1.85	2.49c	2.04;3.03
80 and older	0.62c	0.58;0.67	0.56c	0.52;0.61	1.11	0.85;1.45	0.81b	0.68;0.98	0.71c	0.59;0.86	0.79a	0.62;1.00
Having a partner	1.20c	1.14;1.27	1.17c	1.09;1.25	1.51c	1.22;1.87	1.20b	1.04;1.40	1.30c	1.12;1.51	1.15	0.94;1.40
Income decile	0.99c	0.98;1.00	0.99b	0.98;1.00	0.99b	0.98;1.00	1.03c	1.01;1.04	0.97c	0.96;0.99	0.98b	0.96;1.00
Engaged in work activities	0.89c	0.84;0.95	0.90b	0.84;0.97	0.91b	0.85;0.98	0.84c	0.76;0.92	1.13b	1.02;1.25	0.76c	0.66;0.86
Self-rated health	1.07c	1.05;1.09	1.10c	1.08;1.12	1.10c	1.08;1.12	1.06c	1.03;1.09	1.10c	1.07;1.13	1.06b	1.02;1.09
Living alone			3.69c	3.38;4.02	3.72c	3.41;4.06	3.33c	2.96;3.73	2.30c	2.02;2.61	3.28c	2.82;3.81
Other household members are involved in any association			10.64c	10.02;11.31	10.66c	10.04;11.33						
Other household members are involved in egotropic associations[d]							11.25c	10.34;12.25				
Other household members are involved in sociotropic associations[d]									16.82c	15.43;18.34		
Other household members are involved in religious associations[d]											62.45c	55.85;69.83
Female x 80 and older					0.66c	0.56;0.77	0.89	0.71;1.11	0.49c	0.39;0.63	0.81	0.61;1.09
Having a partner x female					0.85b	0.75;0.96	0.96	0.81;1.13	0.70c	0.59;0.83	1.09	0.87;1.37
Constant	0.18c		0.06c		0.05c		0.03c		0.02c		0.02c	
-2 log-likelihood	39317.506		32367.386		32337.640		19399.629		18375.417		12819.807	
Cox and Snell's r-squared	0.024		0.219		0.219		0.101		0.152		0.201	
Nagelkerke's r-squared	0.034		0.303		0.304		0.196		0.287		0.429	

Source: National Socioeconomic Characterization (CASEN) Survey, 2011.
All variables are dichotomous except income decile and self-rated health.
OR: odds ratio (exponential values of beta)
[a] p < 0.1
[b] p < 0.05
[c] p < 0.001
[d] Reference (comparison): "No household member participates".

Table 5. Logistic regressions of self-perceived life satisfaction among older adults. Chile, 2011. (N = 20,283)

| Variable | Logistic regressions of "satisfied" | | | | Logistic regressions of self-perceived life satisfaction on a scale of 1 to 10 | | | | | |
| | Model 1a | | Model 2a | | Model 1b | | | Model 2b | | |
	OR	95%CI	OR	95%CI	β	β_standardized	95%CI	β	β_standardized	95%CI
Rural area	0.84[c]	0.78;0.90	0.93	0.84;1.02	-0.164	-0.03[c]	-0.23;-0.09	-0.019	0.00	-0.11;0.08
Female	0.86[b]	0.78;0.96	1.39[b]	0.98;1.96	-0.182	-0.04[c]	-0.28;-0.08	0.506	0.11[b]	0.16;-0.85
80 and older	1.59[c]	1.42;1.78	1.01	0.73;1.41	0.539	0.08[c]	0.43;0.65	-0.111	-0.02	-0.44;-0.22
Having a partner	1.43[c]	1.33;1.53	1.12	0.94;1.34	0.457	0.10[c]	0.39;0.53	0.112	0.02	-0.06;-0.29
Income decile	1.12[c]	1.11;1.13	1.11[c]	1.09;1.12	0.115	0.15[c]	0.10;0.13	0.102	0.13[c]	0.09;0.11
Engaged in work activities	1.00	0.92;1.09	0.84[c]	0.72;0.97	-0.005	0.00	-0.09;0.08	-0.265	-0.05[b]	-0.41;-0.12
Self-rated health	1.40[c]	1.36;1.43	1.48[c]	1.41;1.56	0.468	0.29[c]	0.44;0.49	0.555	0.34[c]	0.51;0.60
Probability of responding question on life satisfaction	3.48[c]	2.09;5.80	0.14[a]	0.01;1.36	1.607	0.09[c]	1.10;2.11	-3.046	-0.17[b]	-5.30;-0.79
Participation in egotropic associations[d]			1.54[c]	1.14;2.08				0.622	0.10[c]	0.33;0.92
Participation in sociotropic associations[d]			1.39[b]	1.05;1.84				0.511	0.08[c]	0.23;0.79
Participation in religious associations[d]			1.53[c]	1.22;1.93				0.562	0.08[c]	0.33;0.79
Constant	0.04		0.17[b]		3.029[c]			5.302[c]		
-2 log-likelihood	25819.321		25802.575							
Cox and Snell's r-squared	0.081		0.082							
Nagelkerke's R-squared	0.109		0.110							
R					0.363			0.365		
R-squared					0.132			0.133		
Correct R-squared					0.132			0.133		

Source: National Socioeconomic Characterization (CASEN) Survey, 2011. Created based on data obtained from the 2011 CASEN survey. Data from individuals age 60 and older (N = 20,283).
All variables are dichotomous except income decile and self-rated health.
OR: odds ratio (exponential values of beta). For linear regression, 95% confidence intervals correspond to unstandardized values of beta.
[a] p < 0.1
[b] p < 0.05
[c] p < 0.001
[d] Reference (comparison): "No participation".

showed that older adults actively participated in more than one type of association.[d] In addition, the related question in the survey does not distinguish between degrees of participation, e.g., number of hours spent in activities, leading role in an association, financial contribution, and seniority.

Another issue is concerning specification bias that may have occurred in this study because some variables were left out of the models because they were not available in the CASEN data; e.g., self-efficacy and involvement in meaningful activities that are proven major predictors of life satisfaction in Chile.[9]

Considering the study's cross-sectional design, we were not able to assess the direction of causal relationships between study variables. For instance, the association between better self-rated health and greater

participation is consistent with Putnam's proposed assumptions.[17] However, given the nature of our data, it is uncertain whether older adults have higher rates of participation because they have good health or they have good health because they have higher rates of participation. Empirical evidence in the literature suggest that this association occur in both directions.

Despite the aforementioned limitations, the findings of this study make valuable contributions to social capital research highlighting the importance of family social capital as a predictor of greater social participation at individual level. It also confirmed the findings of other studies that self-perceived subjective well-being is not only dependent upon objective factors such as health and income, but is also dependent upon active participation in social life, measured as participation in associations, though its effects are moderate.

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