

Social capital and self-rated health in 21 European countries

Soziales Kapital und subjektive Gesundheit in 21 europäischen Ländern

Abstract

Study objective: The aim of this paper is to explore the association between social capital and self-rated health in different European countries.

Methods: For the cross sectional, comparative analyses data from 21 European countries were used. 40,856 people aged 15 years and older were personally interviewed in 2003 (European Social Survey). Perceptions of social trust, and membership, participation and voluntary work in civic organisations were used as social capital indicators. Analyses are conducted on an aggregate level (country) and on an individual level.

Main results: Results indicate comparatively low levels of social capital in East and South European countries. Countries with low levels of social capital have a high percentage of residents reporting poor health. Social capital is significantly associated with self-rated health in most of the European countries on the individual level after accounting for gender and age. However, additional adjustment for socio-economic status results in a decrease of the associations between activities in voluntary organisations and health. Further adjustment for social contacts and emotional support results in only minor changes of the associations.

Conclusions: Analyses reveal strong correlations between social capital and self-rated health in a number of European countries on the aggregate level. Associations on the individual level are weaker in East and South European countries. Moreover, association of self-rated health with perceptions of social trust seems to be more consistent than with activities in voluntary organisations.

Keywords: social capital, self-rated health, 21 European countries

Zusammenfassung

Fragestellung: Im vorliegenden Beitrag wird der Zusammenhang zwischen sozialem Kapital und subjektiver Gesundheit in verschiedenen europäischen Ländern untersucht.

Methoden: Grundlage der vergleichenden Querschnittsanalysen sind Daten des European Social Survey aus 21 Ländern. Insgesamt wurden 40.856 Personen (15 Jahre und älter) im Jahr 2003 persönlich interviewt. Die Einschätzung sozialen Vertrauens sowie Mitgliedschaft, Partizipation und freiwilliges Engagement in Organisationen und Vereinen wurden als Indikatoren für soziales Kapital herangezogen. Die Analysen wurden auf Aggregatebene (Länder) und Individualebene durchgeführt.

Ergebnisse: Es zeigt sich ein relativ niedriges Niveau sozialen Kapitals in ost- und südeuropäischen Ländern. Länder mit niedrig ausgeprägtem sozialen Kapital weisen einen hohen Anteil an Personen auf, die ihren Gesundheitszustand als mittelmäßig oder schlecht einschätzen. Auf der Individualebene ergeben sich nach Kontrolle von Geschlecht und Alter in den meisten europäischen Ländern signifikante Zusammenhänge zwischen sozialem Kapital und subjektiver Gesundheit. Allerdings führt eine zusätzliche Kontrolle des sozioökonomischen Status zu einer Reduzierung des Zusammenhanges zwischen freiwilligem Engagement

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und Gesundheit. Werden zusätzlich die Häufigkeit sozialer Kontakte und emotionale Unterstützung kontrolliert, ergeben sich nur geringfügige Veränderungen der Zusammenhänge.

Schlussfolgerungen: Die Analysen lassen einen starken Zusammenhang zwischen sozialem Kapital und subjektiver Gesundheit in 21 europäischen Ländern auf der Aggregatebene erkennen. Auf der Individualebene sind die Zusammenhänge in ost- und südeuropäischen Ländern etwas schwächer. Darüber hinaus scheint der Zusammenhang der subjektiven Gesundheit mit sozialem Vertrauen konsistenter zu sein als mit Engagement in Organisationen und Vereinen.

Schlüsselwörter: soziales Kapital, subjektive Gesundheit, 21 europäische Länder

Introduction

Social capital, defined as the assets and resources available to individuals through their connections to their communities and to society has received increasing attention in social epidemiology [1]. As aggregated to the collective level, social capital has been associated with overall mortality [2], [3], [4], self-rated health [5], violent crime [6], and tuberculosis rates [7]. Macinko and Starfield [8] elucidate different levels of social capital-the macro level (historical, social, political, and economic features), the meso level (neighbourhood characteristics), individual-level behaviours (participation or volunteering), and individual-level norms (such as trust and reciprocity). The health effects of individual-level social capital (both behaviours and norms) have only recently begun to be tested. While a Canadian study [9] did not observe a significant association between social capital indicators measured and analysed at an individual-level and health indicators, Lindström [10] found that self-reported global and psychological health is significantly related to participation as well as perceptions of trust in Sweden. In a study by Subramanian et al. [11], multi-level analysis of social trust revealed that individual-level trust was associated with self-rated health. Furthermore, the community-level social trust was not significant after controlling for the individual-level trust. A comparative study in the United States and Germany showed that social capital indicators, measured and analysed at an individual level are associated with various health indicators in the elderly [12]. The analyses revealed differences between the two countries: The health effect of norms was stronger in the United States than in Germany, whereas participation in community groups was more strongly associated in Germany. Cross-national analyses are especially suited to investigate the multiple levels on which social capital may function.

The aim of this paper is to explore the association between social capital-in terms of individual norms and behaviours- and self-rated health in 21 European countries. Using data from the European Social Survey 2003, analyses will be conducted on an aggregate level (country) and on an individual level. Several covariates will be in-

cluded in the individual level analyses. Controlling for socio-economic status and social relationships adds credibility to the claim that social capital as perceived by the individual is an important and distinct concept for research in social epidemiology.

Methods

The analyses are based on the European Social Survey [13], [14]. Data were available from 21 Countries: Austria, Belgium, Czech Republic, Denmark, Finland, Germany, Greece, Hungary, Ireland, Israel (the only non-European country), Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovenia, Spain, Sweden, Switzerland, United Kingdom. Probability sampling from all private residents aged 15 years and older was applied in all countries. A total number of 40,856 cases were analysed. Average response rate is about 61.5%, ranging from 33.5% in Switzerland to 80.0% in Greece [15]. Response rates and numbers of cases for each country are shown in Table 1. Interviews were carried out face to face.

Social capital indicators

Two indicators of social capital - perceptions of social trust, and membership, participation and voluntary work in civic organisations - were designed to closely parallel previous literature on social capital. Perceptions of social trust may be labelled as individual-level attitudes [8] or cognitive components of social capital [16], [17]. For the measurement of perceptions of social trust three questions are used. First question is: "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people? Please tell me on a score of 0 to 10, where 0 means you can't be too careful and 10 means that most people can be trusted." Second question asks: "Do you think that most people would try to take advantage of you if they got the chance, or would they try to be fair?" The third question is: "Would you say that most of the time people try to be helpful or that they are mostly looking out for themselves?" The three questions use bipolar eleven point scales. An index was calculated by summing the three items (Cronbach's Alpha 0.77).

Table 1: Description of social capital and health variables (European Social Survey)

Country (N; response rate in %)	Number of voluntary organisations people were involved in: Mean (SD)	Social trust: Mean (SD)	Fair or poor self-rated health (%)
Denmark (N=1506; 67.5)	2.85 (1.86)	<i>20.44 (4.64)</i>	21.8
Finland (N=2000; 73.2)	2.44 (1.85)	19.03 (4.64)	33.2
Norway (N=2036; 65.0)	2.98 (2.03)	19.60 (4.47)	24.0
Sweden (N=1999; 69.5)	<i>3.08 (1.90)</i>	18.76 (4.94)	26.8
Austria (N=2257; 60.4)	2.89 (2.43)	15.74 (6.09)	24.7
Belgium (N=1899; 59.2)	2.50 (2.28)	14.87 (5.37)	21.7
Germany (N=2919; 57.1)	2.08 (1.82)	15.25 (5.15)	41.7
Ireland (N=2046; 64.5)	2.55 (2.40)	17.41 (5.75)	<i>16.4</i>
Luxembourg (N=1552; 43.9)	2.58 (2.07)	15.29 (5.46)	36.0
Netherlands (N=2364; 67.9)	2.89 (2.02)	17.15 (4.86)	26.9
Switzerland (N=2040; 33.5)	---	17.17 (4.86)	16.9
UK (N=2052; 55.5)	2.24 (1.97)	16.02 (5.18)	29.2
Czech Republic (N=1360; 43.3)	---	13.35 (5.84)	50.9
Hungary (N=1685; 69.9)	0.67 (1.27)	12.89 (5.92)	<i>54.5</i>
Poland (N=2110; 73.2)	0.50 (0.99)	11.47 (5.42)	44.7
Slovenia (N=1519; 70.5)	1.49 (1.69)	12.94 (6.08)	43.6
Greece (N=2566; 80.0)	<i>0.43 (0.92)</i>	<i>10.34 (6.04)</i>	28.8
Italy (N=1207; 43.7)	1.27 (1.76)	13.24 (5.66)	36.1
Portugal (N=1511; 68.8)	0.78 (1.42)	12.95 (5.24)	53.2
Spain (N=1729; 53.2)	1.11 (1.85)	14.47 (5.56)	38.5
Israel (N=2499; 71.0)	1.92 (2.23)	14.42 (6.15)	29.7
Total (N=40856; 61.5)	1.99 (2.08)	15.42 (6.03)	32.5

Highest and lowest population means printed in italics.

Activities in groups, labelled as an individual-level behaviour [8] or structural component [16], [17] of social capital, was assessed by whether people were members, participated or did voluntary work in 12 organisations or groups (sports club, organisation for cultural or hobby activities, trade union, professional organisation, con-

sumer organisation, organisation for human rights, organisation for environmental protection, peace or animal rights, religious or church organisation, political party, organisation for science or education, social club, or any other voluntary organisation) in the last 12 months. An index was calculated by summing the number of organ-

isations respondents were involved in. The questions on activities in voluntary organisations were not asked in Switzerland and the Czech Republic.

Covariates

Because both age and gender are related to health indicators, we controlled for both in the study. As indicators of the socio-economic status income and education were included as control variables. Education was coded according to the International Standard Classification of Education (ISCED-97). Respondent's highest level of education was classified ranging from "not completed primary education" (0) to "second stage of tertiary education" (6). The household's total net income per month was divided by equivalent weights of the household members according to the new OECD scale. In order to distinguish social capital from social relationships [1], we included measures of emotional support and social contacts. To measure social contacts respondents were asked how often they meet with friends, relatives or work colleagues on a 7-point scale ranging from "never" (1) to "every day" (7). Emotional support was assessed by the availability of a confidant one can discuss intimate and personal matters (yes or no).

Health indicator

Self-rated health reflects how respondents rated their health, answering a single-item on a 5-point scale ranging from "very good" (1) to "very bad" (5). It was shown that such self-ratings represent a source of reliable and valid data on health status [18]. Responses were dichotomised with "fair", "bad" and "very bad" indicating poor health.

Statistical methods

Ecological-level associations between social capital and health will be illustrated by scatter plots. To test associations between social capital and self-rated health on an individual level, multiple logistic regression analyses will be conducted. For the regression analyses social capital variables were standardized, so that a unit change is one standard deviation. Thus, the effects of the social capital variables can be directly compared in quantitative terms. In a first model self-rated health will be regressed on the indicators of social capital, controlling for gender and age. In the second model, socio-economic status (education and income) will be added. The third model is a sum of the first two models together with the emotional support and social contact measures. Odds ratios (OR) and 95% confidence intervals (CI) are displayed.

Results

Aggregate level

As can be seen in Table 1, countries substantially differ with regard to the number of organisations people were members, participated or did voluntary work in. In Sweden people on average were involved in about three voluntary organisations compared to 0.43 in Greece. Data on activities in voluntary groups are missing in Switzerland and the Czech Republic. European countries also clearly differ in social trust with the highest value in Denmark and the lowest in Greece. Results in Table 1 indicate comparatively low levels of social capital in terms of attitudes and behaviours in East and South European countries. Percentage of residents with fair or poor self-rated health range between 16.4% (Ireland) and 54.5% (Hungary).

Figures 1 and 2 illustrate the association between both indicators of social capital and self-rated health in the European countries on an aggregate level. The correlation between membership, participation or voluntary work in organisations and the percentage of residents reporting fair or poor health (Figure 1) is -0.72 ($p < 0.01$). The correlation between social trust and fair or poor health (Figure 2) is -0.70 ($p < 0.01$).

Individual level

Table 2 shows the individual level associations between membership, participation or voluntary work in organisations and self-rated health in 19 European countries (without Switzerland and the Czech Republic). Odds ratios of reporting fair or poor health for a one standard deviation increase in social capital are shown. In 15 countries activities in voluntary organisations are significantly related to subjective health when gender and age are controlled (model 1). Odds ratios range between 0.69 in Finland and Israel and 0.99 in Spain. Additional adjustment for education and income results in a decrease of the associations (model 2), although effects in 7 countries remain significant. Further adjustment for social contacts and emotional support results in only minor changes of the associations (model 3).

Social trust is significantly related to fair or poor health in 19 countries when gender and age are controlled (Table 3, model 1). Compared to the effects of activities in voluntary organisations differences in odds ratios between the countries are smaller. Additional adjustment for socio-economic status only slightly reduces associations (model 2). Even after inclusion of social contacts and emotional support into the model we find significant effects of social trust in 18 countries.

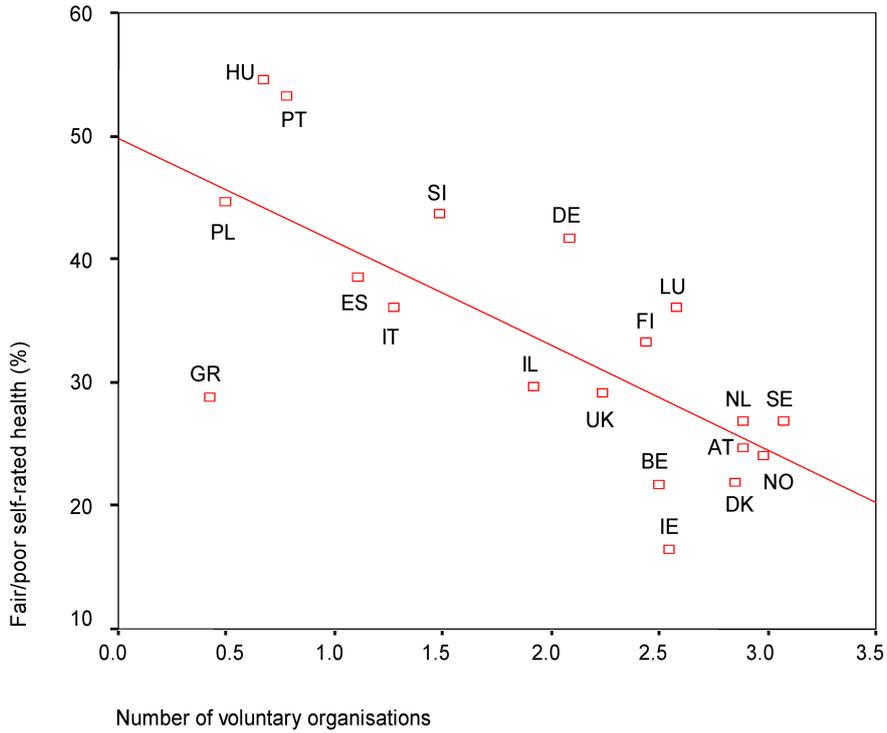


Figure 1: Scatter plot of number of voluntary organisations people were involved in and percentage of residents reporting fair or poor health

AT=Austria, BE=Belgium, DE=Germany, DK=Denmark, ES=Spain, FI=Finland, GR=Greece, HU=Hungary, IE=Ireland, IL=Israel, IT=Italy, LU=Luxembourg, NL=Netherlands, NO=Norway, PL=Poland, PT=Portugal, SE=Sweden, SI=Slovenia, UK=United Kingdom

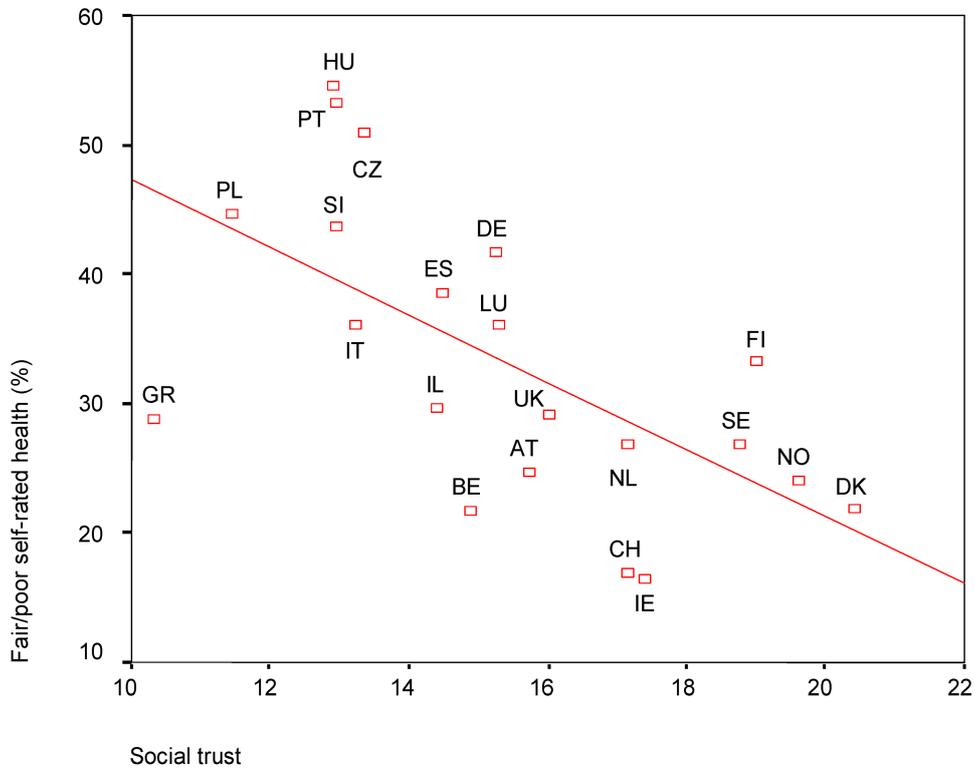


Figure 2: Scatter plot of social trust and percentage of residents reporting fair or poor health

AT=Austria, BE=Belgium, CH=Switzerland, CZ=Czech Republic, DE=Germany, DK=Denmark, ES=Spain, FI=Finland, GR=Greece, HU=Hungary, IE=Ireland, IL=Israel, IT=Italy, LU=Luxembourg, NL=Netherlands, NO=Norway, PL=Poland, PT=Portugal, SE=Sweden, SI=Slovenia, UK=United Kingdom

Table 2: Number of voluntary organisations with involvement (per 1 standard deviation) and fair/poor health: Odds ratios (95% CI)

Country	Model 1	Model 2	Model 3
Denmark	0.84 (0.72-0.97)	0.92 (0.78-1.08)	0.93 (0.79-1.10)
Finland	0.69 (0.61-0.78)	0.76 (0.67-0.86)	0.78 (0.69-0.88)
Norway	0.71 (0.64-0.80)	0.82 (0.73-0.93)	0.85 (0.75-0.96)
Sweden	0.84 (0.75-0.94)	0.92 (0.82-1.03)	0.94 (0.83-1.05)
Austria	0.77 (0.67-0.88)	0.81 (0.70-0.93)	0.85 (0.74-0.98)
Belgium	0.84 (0.74-0.96)	0.91 (0.79-1.04)	0.92 (0.80-1.05)
Germany	0.83 (0.76-0.91)	0.90 (0.82-0.99)	0.93 (0.84-1.02)
Ireland	0.74 (0.63-0.87)	0.87 (0.74-1.02)	0.89 (0.76-1.04)
Luxembourg	0.88 (0.76-1.01)	0.97 (0.84-1.13)	1.01 (0.87-1.17)
Netherlands	0.83 (0.75-0.92)	0.92 (0.82-1.02)	0.93 (0.83-1.04)
UK	0.71 (0.63-0.80)	0.77 (0.68-0.89)	0.78 (0.69-0.88)
Hungary	0.85 (0.75-0.97)	0.99 (0.86-1.12)	1.02 (0.90-1.17)
Poland	0.87 (0.78-0.98)	1.00 (0.89-1.12)	1.02 (0.91-1.14)
Slovenia	0.78 (0.68-0.90)	0.85 (0.74-0.98)	0.86 (0.75-0.99)
Greece	0.81 (0.69-0.94)	0.91 (0.78-1.06)	0.95 (0.81-1.11)
Italy	0.87 (0.73-1.04)	0.99 (0.82-1.20)	1.01 (0.83-1.23)
Portugal	0.92 (0.80-1.06)	1.07 (0.92-1.25)	1.09 (0.94-1.27)
Spain	0.99 (0.85-1.15)	1.08 (0.92-1.26)	1.08 (0.93-1.27)
Israel	0.69 (0.61-0.79)	0.75 (0.66-0.86)	0.77 (0.68-0.88)

Model 1: adjusted for gender and age
 Model 2: model 1 + education and income
 Model 3: model 2 + social contacts and emotional support
 Significant odds ratios printed in boldface.

Table 3: Social trust (per 1 standard deviation) and fair/poor health: Odds ratios (95% CI)

Country	Model 1	Model 2	Model 3
Denmark	0.75 (0.65-0.86)	0.79 (0.69-0.91)	0.79 (0.69-0.91)
Finland	0.68 (0.61-0.76)	0.69 (0.62-0.77)	0.71 (0.63-0.80)
Norway	0.75 (0.67-0.83)	0.79 (0.71-0.88)	0.82 (0.73-0.91)
Sweden	0.73 (0.65-0.81)	0.76 (0.68-0.84)	0.77 (0.69-0.86)
Austria	0.65 (0.57-0.75)	0.67 (0.58-0.76)	0.68 (0.59-0.78)
Belgium	0.73 (0.64-0.83)	0.76 (0.67-0.87)	0.79 (0.69-0.90)
Germany	0.77 (0.70-0.84)	0.80 (0.73-0.87)	0.81 (0.74-0.83)
Ireland	0.79 (0.69-0.90)	0.84 (0.73-0.96)	0.86 (0.75-0.98)
Luxembourg	0.74 (0.64-0.85)	0.78 (0.67-0.90)	0.79 (0.69-0.92)
Netherlands	0.70 (0.63-0.77)	0.73 (0.66-0.81)	0.74 (0.66-0.82)
Switzerland	0.69 (0.61-0.80)	0.73 (0.63-0.83)	0.73 (0.63-0.84)
UK	0.75 (0.67-0.84)	0.77 (0.69-0.86)	0.78 (0.70-0.87)
Czech Republic	0.79 (0.67-0.92)	0.80 (0.69-0.94)	0.83 (0.71-0.97)
Hungary	0.71 (0.62-0.80)	0.75 (0.66-0.85)	0.77 (0.67-0.87)
Poland	0.69 (0.62-0.78)	0.73 (0.65-0.82)	0.75 (0.66-0.84)
Slovenia	0.69 (0.60-0.78)	0.73 (0.64-0.84)	0.75 (0.65-0.86)
Greece	0.83 (0.74-0.94)	0.87 (0.78-0.98)	0.88 (0.78-1.00)
Italy	0.84 (0.70-1.00)	0.93 (0.77-1.13)	0.97 (0.80-1.18)
Portugal	0.86 (0.74-1.00)	0.93 (0.80-1.09)	0.95 (0.81-1.11)
Spain	0.71 (0.62-0.82)	0.74 (0.64-0.86)	0.75 (0.64-0.86)
Israel	0.75 (0.67-0.85)	0.81 (0.72-0.91)	0.83 (0.74-0.94)

Model 1: adjusted for gender and age
 Model 2: model 1 + education and income
 Model 3: model 2 + social contacts and emotional support
 Significant odds ratios printed in boldface.

Discussion

In this article, we examined the associations between social capital and self-rated health in 21 European countries using data from the European Social Survey 2003. Results indicate comparatively low levels of social capital in terms of behaviours (activities in voluntary organisations) and attitudes (perceptions of social trust) in East and South European countries. Moreover, analyses reveal strong correlations on the aggregate level, i.e. countries with low levels of social capital have a high percentage of residents reporting poor health. Although adjustment for gross domestic product (GDP) weakens these aggregate correlations, associations remain significant (details not shown). Social capital is significantly associated with self-rated health in most of the European countries on the individual level after accounting for gender and age. However, additional adjustment for socio-economic status results in a decrease of the associations between involvement in voluntary organisations and

health. This result is in line with other studies showing that civic participation is associated with education and income [10], [19]. Furthermore, the concept of individual-level social capital seems to be different from the well established concept of social relationships [20] as adjustment for social contacts and emotional support does not eliminate significant effects. This result is supported by moderate correlations between social contacts, emotional support and the social capital indicators ranging from 0.08 to 0.18.

It is of interest to note the observation that associations of social capital with health are generally stronger in countries with relatively high prevalence of civic membership and trust than in countries with low prevalence, i.e. East and South European countries. One interpretation of this finding points to the reference group theory [21]. Experience of deviance of a social norm seems to matter more if the norm is shared by a vast majority of members, including significant reference groups, than in case of its limited validity. In particular, this may be the case with

lack of social trust where a core social norm, reciprocity of exchange, is violated (for health consequences see also [22]). It appears that social trust is a more sensitive indicator with regard to health, compared to activities in voluntary organisations. At least this is supported by the fact that associations of perceptions of social trust with fair or poor health are less affected by the adjustments performed in multivariate models than is the case with voluntary activities (see Tables 2 and 3).

In establishing a link between levels of social capital and individual health, it is necessary to postulate mechanisms for the association. Focusing on individual-level norms and behaviours, social capital may affect health through psychosocial processes as well as health behaviours (smoking, diet, seeking health care, etc.). In aggregating to the level of the neighbourhood, social capital may affect health through the diffusion of health information, through health promoting norms, high levels of social control, crime rates, and access to services and amenities. Aggregating to the level of the state or nation, social capital may result in differing government functioning and healthcare delivery [1], [5].

As Portes [23] points out, there are two main schools of thoughts regarding the definition of social capital (see also [17]). The first school draws on the original theoretical development of the concept by Pierre Bourdieu [24] and James Coleman [25] who focus on the resources that accrue to *individuals* as a result of their membership of social networks. The second school is influenced by Robert Putnam [26], [27] who sees social capital as a social feature that is inherent in the structure of social relationships and is both an *ecological* characteristic and a public good [1]. Viewing social capital as invested in the individual is not mutually exclusive from a collective perspective [8], [28], and the interaction among the various levels - the degree to which the individual-level infuses the neighbourhood and vice versa - requires further theoretical and empirical study.

To our knowledge, this is one of the first cross-national studies analysing the associations between social capital and health in a number of European countries. Examining social capital in comparative studies highlights the need for validated measures of the construct 'social capital' that may be applied in cross-cultural investigations. While the measures we used are in accordance with previous studies [1], [16], [17], and while they are designed to capture both cognitive and behavioural components, their validity is not assessed and their psychometric properties are poorly evaluated [8]. The way of how social capital develops in communities and how its members benefit from it still needs to be elucidated. Moreover, cultural variations in meaning and appraisal of social capital deserve special attention in future studies. A second limitation in this study is the cross-sectional design, i.e. no causal inference can be drawn from associations of social capital with health. Especially in case of activities in voluntary organisations we can not exclude reverse causation, as being healthy may be a prerequisite of active engagement. Moreover, both the independent and the

dependent variables were based on self reports, making it subject to the problem of common method variance. Finally, while response rate in most countries is higher than 60%, four countries obtain response rates lower than 50% (Switzerland, Czech Republic, Italy and Luxembourg). However, analyses of non-response bias in the European Social Survey reveal that there are only weak associations of response behaviour with social participation and social trust [15].

Despite these limitations our study has provided additional evidence on the relationship between social capital and health. It shows strong associations between social capital and self-rated health on the aggregate level in a number of European countries. Associations on the individual level are weaker in East and South European countries. Moreover, association of self-rated health with perceptions of social trust seems to be more consistent than with activities in voluntary organisations. The cross-national results indicate that individual-level analysis of social capital along with macro-level determinants are important for understanding the health of populations.

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