

## Research Article

# Association between Organisational Social Capital and Patient Evaluations of General Practice: A Danish Nation-wide Study

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**ABSTRACT**

**Background:** During the recent decades, many general practitioners have joined in larger practices with more staff employed. When more people work together within an organisation, the interpersonal relations may affect delivery of services and thereby become valuable for the organisation. ‘Organisational social capital’ is defined as the ability of the members of an organisation to collaborate when solving the key tasks of the organisation, and reflects the interpersonal relations in terms of trust, justice and cooperation skills. How organisational social capital affects services and quality of care in general practice is yet to be documented.

**Aim:** To analyse associations between organisational social capital and patient evaluations of general practice.

**Methods:** A cross-sectional questionnaire study combining data from two national surveys in general practice in Denmark.

The study comprised 136 general practices, 679 healthcare professionals and 17,191 patients. Linear regression was used to explore associations between scores from patients’ evaluations of the quality of general practice care (Danish version of the EUROPEP questionnaire, DanPEP) and organisational social capital measured by the healthcare professionals. The analyses were adjusted for organisational characteristics (organisation form, size of the organisation with regard to the number of healthcare staff and the number of listed patients) and patient characteristics (sex, age, years listed at the present practice, and self-rated health).

**Results:** The level of organisational social capital was positively associated with patients’ evaluations of general practice. The within general practice intraclass correlations of organisational social capital (ICC=26%) and patient evaluations (ICC=5%) were high.

**Conclusion:** In general practice, organisational social capital is positively and statistically significant associated with patient evaluations. Consequently, improving the organisational social capital in general practice may increase patient satisfaction.

**Keywords:** Organisational social capital; Trust, Social Justice; Patient Satisfaction; Patient healthcare team; Practice management; Family Practice; Questionnaires; Europep; DanPep

## Introduction

Increasingly general practitioners (GPs) work in organisations with several GPs and a variety of staff employed. In Denmark GPs are self-employed holding a contract with national health authorities. They have responsibility for the daily running of their practices, providing adequate infrastructure and premises, training practice staff and for providing patient services. When more people work together within an organisation the interpersonal relations may affect the way services are delivered [1]. The organisational culture and the interpersonal relations may therefore be of value for the organisation. ‘Organisational social capital’ (OSC) is defined as “*the ability of the members of an organisation to collaborate when solving the key tasks of the organisation*” [2]. In a number of work sectors it has been demonstrated that the quality of the product is associated with the level of OSC. Considerable management efforts have been put into improving OSC [2-6]. So far, only limited documentation exists of the effects of OSC on quality of care and services delivered within the healthcare sector [7-11].

The concept of OSC provides a new way of understanding how investments in the working environment not only favour the individuals, but also improve the quality of the product and customer satisfaction [2,12-15]. OSC is a productive force imbedded neither within the individuals nor the physical resources of an organisation, but within the interpersonal relations [2,16]. OSC can be measured in three dimensions: trust, justice and cooperation skills perceived by the individual members of the organisation [17].

Measuring how satisfied patients are with their GP using patient evaluations is one way of assessing the quality of care in general practice, indicating the extent to which patients’ individual needs are met. However, studies investigating potential factors associated with patient evaluations of general practice have been inconsistent in their conclusions and were only able to explain a small part of the variation between practices [18].

As the quality of products and customer satisfaction in other types of organisations have shown to be associated with OSC, there might be a similar association between patient evaluations and OSC in general practice. The aim of this study was thus to explore association between patient evaluations of general practice and OSC.

## Material and methods

### Design and setting

The study is based on data from two different cross-sectional national questionnaire-based surveys in general practice in

Denmark. One survey regarded the patient evaluations of general practices and this survey was conducted in 2009. The other survey measured the level of OSC at practice level rated by the healthcare professionals, and this survey was conducted in 2011. The data from the two surveys were combined and the data comprised only those practices, which had participated in both surveys.

A general practice in Denmark comprises the practice owners, general practitioners and employed staff. A Danish GP is a private entrepreneur and holds a contract with the Danish governmental regions. The GP provides primary care services and acts as a gatekeeper referring patients to specialist care when needed. GPs often spend their entire career in the same practice. There are mainly two practice forms in Denmark: single-handed and partnership practices. A single-handed practice is owned by a single GP who has his own list of patients and economy. A partnership practice has two or more owners who are GPs, sharing patients and/or economy. All Danish citizens have free access to health care through a tax-funded healthcare system, and 98% of the population are listed with a GP [19,20].

### Questionnaire-based survey measuring OSC in general practice

OSC can be measured by using a questionnaire. This questionnaire has previously been validated and the process of adaptation to general practice has been described in details elsewhere [21]. From June to September 2011 all Danish GPs and their staff were invited to participate in a survey measuring OSC in their practice. A complete list of general practices in Denmark (in total 2047 practices) was provided by the Organisation of General Practitioners. Based on the work of the Danish National Research Centre for the Working Environment and the international standardised Copenhagen Psychosocial Questionnaire II, the participants were asked to score a total of 11 items concerning the dimensions of trust, justice and cooperation skills, within their own organisation [17,22,23]. Each questionnaire item was rated on a five-point Likert scale ranging from “poor” through “acceptable” to “excellent”. The item scores were used to calculate a composite OSC score from 0 to 100. The score of OSC was calculated for each practice as the mean of the individual ratings of all healthcare professionals in each practice.

All respondents returned the questionnaire in individually enclosed envelopes. Reminders were sent after 4-5 weeks.

### Patient evaluations of general practice

EUROPEP is an instrument comprising 23-items and is a validated and internationally standardized measure of patient evaluations of general practice care. There are five dimensions:

the doctor-patient relationship, quality of medical treatment, level of information and support, organisational service provided and accessibility [24-27]. The questionnaire is available in various languages including Danish, where it is called DanPEP (Danish Patients Evaluate general Practice).

The DanPEP surveys have been conducted periodically between 2002-2009. For each participating GP, 130 questionnaires were handed out consecutively to adult patients. The patients were included when attending the GP with whom they were registered. All items were scored on a five-point scale, and scores for each of the five dimensions were calculated as well as a total patient evaluation score. At practice level, the patient evaluation scores were calculated for each practice as a mean of the individual scores of all patients registered in the practice.

### Statistical methods and analysis

The reliability of each of the five dimensions of patient evaluations and the total patient evaluation were assessed using Cronbach's alpha.

The outcomes were the practice level scores of the five dimensions of patient evaluation as well as the total patient evaluation score. For each outcome, univariate and multiple linear regression models were used to estimate the change in patient evaluation score when OSC increases by one with 95% confidence intervals (95% CI). In addition, for each of the three dimensions of OSC sub-analyses on associations between the OSC dimension and the total score from the patient evaluation were conducted. The analyses were adjusted for

potential confounders regarding organisational characteristics (organisation form, and size of the organisation with regard to the number of healthcare personnel and listed patients), and patient characteristics (sex, age, years listed with current practice and self-rated health). Intraclass correlations within practice were calculated for OSC and total patient evaluation score.

All analyses were performed using Stata Release 11.0 (StataCorp, College Station, TX, USA). P-value<0.05 was considered statistically significant.

## Results

### Enrolment and participant characteristics

The two different datasets were merged and the subsequent analyses only comprising practices where there were data from both the patient evaluation survey from 2009 and OSC survey from 2011.

Data regarding OSC were obtained from 706 (34.3%) Danish general practices in 2011 of which 42.7% were single-handed practices. A total of 3064 individual healthcare professionals completed the questionnaire, corresponding to 75.4% of the healthcare professionals from the participating practices. Details and demographics have previously been published [21]. Of the 706 participating practices in the organisational social capital survey in 2011, 136 also previously in 2009 participated in the DanPEP survey, with a total of 679 healthcare professionals and 17191 patient evaluations (mean number of evaluations per practice=126.4, SD=82.55). Only minor differences between the practices participating in both surveys and practices only participating in the OSC survey were found (Table 1).

**Table 1:** Basic characteristics of practices participating in the OSC survey and the DanPEP survey.

	Participants in OSC and DanPEP	Participants in OSC but not DanPEP
	N (%*)	N (%*)
<b>Organisational characteristics</b>		
Number of practices	136 (19.0)	570 (81.0)
Total number of patient evaluations	17191	-
Evaluations per practice, mean (SD)	126.4 (82.6)	-
Organisational social capital, mean (SD)	80.3 (8.1)	80.5 (8.9)
Practice form		
Single-handed practices	46 (40.0)	206 (43.3)
Shared-/partnership practices	69 (60.0)	270 (56.7)
Number of listed patients, mean (SD)	3362.3 (1935.1)	3148.6 (2017.1)
Number of healthcare prof., mean (SD)	6.1 (3.6)	5.6 (3.7)
<b>Patient characteristics (DanPEP respondents)</b>		
Woman	5650 (33.5)	-
Age, mean (SD)	53.3 (17.7)	-
Years listed with current practice, mean (SD)	8.6 (8.1)	-
Self-rated health status		
Excellent	1067 (6.1)	-
Very good	4614 (26.8)	-
Good	7117 (41.4)	-
Fair	2799 (16.3)	-
Poor	566 (5.5)	-

\* % if not specified in first column.

**Table 2:** Associations between patient evaluation scores of general practices and Organisational Social Capital (OSC).

	Coef.	Adj. Coef.	95% CI	P-value
<b>Patient evaluation score (total) and OSC</b>	0.11	0.13	[0.02; 0.24]	0.023
<b>Patient evaluations according to the five dimensions and OSC</b>				
Doctor-patient relationship	0.01	0.04	[0.00; 0.07]	0.034
Medical care	0.01	0.04	[0.01; 0.06]	0.010
Information and support	0.01	0.03	[0.00; 0.05]	0.030
Organisation of services	0.01	0.01	[0.00; 0.03]	0.024
Accessibility	0.08	0.01	[-0.03; 0.06]	0.545

Patient evaluation score and OSC were measured for each practice. Analyses were adjusted for possible Organisational and patient characteristic confounders.

The Cronbach's alphas for the five dimensions of patient evaluations and for the total patient evaluation ranged between 0.70-0.92. The within general practice intraclass correlations was high for both OSC (ICC=26%) and total patient evaluation (ICC=5%).

### Associations between OSC and patient evaluations

The level of OSC was statistically significantly and positively associated with the total patient evaluation score of general practice (95% CI=0.02 to 0.25,  $p=0.023$ ) (Table 2).

The three dimensions comprising OSC all showed similar positive associations: trust coefficient 0.11 (95% CI=0.01 to 0.21,  $p<0.05$ ), justice coefficient 0.12 (95% CI=0.01 to 0.22,  $p<0.05$ ) and cooperation skills coefficient 0.11 (95% CI=0.01 to 0.21,  $p<0.05$ ).

The following patient evaluation dimensions showed positive statistically significant associations with the OSC: the doctor-patient relationship (0.04, 95% CI=0.00 to 0.07,  $p=0.034$ ), the quality of medical care (0.04, 95% CI=0.01 to 0.06,  $p=0.010$ ), the level of information and support (0.03, 95% CI=0.00 to 0.05) and the organisational service provided (0.01, 95% CI=0.00 to 0.03,  $p=0.030$ ). The only dimension not statistically significantly associated with the level of OSC was accessibility (0.01, 95% CI=0.03 to 0.06,  $p=0.545$ ) (Table 2).

### Discussion

This study found a positive and statistically significant association between OSC and total patient evaluation score of general practice. From other work sectors it has been demonstrated that OSC is important in order to maintain high quality and productivity, and this study demonstrates similar associations between OSC and total patient evaluation scores of general practice [2-6]. Previous studies have suggested associations between patient evaluations of general practice and basic characteristics like patients' and GPs' sex and age and type of organisation [28].

The presented results should be interpreted with some caution taking potential weaknesses of the study into consideration. Participating in the study was voluntary which may have influenced the response rate and representativeness of the study population. A low response rate may affect the power of the study, however, the study population was sufficiently large to find statistically significant associations

between OSC and five of the six patient outcomes considered. Regarding representativeness, GPs who are willing to participate in surveys may have a higher level of OSC than GPs choosing not to participate, which could lead to selection bias. There is no reason to believe that the mechanisms behind the associations are different in non-participating practices compared to participating practices. Therefore, the results are likely to be generalisable to the Danish general practice sector and possibly to general practice sectors in other countries with a similar structure. A further potential limitation is the time span of 2 years between the DanPEP survey and the OSC survey. In theory, a poor DanPEP evaluations might lead to subsequent changes in the individual practice and thereby improve the level of OSC two years later. This scenario would lead to underestimation of the associations between OSC and patient evaluations. However, general practices in Denmark tend to be relatively stable: at the time of the DanPEP survey, the participating patients had been listed with their current practice for slightly less than 10 years on average and at the time of the OSC survey the GPs had worked at their current practice for slightly less than 15 years on average.

Strengths of the study were the use of internationally established and validated instruments. Further, a high intraclass correlation of OSC indicated a high level of consistency in the scores given by the healthcare professionals within the same practice. Similarly, the consistency of patient evaluations within the same practice was high.

### Implications and unanswered questions

A high level of OSC is associated with the patients' evaluation of the general practice care. Future studies might consider associations between OSC and other measures of quality in general practice. Furthermore, ways of improving OSC in general practice should be explored.

### Conclusion

Organisational social capital is strongly associated with patient evaluations of general practice.

### ETHICS

The study was approved by the Danish Data Protection Agency (journal number 2010-41-5298). According to Danish legislation no approval from the Danish ethical committee was required.

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## DISCLOSURES

All authors have completed the International Committee of Medical Journal Editors Unified Uniform Disclosure Form for Potential Conflicts of Interest (available upon request from the corresponding author) and declare that there are no conflicts of interest.

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## TRANSPARENCY DECLARATION

The Corresponding Author affirms that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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