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Social capital among healthcare professionals: A prospective study of its importance for job satisfaction, work engagement and engagement in clinical improvements

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ABSTRACT

Background: Social capital can be an important resource to facilitate the needed improvements in quality of care and efficiency in hospitals.
Objectives: To assess the importance of social capital (recognition, vertical trust, horizontal trust and reciprocity) for job satisfaction, work engagement and engagement in clinical improvements.
Design: A prospective cohort design was used.
Settings: Intensive care units and emergency, surgical and medical units at five Swedish hospitals with ongoing development of their processes of care.
Participants: Healthcare professionals (physicians, registered nurses, assistant nurses) at five Swedish midsize hospitals.
Methods: The participants answered a questionnaire at two occasions, NN = 1602 at baseline and NN = 1548 at one-year follow-up. Mean hospital response rate was 53% at baseline and 59% at follow-up. Univariate, multivariate and logistic regression analyses were performed, and the prospective analysis was based on 477 respondents.
Results: Social capital was associated with healthcare professionals' general work engagement and job satisfaction. Analysis showed positive associations between all measured aspects of social capital and engagement in clinical improvements of patient safety and quality of care. The prospective analysis showed that increased social capital predicted increased job satisfaction, work engagement and engagement in clinical improvements of patient safety.
Conclusion: Social capital is strongly related to job satisfaction and active engagement with clinical improvements. The findings contribute to a deeper knowledge of social capital as a predictive factor that influences patient safety and health among healthcare staff.

What is already known about the topic?

- There are varied definitions of social capital.
- There are cross-sectional associations between social capital and illness, stress and poor self-rated health.
- Social capital is viewed as a resource for "the common good" and a complement to other forms of capital but there is a need for studies with a longitudinal design.

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What this paper adds

- Dimensions of social capital are associated with different outcomes.
- Social capital in hospital settings is important for employees' general work engagement and job satisfaction.
- Higher social capital predicts a higher work engagement and engagement in clinical improvements.
- Social capital in hospitals can be viewed as a resource for sustainable organizational development.

1. Introduction

Social capital can function as both an analogue of and a complement to other forms of capital. To strengthen social capital in hospitals can be to increase a crucial resource for sustainable organizational development. Hospitals face major challenges, including how to decrease healthcare costs without comprising quality of care (Magnussen et al., 2009) or employee well-being (Elstad and Vabø, 2008; Jansson von Vultée et al., 2007). Previous literature indicates that a key aspect of developing more sustainable healthcare organizations depends on successfully engaging healthcare professionals in clinical improvements (Eriksson and Dellve, 2014). The development of sustainable work organizations can in this context be defined as promoting employees' resources to perform and develop professional work with cooperation, good health and enthusiasm (Kira et al., 2010). There is, however, still limited research analysing what processes promote sustainable organizational development, including why healthcare professionals choose to engage in clinical developments (Lindgren et al., 2013). The literature describes a culture within healthcare organizations characterized by limited trust and collaboration between different professionals groups and organizational levels (Glouberman and Mintzberg, 2001; Mitchell et al., 2010). In this context we introduce the concept of social capital. Previous research stresses that there is a possibility of building and increasing social capital in healthcare organizations by forging relations to foster bonding, bridging and linking social capital within and between healthcare professional groups; to build solidarity and trust; to foster collective action and cooperation; to strengthen communication and knowledge exchange; and to create capacity for social cohesion and inclusion (Hofmeyer and Marck, 2008). Social capital has thus shown potential for bridging organizational challenges within healthcare and contributing to more sustainable work organizations, including increased well-being of employees and employees' engagement in clinical improvements (Eriksson and Dellve, 2014).

2. Background

2.1. The concept of social capital

Social capital can be seen as a resource springing from social relationships and as an investment in relationships with expectations of future returns. Social capital has been studied at different levels: individual, organizational and societal; therefore, the concept of social capital has a wide range of definitions (Adler and Kwon, 2002). However, common features of the concept in early research in the field identified norms of reciprocity, recognition and trust as key factors of social capital (Bourdieu, 1985; Coleman, 1988; Macinko and Starfield, 2001; Putnam, 2000). Although the concept has been variously used among researchers (Ahnquist et al., 2010), it seems to be an important aspect of relations, systems and trusting relationships (Nahapiet and Ghoshal, 1998; Tsai and Ghoshal, 1998). Within these relationships obligations arise from feelings of respect, gratitude and friendship (Bourdieu, 1985), and social capital is embedded in networks of mutual acquaintance and recognition (Nahapiet and Ghoshal, 1998). Different researchers approach the concept of social capital either as an individual (Poortinga, 2006; Portes, 2000) or as a community resource (Kawachi et al., 1997; Putnam et al., 1993). However, as social relations impact both individuals and groups, there are researchers who acknowledge that the two approaches are not exclusive (Lin, 2001; Rostila, 2011). Previous research has operationalized and analysed the concept at societal, organizational and individual levels (Oksanen et al., 2008). As many people spend numerous hours at their workplaces, social capital in work organizations has been suggested as an important aspect/factor to study (Kawachi et al., 1999). In this study, social capital in work organizations is defined as a relational resource, for example, the occurrence of networks, norms and trust, promoting coordination and collaboration for a common good (Olesen et al., 2008). Some researchers have defined social capital at an organizational level as "a characteristic of the whole workplace consisting of three dimensions: collaboration, trust and justice" (Kristensen et al., 2007). Other researchers have operationalized and measured workplace social capital by the two components trust and reciprocity (Suzuki et al., 2010). Commonly when measuring social capital, the key components are vertical and horizontal trust, reciprocity and recognition (Bourdieu, 1986; Kouvonen et al., 2006; Tansley and Newell, 2007). This study focuses on the perceptions of vertical and horizontal trust, reciprocity and recognition (Harpham et al., 2002; Pejtersen et al., 2010) among employees in hospital organizations. Trust can be seen to exist and move in both vertical and horizontal directions, where the horizontal trust concerns interpersonal relationships at the same hierarchical level, and the vertical the different levels of power, for example, between management and employees (Szreter and Woolcock, 2004). Perceptions of reciprocity are, according to Woolcock (1998), manifested at the horizontal relational level between employees. Reciprocity is also viewed as norms of equal expectations of each other concerning behaviour, such that actions in the present will in the future yield commensurate returns as well as obligations of repayments of favours (Suzuki et al., 2010; Tansley and Newell, 2007). In this study we look upon reciprocity as something in the social relationships between employees. Within the networks of relationships recognition manifests, for example, as mutual feelings of respect and gratitude among people related to the network

(Bourdieu, 1986; Nahapiet and Ghoshal, 1998). Recognition has been suggested as an important factor for healthcare professionals to engage in development processes, especially among physicians (Lindgren et al., 2013).

2.2. Social capital related to health

Social capital can be seen as one of the most important determinants of health and well-being (Ahnquist et al., 2012). Social capital has been shown as important for population health, for example, stress and poor self-rated health (Giordano et al., 2012; Murayama et al., 2012). Studies of social capital at workplaces have also shown an association with employee health and illness (Oksanen et al., 2008). A majority of earlier studies have, similar to the studies on population health, focused on risks and negative outcome measurement of health, such as poor self-rated health, stress and burnout (Oksanen et al., 2013). Job satisfaction can also be viewed as an outcome measure related to employee health (Grawitch et al., 2007; Piko, 2006; Shain and Kramer, 2004). At both the individual and the workplace level job satisfaction is a health-related measure (Dellve et al., 2007), and previous studies have shown an association between levels of social capital and job satisfaction (Dellve et al., 2007; Requena, 2003). Social capital in one study was shown to be a predictor for physicians' job satisfaction (Ommen et al., 2009), and a review of nurses' job satisfaction stressed that relationships with managers and co-workers, as well as recognition, were sources of nurses' job satisfaction (Lu et al., 2005). Work engagement is another outcome measure related to employee health (Hakanen and Schaufeli, 2012), and earlier studies have shown associations between work engagement and positive organizational outcomes such as good job performance and organizational commitment (Hultell and Gustavsson, 2010). Work engagement can be defined as a positive, work-related mindset that consists of vigour (high levels of energy, activity and mental resilience during work), dedication (being strongly involved in, proud of and enthusiastic about the work) and absorption (being fully concentrated and happily absorbed in work) (Bakker et al., 2008). Engagement is related to health and well-being in several aspects. Associations have been found between engagement and low levels of depression and anxiety, perceived physical health, low levels of burnout and positive emotions (Hakanen and Schaufeli, 2012). One study found associations between social capital and work engagement. The findings showed that social capital played an important role in promoting work engagement of physicians in Germany (Susanne et al., 2013).

Most previous studies on social capital and health have had a cross-sectional design, and very few of the earlier studies have had a prospective design (Murayama et al., 2012). Oksanen et al. (2013) in a summary found only seven studies of workplace social capital and employee health in healthcare organizations. Of these, only one had a positive outcome measurement, for example, well-being, job satisfaction and work engagement. There is, in other words, a lack of prospective studies of social capital within healthcare using positive health outcome measurements.

2.3. Social capital and engagement in clinical improvements

Social capital and its associations with engagement in clinical improvements have rarely been investigated in previous studies. Existing previous research shows that high levels of social capital have a positive impact on the performance of medical professional groups (Hoffman et al., 2005). Results from one study indicate possible associations between social capital and engagement in clinical improvements. Improved trust, cooperation, communication between professional groups and improvement of the work environment in operating rooms are generated from social capital (Waisel, 2005). Social capital in healthcare organizations can also have an impact on patient safety (Hofmeyer and Marck, 2008). A cross-sectional study indicated that increased trust also contributes to patient safety, and the study showed that trust and patient safety were interrelated (Auer et al., 2014).

2.4. Scope and objectives

To meet both current and future demands for developing more sustainable healthcare organizations, engagement in improvement work is needed in hospitals. To have engaged professionals with good health active in this work seems here to be a crucial resource for participation in improvement work. Engagement in improvement work can be related to social capital as defined above, as social capital is a relational resource promoting collaboration for a common good (Olesen et al., 2008). The lack of prospective studies of social capital within healthcare organizations makes it difficult to draw conclusions regarding the extent to which social capital can explain job satisfaction, work engagement and employees' clinical engagement in patient safety and quality of care. This stresses the need to design more longitudinal prospective studies and to study how these measures develop with respect to increased social capital.

The objective of this study was to assess the importance of social capital (recognition, vertical trust, horizontal trust and reciprocity) for job satisfaction, work engagement and engagement in clinical improvements among healthcare professionals. In this study we also addressed the question of whether changed magnitude of social capital predicts changed magnitude of job satisfaction, work engagement and engagement in clinical improvements.

3. Methods

3.1. Study design

A cohort of healthcare professionals was followed over one year. Analyses were made of baseline data as well as of one-year follow-up. First, cross-sectional analyses of baseline data were performed to investigate the associations of interest. Multivariate analyses were also performed to investigate explanatory variance between social capital and the outcome measures. At the time of the one-year follow-up, a second prospective approach was made to investigate changes over time (12 months) of the outcome measures in focus.

3.2. Sample and study population

The hospitals included in this study were identified by similarity of size, ongoing development of their care processes and urban area. Five small (approximately 100-bed) or midsize (approximately 500-bed) hospitals with ongoing developments of their processes of care were selected. The number of employees varied between 700 and 4000. Among the hospitals, different types of care units were selected to obtain a broader view of the research question: intensive care, emergency, surgical and medical units. These units were also identified by the county councils as having ongoing work of improvements. One of the hospitals did not consent to including a surgical unit due to ongoing engagement in other research development projects and lack of time. We invited the hospitals to include all their employees working in the selected units and all physicians at the hospitals (because physicians often work across several units). To be eligible for the survey, the employees had to have had a minimum of six months' employment in the actual unit. All hospitals agreed, but one hospital invited only a few physicians, that is, only those physicians working steadily at the selected units (Fig. 1). In total, 224 physicians, 381 registered nurses (RN), 233 assistant nurses and 16 healthcare workers (HCWs) participated in the study at baseline (of 1602 invited to participate, 865 participated, 54% response rate), and 260 physicians, 355 RNs, 239 assistant nurses and 14 HCWs participated at one-year follow-up (of 1548 invited to follow up, 908 participated, 58.6% response rate). The average number of employees at the units was 45 (range 23–87). The response rate at the units varied from 37% to 96%. The group of HCWs was included in the overall analysis of the study population but not as a single group, due to the few respondents. Most participants were women, and nearly 50% at baseline and 40% at one-year follow-up had worked for more than 14 years in their profession (Table 1). Every participant was given a unique code for the possibility of following the same respondents over time and performing longitudinal analyses. At time for follow-up 477 respondents had answered both the baseline and follow-up questionnaires; these participants constituted the study population for the prospective analyses.

3.3. Data collection

Data were collected through questionnaires at baseline and at one-year follow-up. These were distributed by e-mail, or if they preferred, a sealed envelope (with a stamped reply envelope) was sent to the participants. Non-responding participants received two reminders, which were sent in paper form. Data collection at baseline occurred during April to May 2012 (for two of the hospitals) and October to November 2012 (for three of the hospitals), and during October to November 2013 for all five hospitals.

In the present study three previously validated tools were used to collect data. The Copenhagen Psychosocial Questionnaire (COPSOQ II) is an instrument of psychosocial work environment factors. The indexes are used as both independent and dependent variables (Pejtersen et al., 2010). The Swedish Scale for Work Engagement and Burnout (SWEBO) was used to assess data on work engagement (Hultell and Gustavsson, 2010) and the Modern Work-life Questionnaire (MWQ) was used to assess one of the dimensions of social capital (Oxenstierna et al., 2008). The Cronbach's alphas presented were calculated from the data in the present study.

All respondents were informed that participation was voluntary and that they could choose not to participate at any time. Information given on the first page of the questionnaire stated that by answering the questionnaire the respondent agreed to participate in the study. Information was also given on how the results would be used, on the funders of the study and on how to contact the persons responsible for the study.

3.4. Measures

3.4.1. Job satisfaction

Outcome of job satisfaction was measured by an index consisting of six items from the COPSOQ II (Cronbach's alpha 0.82). All items had a four-point response scale: Very satisfied, Satisfied, Unsatisfied, Very unsatisfied.

3.4.2. Work engagement

Work engagement was measured by the SWEBO. The instrument consists of three dimensions: vigour (3 items, Cronbach's alpha 0.83), dedication (3 items, Cronbach's alpha 0.84) and attentiveness (4 items, Cronbach's alpha 0.85). The indexes consisted of three adjectives, which were rated using a five-point scale: Not at all, Little/less of the time, Some of the time, Most of the time, All of the time.

3.4.3. Engagement in clinical improvements

Two indexes were developed and tested for internal consistency. *Engagement in clinical improvements of patient safety* consisted of four items: "At our clinic... (1) we work actively to improve patient safety, (2) we discuss how to avoid errors, (3) we work actively to improve reporting of errors and (4) we report directly and without hesitation when we see something that can harm patients' safety" (Cronbach's alpha 0.80). *Engagement in clinical improvements of quality of care* consisted of three items: "At our clinic... (1) we have an active dialogue about how to provide good care for patients at our ward/clinic, (2) we have good opportunities to meet patients' needs and (3) the values of providing good care at my clinic agree with my own" (Cronbach's alpha 0.72). All items had a five-point response scale: Completely agree, Mostly agree, Somewhat agree, Somewhat disagree, Disagree. Pilot testing of these scales was conducted by individual interviews with physicians, registered nurses and assistant nurses ($n = 11$). We tested both the understanding of the questions and the understanding of the response scale. Participants were asked to answer the questions, and then they were asked to describe how they had interpreted the questions and why they had answered as they did, and also to describe how they would interpret another person's answer to the same question. The results of the pilot testing showed that

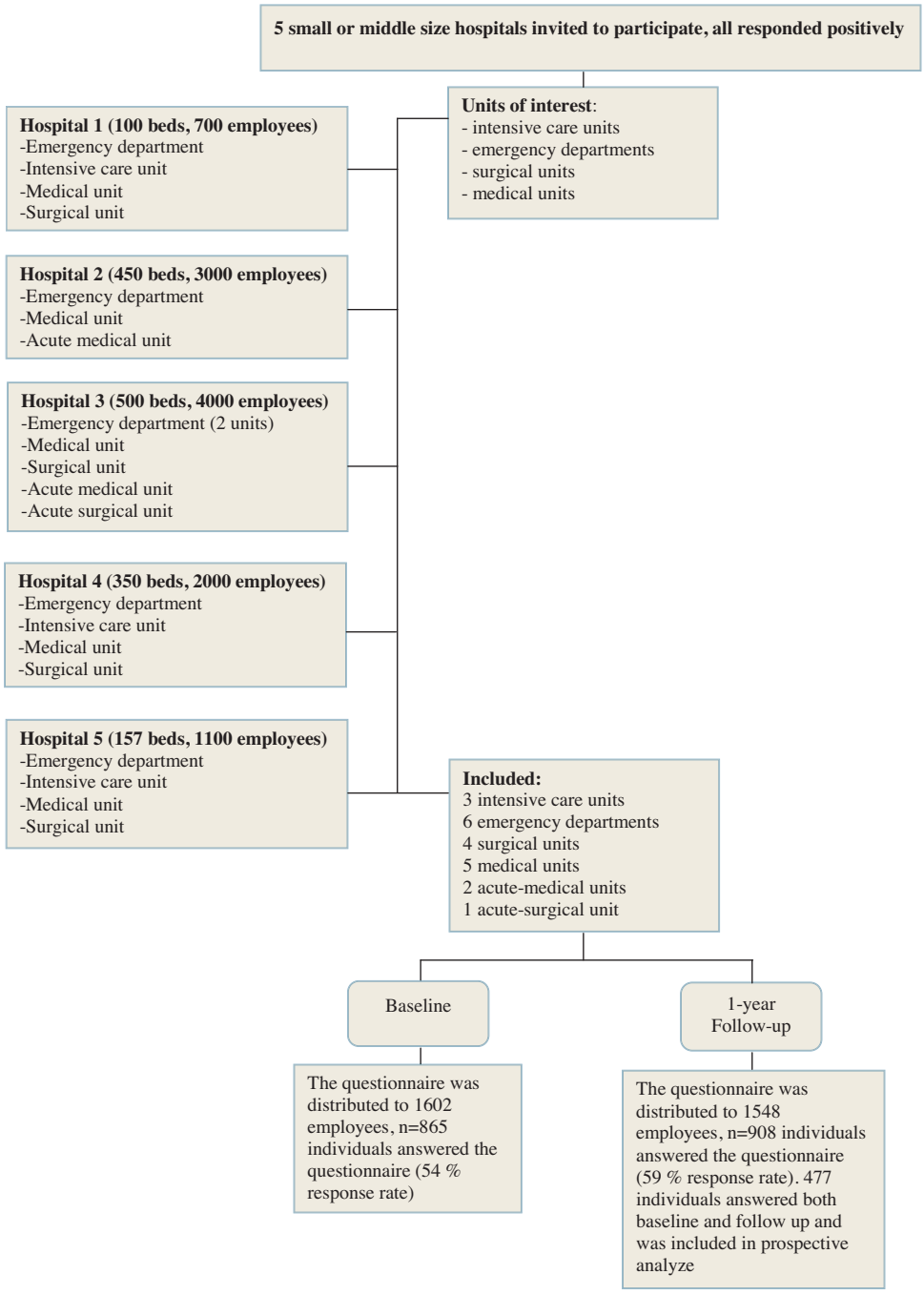

Fig. 1. Flowchart.

10 of 11 respondents answered satisfactorily all of the seven questions, and one misunderstood how to answer one of the questions. Thus, we interpreted reasonably good face-validity of both the questions and the response scale.

3.4.4. Social capital

Reciprocity was assessed with an index from the Modern Work life Questionnaire (Oxenstierna et al., 2008), consisting of three items (Cronbach's alpha 0.89): (1) At my workplace we care for each other, (2) At my workplace we treat each other with respect and (3) At my workplace I feel safe and accepted.

Trust regarding management was assessed with an index consisting of two items: (1) Can you trust the information that comes from the management? and (2) Does the management withhold important information from the employees? (reversed score).

Mutual trust between employees was assessed with an index consisting of two items: (1) Do the employees withhold information from the management? (reversed

Table 1
Characteristics of the study-group.

	Baseline $n = 865$		One year follow-up $n = 908$	
	n	(%)	*n*	(%)
Gender[a]				
Female	644	74.5		
Men	208	24		
Missing[b]	13	1.5		
Professions				
Physicians	224	26	260	29
Registered nurses	381	44	355	39
Assistant nurses	233	27	239	26
Administrative (HCW)	16	2	14	1.5
Missing[b]	11	1	40	4.5
Years in profession				
<2	60	7	69	8
2–7	202	23	182	20
8–14	199	23	204	22
>14	403	47	381	42
Missing[b]	1	<1	72	8

[a] Gender was only asked in baseline.
[b] Internal missing of asked question.

score) and (2) Do the employees in general trust each other?

Recognition was formulated as an index consisting of three items (Cronbach's alpha 0.82): (1) Is your work recognized and appreciated by the management? and (2) Does the management at your workplace respect you? (3) Are you treated fairly at your workplace?

The indexes trust regarding management, mutual trust between employees and recognition were from COPSOQ II. All items from COPSOQ II had a five-grade scale and were then recalculated to 0–100 points: To a very large extent, To a large extent, Somewhat, To a small extent, To a very small extent.

Social capital was calculated as the sum of reciprocity, trust regarding management, mutual trust between employees and recognition (Cronbach's alpha 0.73).

3.5. Statistical analysis

First, descriptive statistics were conducted of individuals, professionals and units. All outcome measurements were assumed to be normally distributed. Second, analytic analysis was conducted using linear and logistic regression analysis. Bivariate analysis was conducted with baseline data. Multivariate linear regression analyses were used to investigate explanatory variance between social capital and the outcome measurements job satisfaction, work engagement, engagement in clinical improvements of patient safety and engagement in clinical improvements of quality of care. To assess whether increased social capital predicts increased job satisfaction, work engagement and engagement in clinical improvements, we performed logistic regression models. We dichotomized the variables into two groups, where one group had increased investigated measure (described above), and the other group contained data of no increase and no changes in the investigated measure. *T*-test was performed to analyse differences in means of social capital between cohort and rest of sample. A *p*-value of <0.05 was considered statistically significant. All statistical calculations were performed using JMP version 10.0.2 (SAS Institute, Cary, NC, USA). The results in all multivariate regression models and logistic regression models were controlled for sex, years in profession and profession.

4. Results

4.1. Social capital among health professionals

The dimension "reciprocity" showed the highest level of social capital among all groups of healthcare professionals (Table 2). The dimension "trust regarding management" scored lowest, especially among assistant nurses (26%, $n = 61$) and RNs (31%, $n = 118$). Half (51%, 114) of the physicians rated high trust regarding management. Physicians rated the highest level of summed social capital (43%, $n = 96$), especially with regard to mutual trust between employees (66%, $n = 148$) and reciprocity (71%, $n = 159$).

In the one-year follow-up with pairwise analyses, the summed social capital (difference = 1.4, $p < 0.01$), trust regarding management (difference = 2.1, $p = 0.02$) and recognition (difference = 1.8, $p = 0.02$) had significantly increased from baseline to one-year follow-up. Changes in reciprocity (difference = 1.4, $p = 0.06$) were also indicated, while there was no difference in perceived mutual trust between employees ($p > 0.25$).

4.2. Social capital and job satisfaction and work engagement

At baseline, most assistant nurses (62%, $n = 144$) and physicians (66%, $n = 148$) scored high on job satisfaction, as did half of the RNs (54%, $n = 206$) (Table 2). About half of all professional groups rated a high work engagement (assistant nurses 50%, $n = 117$; RNs 46%, $n = 175$; physicians 46%, $n = 103$). The items vigour (assistant nurses 70%, $n = 163$; RNs 63%, $n = 240$; physicians 60%, $n = 134$) and attentiveness (assistant nurses 71%, $n = 165$; RNs 58%, $n = 221$; physicians 54%, $n = 121$) showed the highest scores in all professional groups, while dedication (assistant nurses 48%, $n = 112$; RNs 42%, $n = 160$; physicians 35%, $n = 78$) was lowest. The bivariate analysis showed positive associations ($p < 0.05$) between all measured aspects of social capital and job satisfaction. The strongest items of social capital in relation to job satisfaction were recognition ($r^2 = 0.31$) followed by reciprocity ($r^2 = 0.17$) and trust regarding management ($r^2 = 0.17$).

4.3. Social capital and engagement in clinical improvements

Most healthcare professionals (58%, $n = 502$) were engaged in clinical improvements regarding patient safety; for example, 63% ($n = 147$) of the assistant nurses, 57% ($n = 128$) of the physicians and 56% ($n = 213$) of the RNs rated high clinical engagement in patient safety. With regard to engagement in clinical improvements of quality of care, half (50%, $n = 433$) of the individual healthcare workers were engaged; for example, 44% ($n = 168$) of the RNs, 56% ($n = 131$) of the assistant nurses and 57% ($n = 128$)

Table 2
Descriptives of variables of social capital and of outcome measures.

	Total ($n = 865$)		Ass. nurses ($n = 233$)		RNs ($n = 381$)		Physicians ($n = 224$)	
	m (sd)	Range	*m* (sd)	Range	*m* (sd)	Range	*m* (sd)	Range
Social capital	68 (13)	32–100	67 (11)	36–98	67 (12)	36–100	70 (14)	32–100
Reciprocity	74 (16)	8–100	75 (17)	33–100	74 (16)	33–100	72 (17)	16.6–100
Trust regarding management	61 (19)	0–100	58 (15)	12.5–100	60 (18)	0–100	65 (20)	12.5–100
Mutual trust between employees	70 (14)	12.5–100	70 (15)	25–100	68 (14)	37.5–100	70 (15)	12.5–100
Recognition	67 (18)	0–100	64 (17)	25–100	66 (17)	16–100	72 (16)	25–100
Job satisfaction	65 (14)	11–100	66 (14)	22–100	64 (13)	16.5–100	67 (13)	22–100
Work engagement	3.6 (0.5)	1.7–5	3.7 (0.5)	1.9–5	3.6 (0.5)	2.1–4.7	3.6 (0.4)	1.9–4.6
Vigour	3.7 (0.6)	1–5	3.9 (0.6)	1–5	3.7 (0.6)	1–5	3.8 (0.5)	2–5
Dedication	3.2 (0.8)	1–5	3.4 (0.8)	1–5	3.2 (0.8)	1–5	3.2 (0.7)	1.3–5
Attentiveness	3.8 (0.5)	1.5–5	3.9 (0.6)	1.75–5	3.8 (0.5)	1.5–5	3.8 (0.4)	2–5
Engagement in clinical improvements								
Of patient safety	4.0 (0.7)	1–5	4.1 (0.6)	2.5–5	3.9 (0.7)	1–5	4 (0.7)	1.5–5
Of quality of care	3.8 (0.7)	1.3–5	3.9 (0.6)	2.3–5	3.7 (0.7)	2–5	3.9 (0.7)	1.6–5

Note: Range of scale for social capital and job satisfaction was 0–100.
Range of scale for work engagement and engagement in clinical improvements was 1–5.
RNs: registered nurses; Ass. nurses: assistant nurses.

of the physicians rated high engagement in clinical improvements of quality of care. The bivariate results showed the strongest association between trust regarding management and engagement in clinical improvements of patient safety ($r^2 = 0.11$, $p < 0.05$), followed by recognition ($r^2 = 0.10$, $p < 0.05$). Reciprocity had the strongest association with engagement in clinical improvements of quality of care ($r^2 = 0.12$, $p < 0.05$) and work engagement ($r^2 = 0.09$, $p < 0.05$).

4.4. Multivariate models of social capital as explanatory and predictive condition

First, we made cross-sectional analyses on baseline data of the importance of social capital for the investigated outcomes. Social capital explained 36% of the variation in job satisfaction and 12% of variance in work engagement. Social capital explained 18% of the variance in engagement in clinical improvements of patient safety work and 19% of engagement in clinical improvements of quality of care (Table 3).

Second, we assessed the importance of increased social capital for increased job satisfaction, work engagement and engagement in clinical improvements by logistic regression models. This was performed at the time for one-year follow-up. The results showed that increased social capital predicted increased job satisfaction (2.2 [1.4; 3.4]), work engagement (2.0 [1.3; 3.1]) and engagement in clinical improvements of patient safety (2.0 [1.3; 3.0]) but not engagement in clinical improvements of quality of care (1.4 [0.9; 2.1]). These associations remained when controlling for profession, years in profession and sex.

4.5. Differences between cohort and total sample

To examine differences in means of social capital between the investigated cohort (67.9 [66.7–69.0]) and our total sample (68.2 [66.9–69.5]), a *t*-test was performed.

Table 3
Multivariate regression models[a] of explained variance of job satisfaction, work engagement, engagement in clinical improvements of patient safety and engagement in clinical improvements of quality of care by social capital.

	Job satisfaction	Work engagement	Engagement in clinical improvements of patient safety	Engagement in clinical improvements of quality of care
	Estimate (*p*-value)	Estimate (*p*-value)	Estimate (*p*-value)	Estimate (*p*-value)
Social reciprocity	0.16 (<0.000)	0.006 (<0.000)	0.004 (0.019)	0.007 (0.000)
Trust regarding management	0.11 (<0.000)	0.000 (0.894)	0.007 (<0.001)	0.005 (0.001)
Mutual trust between employees	0.03 (0.45)	−0.000 (0.783)	0.008 (<0.000)	0.005 (0.027)
Recognition	0.32 (<0.000)	0.007 (<0.000)	0.005 (0.003)	0.007 (<0.000)
Adjusted r^2	0.36	0.12	0.18	0.19

[a] Adjusted for sex, profession, years in profession.

The result showed no significant ($p > 0.05$) differences between the groups regarding levels of social capital. The sample of prospective analysis could therefore be assumed to be a representative sample according to baseline sample.

5. Discussion

This study identified social capital as an important factor associated with job satisfaction, work engagement and engagement in clinical improvements of patient safety and quality of care in hospital care contexts.

Earlier research has shown that job satisfaction and employee health are related to one another (Ommen et al., 2009). There were strong associations between social capital and job satisfaction, especially regarding recognition. Similar results have been shown in other studies when measuring social capital in relation to self-rated health (Oksanen et al., 2008). The result also showed that social capital explained more than a third (36%) of the variance in job satisfaction and that increased social capital predicted job satisfaction by two times. Our second positive health-related measure, work engagement, appeared to be influenced by social capital. When investigating the importance of social capital for work engagement by logistic regression model, we found that increased social capital predicted increased work engagement by two times. However, in the multivariate regression model we found no association between the items trust and work engagement. As far as we know, only one earlier study (Susanne et al., 2013) has investigated similar correlations, and thus we cannot validate these results using previous research.

The findings in our study of associations between social capital and clinical improvements of patient safety are relevant for healthcare. The bivariate analysis showed positive associations between all measured aspects of social capital and clinical improvements of patient safety, and the results from the multivariate analysis showed that social capital explained 18% of the variation in engagement in clinical improvements of patient safety. The strongest association was trust regarding management, and the result suggests that social capital in this matter manifests in vertical relations. The bivariate associations in our study are in line with previous studies, which stress the correlations between social capital and patient safety (Auer et al., 2014). Our findings also suggest that increased social capital predicts increased engagement in clinical improvements of patient safety by two times. Earlier studies have suggested that social capital in healthcare organizations can have a positive impact on patient safety (Hofmeyer and Marck, 2008) and that social capital has a positive impact on surgery teams that manifests in successful operations (Waisel, 2005). Lack of earlier prospective studies makes it difficult to confirm these results; however, the present study contributes to increasing such knowledge of a study with a prospective design. For hospitals, this knowledge could be important to take into account when measuring patient safety and determining what aspects to focus on to increase and sustain employees' engagement in clinical improvements of patient safety. Others have stressed that social capital can be built in healthcare organizations and have an impact on patient safety (Hofmeyer and Marck, 2008). Our findings make a complementary contribution to earlier research as it showed that increased social capital in hospitals also predicts increased job satisfaction, work engagement, engagement in clinical improvements of patient safety and especially what parts of social capital to focus on.

Recent results have stressed the importance of, for example, recognition, to engage physicians in healthcare development (Lindgren et al., 2013). In the present study our result can confirm such results, as physicians were highly engaged in clinical improvements of patient safety (57%) and of quality of care (57%). We also found that both registered nurses (56% and 44%, respectively) and assistant nurses (63% and 56%, respectively) were highly engaged in clinical improvements regarding patient safety and quality of care. Overall, the result showed that most healthcare professionals were engaged in clinical improvements.

It could be argued that it should be natural to engage in quality of care when working as a healthcare professional in a hospital. Our study shows that social capital has an impact on engagement in clinical improvements of quality of care. The bivariate analysis showed positive associations between social capital and employees' engagement in clinical improvements of quality of care, and the results of the multivariate analysis stated that social capital explained 19% of the variation of employees' engagement in clinical improvements of quality of care. Reciprocity had the strongest association, and with respect to this, social capital manifests in horizontal relations, which is in line with previous research (Bourdieu, 1986). The prospective analysis indicated that increased social capital predicted increased employee engagement in clinical improvements of quality of care, but not at a significant level (1.4 [0.9; 2.1]).

Our findings are in line with the argument of Kira et al. (2010) that the development of sustainable work organizations needs to stress good health, work engagement and enthusiasm. Eriksson and Dellve (2014) suggested that the development of sustainable healthcare organizations depends on the success of engaging healthcare professionals in clinical improvements. As shown in this study, social capital is clearly associated with both job satisfaction and work engagement, which is closely related to employees' health and employees' engagement in clinical improvements. By this we stress that social capital can be important to take into account when addressing matters of developing sustainable healthcare organizations.

Our study points out that job satisfaction, work engagement and engagement in clinical improvements of patient safety increase by two times when social capital increases. However, we cannot say anything about how this develops over a longer time. The results presented were made on analyses at individual level. We also made analyses at unit levels that indicated results in the same directions, but were excluded due to of lack of power at unit level. Another limitation is that we do not know whether the respondents may have had levels of engagement different from those who chose not to participate, as participation was voluntary. The study was

performed within the context of Swedish hospitals, and interpretations of the results should consider that. However, by using the scales in COPSOQ II, the results can be transferred to an international context, as the questionnaire has been translated into several languages and used in several European countries (Pejtersen et al., 2010). Social capital has in previous research been operationalized in different ways, and because of that it is arguable that the associations to outcome measures also differ. In our study we found that the dimensions of social capital differed in how strong their associations were to the outcomes. With respect to that we stressed the importance of transparency regarding how the operationalization of social capital was performed. Regardless of this, studies of social capital with a longitudinal design in medical settings (Murayama et al., 2012; Oksanen et al., 2013) are still needed, and our study contributes to knowledge about the predictive value of social capital for work engagement. As few studies with a prospective design in medical settings have investigated social capital and job satisfaction, work engagement and engagement in clinical improvements of patient safety and quality of care, our study makes a contribution in this area of research. A question raised for further research was whether leadership could be important for social capital, and more specifically, what types of leadership are associated with social capital.

6. Conclusions

The findings contribute to a deeper knowledge of social capital as a predictive factor that influences employees' engagement in clinical improvements in patient safety and quality of care, and job satisfaction. Thus, social capital can have practical implications in Swedish hospitals when increased social capital also increases the employees' job satisfaction, work engagement and engagement in clinical improvements of patient safety. The results could be useful to implement in education programmes for both managers and professionals in hospital settings, and also for managers to bring into practice at workplaces by working with recognition, trust and social reciprocity. Thus, social capital in hospitals can be viewed as resource for sustainable organizational development.

Conflicts of interest

None declared.

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Ethical approval

The study was approved by the Central Ethical Review Board at Karolinska Institutet, Stockholm, Sweden (2012/94-31/5).

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