The impact of organizational culture on the outcome of hospital care: After the implementation of person-centred care

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Abstract

Aims: To measure the effect of organizational culture on health outcomes of patients 3 months after discharge. Methods: a quantitative study using Organizational Values Questionnaire (OVQ) and a health-related quality of life instrument (EQ-5D). A total of 117 nurses, 69% response rate, and 220 patients answered the OVQ and EQ-5D, respectively. Results: The regression analysis showed that; 16% ($R^2 = 0.02$) of a decreased health status, 22% ($R^2 = 0.05$) of pain/discomfort and 13% ($R^2 = 0.02$) of mobility problems could be attributed to the combination of open system (OS) and Human Relations (HR) cultural dimensions, i.e., an organizational culture being dominated by flexibility. Conclusions: The results from the present study tentatively indicated an association between an organizational culture and patients’ health related quality of life 3 months after discharge. Even if the current understanding of organizational culture, which is dominated by flexibility, is considered favourable when implementing a new health care model, our results showed that it could be hindering instead of helping the new health care model in achieving its objectives.

Key Words: Culture, implementation, public health, quality of life, Sweden

Introduction

It has been suggested that the organizational culture can have stronger impact on the production rather than technologies and operating procedures. It has also been suggested that organizational culture should be regarded as an essential starting point before any change is implemented [1]. There are good reasons to believe that the health-care industry is no exception from this. As an effect of cultural dimensions, health care reforms in hospitals have proven not to develop according to expectations or even to fail [2–4].

Strong cultures are often found in old organizations with long traditions [5]. This is especially apparent in public non-profit organizations in countries with few competitive alternatives. Axelsson [6] characterize Swedish public health care as an old, hierarchical and coherent monopoly. The reason is a long tradition, a lack of competition and conservatism [7].

Little is known, which is also conflicting, about the impact of organizational culture on the health outcomes after discharge from hospital. Studies of organizational subcultures and their impact on the performance of healthcare organizations have often focused on the management, job satisfaction, performance and safety climate [8,9]. Scott et al. reviewed a different 10 studies in an attempt to answer “does organizational culture influence health care performance? A review of the evidence” in which he found there is some evidence to suggest that organizational culture may be a relevant factor in the performance of health-care organizations, however, articulating the nature of that association proves difficult [10]. None of these studies did however link culture with health outcome. One exception from this is a study of more than 3000 Coronary Artery Bypass patients from 16 hospitals where very little of the functional...
An organizational culture is being described as the “normative glue” that holds individuals together in an organization. A well-established way to measure organizational cultures is a model that has been used in the private industry since the 1980s. It is based on Quinn and Rohrbough’s model, the Competing Values Framework (CVF) [12,13]. It was developed in order to identify competing organizational cultures and used as a tool to characterize a certain organization. When identified, the co-variation of the cultural character can be measured. Quinn and Rohrbough [12,13] define organizational culture as a complex of four different dimensions building mainly two opposite cultural characters. The first one of these opposite characters composed of Human Relation (HR) and Open Systems (OS) dimensions, which value flexibility, cohesion and trust. The second one of these opposite characters composed of Internal Processes (IP) and Rational Goal (RG), which value control, routines and stability.

From this basic definition of organizational culture in the CVF, Reino [14] developed an instrument, the Organizational Values Questionnaire (OVQ). Instruments based on the CVF have rarely been used on the health-care industry. A few exceptions are two Swedish studies [15,16], and Saame et al. [17] who studied an Estonian hospital using the CVF framework and OVQ instrument in order to highlight the patterns of organizational hospital culture. Saame et al. [17] found a dominance of internal

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health status was associated with organizational culture. A supportive group culture characterized by trust was however associated with high physical and mental functional health-status scores, 6 months after discharge [3]. The original idea of better efficiency and improved quality of care failed to meet the intended results. This induces a need to focus on the effect of cultural factors on the outcome of care.

The aim of this study was to find out more of the connection between culture dimensions and health outcome. The area is still in need of research compared to other causes to health outcomes, e.g., therapies, care models and medical techniques. We measured the effect 3 months after discharge in order to detect sustainability in the co-variation of the data. The study was performed in connection with a change project implementing a person centred care model (PCC). The PCC model is aimed at improving the quality of care by shifting care to a staff–patient partnership in care which will empower the patient to be able to manage their illness after discharge [11].

Method

The organizational culture and health related quality of life were measured through two instruments – The Organizational Values Questionnaire (OVQ) developed by Reino [14], and the EQ-5D, which is a standardized and widely-used instrument to measure health related quality of life [23].

The OVQ-instrument was validated to its Swedish version in an earlier study of the impact of organizational culture on resistance to change in health care settings [15]. It measured the dimensions of HR, OS, RG and IP, based on the Competing Values Framework (CVF) [12,13]. It consisted of 52 items with alternative answers of the Likert type ranging from strongly disagree to strongly agree. Averages were calculated for the total OVQ and for each subscale; a high score indicates strong disagreement.

The EQ-5D is a generic quality-of-life survey developed by the EuroQol Group and used widely by health economists and care scientists. Initially, the survey was only available in the United Kingdom, but over the past decade, several country-specific value sets, including Scandinavian countries, have been estimated and compiled by the EuroQol Group. EQ-5D includes five dimensions; mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Each dimension is divided into three
levels (no problem, moderate and severe problems). The instrument was used to measure the quality of life 3 months after discharge from the hospital in order to detect sustainable effects of cultural dimensions in the health care settings. Three months was found to be a reasonable time period to measure the effect.

In order to compare the results to the impact of other plausible independent variables on health outcomes the estimation of weight, vertigo and New York Heart Association Functional Classification (NYHA), measuring the effects of heart failure, were collected at the time of discharge and used in a follow up calculation. Weight were presented as a scale, vertigo as a yes or no answer, and NYHA in a Likert-type range of five levels from no symptoms to severe symptoms.

**Context**

The study was performed at four medical hospital wards in one hospital in western Sweden. The four wards were the first in western Sweden to be subjected to the implementation process of person-centred care model in order to reduce a standardized conform care. Person-centred care means a shift from a model where the patient often is the passive object of a medical intervention, to a model where an agreement is made with the patient (often together with related parties) that is active in the planning and implementation of their health plan. PCC will for that reason also have an impact on the organization as a whole. In the usual care model, the medical treatment is the only goal and from a nursing perspective the focus is on the patient’s needs, not as in PCC on each patient’s needs, but also their resources. Goals are therefore formulated in PCC in partnership with the patient and the focus is on the patient’s goals and resources to obtain them. PCC also demand a change in the way health professionals work together, in PCC each profession works independently but in a team including the patient in order to support the patient and reach the goals [24]. This partnership is shown to improve the perceived quality of care for patients [25]. The reason to measure the impact of organizational culture is based on the hypothesis that it’s not just the newly implemented care model that has effect on the health outcome but also an organizational culture. All wards were organized in a similar way; and consisted of one corridor except one ward which had two adjacent corridors. All wards had a similar mix of patients and shared the same group of physicians. The distribution of professionals was also similar in all the studied wards.

**Statistical methods**

The analysis stems mainly from descriptive data and regressions (bivariate and multiple). For the regression analysis only, the two main instruments OVQ and EQ-5D were converted to a common 5-point scale by linear transformation as described by Dawes [26]. Means and standard deviations were used for descriptive purposes. Cronbach’s alpha varied between 0.86 and 0.93. Statistical significance was recognized at p value < 0.05 and all tests were two-tailed. Descriptive statistics were calculated in form of counts and percentages.

**Participating staff**

A total of 117 Registered Nurses (RN) (69% response rate), of which 89% were women and 11% were men, from four hospital wards, participated by answering the OVQ questionnaire. The included staff participants (n = 117) consisted of 73 RN and 48 enrolled nurses. Their ages ranged from 23 to 63 years of age. Their average experience from nursing was more than 11 years. Two reminders were sent out.

Fifty-three RN (31%) did not respond and two of them returned the envelope unanswered without explanation. A total of 15 items were not answered in the 117 returned questionnaires. All four wards were subjected to the change process.

**Participating patients**

A group of 220 patients admitted to the four studied hospital wards were included, and participated by answering the EQ-5D questionnaire. Patients with life expectancy of less than 3 months, heart diseases needing surgery or coronary angiography within 3 months, cognitive impairment or dementia, and unwillingness to participate, were excluded. The included patients suffered from chronic heart failure (CHF). The average age of the patients was 78.7 years and the average hospital stay was 7.6 days. All patients received oral and written information about the study and gave signed consent [11]. Two reminders were sent out.

The Regional Ethical Review Board approved the study and the investigation conformed to the principles outlined in the Declaration of Helsinki on ethical principles for medical research involving humans [27].

**Results**

An organizational culture dimension of human relation (HR) dominated the studied hospital wards.
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The hospital ward cultural dimensions; HR, OS, RG and IP relation to quality of life, i.e., mobility, self-care, usual activities, pain/discomfort and anxiety/depression 3 months after discharge, was tested in a number of bivariate regressions. HR representing flexibility was significantly correlated to all the items ($p = 0.00–0.02$). OS representing flexibility was significantly correlated to all the items except one, usual activities ($p = 0.00–0.05$). However, all these regressions displayed $R$ values below 10%, except the relation between HR and pain ($R = 0.21, R^2 = 0.05$).

Neither RG or IP did have enough impact on patient health care status to display significant results. This result tentatively indicates that hospital culture dimensions of HR and OS, i.e., flexibility can be associated with the patient health outcome three month after discharge (Table III).

In series of multiple regressions, the impact of HR and OS on the five EQ-5D variables from the bivariate regressions was tested (Table III). The regression displayed that 16% ($R^2 = 0.02$) of a decreased health status, 22% ($R^2 = 0.05$) of pain/discomfort and 13% ($R^2 = 0.02$) of mobility problems could be attributed to the combination of OS and HR in the hospital wards. The variables of self-care and anxiety/depression displayed $R$ values below 10%. All variables, except the HR impact on pain/discomfort and the OS impact on health status, displayed low $t$ values and were lacking significance of their own. The reason could be that they co-variate or that they were present as an earlier link in connection to the cause. The result tentatively indicates that an organizational culture dimension of HR and OS in the hospital ward moderately contribute to a decreased health related quality of life 3 months after discharge, especially in the pain/discomfort variable (Table IV).

The weak results encouraged us to compare them to other plausible reasons to a decreased health status. The $R^2$s, as in the presented regressions, suggest that there are more factors acting on the data, and we need to keep looking for more causes [28]. We did choose weight, vertigo and NYHA [29]. These regressions displayed however surprisingly weak results. Vertigo displayed a decreased health status in all five EQ-5D dimensions from 17%–22% ($R^2 = 0.03–0.07$). Weight displayed a decreased health status in the self-care dimension (17%, $R^2 = 0.03$) and the NYHA classification did not display any significant results.

**Discussion**

The results from the present study indicate that organizational cultures which value flexibility were

<table>
<thead>
<tr>
<th>OQV subscale</th>
<th>Ward 1</th>
<th>Ward 2</th>
<th>Ward 3</th>
<th>Ward 4</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human relations</td>
<td>6.85</td>
<td>7.42</td>
<td>6.45</td>
<td>7.43</td>
<td>7.1</td>
</tr>
<tr>
<td>Open systems</td>
<td>6.52</td>
<td>6.08</td>
<td>5.36</td>
<td>6.73</td>
<td>6.3</td>
</tr>
<tr>
<td>Rational goal</td>
<td>6.97</td>
<td>6.14</td>
<td>6.08</td>
<td>6.37</td>
<td>6.4</td>
</tr>
<tr>
<td>Internal processes</td>
<td>6.53</td>
<td>5.65</td>
<td>5.61</td>
<td>5.94</td>
<td>5.9</td>
</tr>
<tr>
<td>All</td>
<td>6.72</td>
<td>5.9</td>
<td>6.3</td>
<td>6.9</td>
<td></td>
</tr>
</tbody>
</table>

*(M = 7.12, SD = 1.22).* Rational goal (*M* = 6.38, *SD* = 0.98) was the second most dominating cultural dimension followed by open systems (*M* = 6.28, *SD* = 1.10). Internal processes (*M* = 5.94, *SD* = 0.82) had the least impact on the wards.

Ward number one had an almost equal mix of the four different cultural dimensions. It was slightly dominated by RG, which is characterized by control, closely followed by HR which value flexibility. Ward number three was dominated by HR as well as ward number two and four that were quite similar in their distribution of characteristics (Table I).

EQ-5D dimension of pain/discomfort was in average generating a moderate pain or discomfort (*M* = 1.78, *SD* = 0.68) which was followed by the mobility dimension, in average some problems in walking (*M* = 1.73, *SD* = 0.78). The item of least impact was self-care. Most of the patients declared they didn’t have any problems with self-care (Table II).

**Bivariate and multiple regressions**

The weak results encouraged us to compare them to other plausible reasons to a decreased health status. The $R^2$s, as in the presented regressions, suggest that there are more factors acting on the data, and we need to keep looking for more causes [28]. We did choose weight, vertigo and NYHA [29]. These regressions displayed however surprisingly weak results. Vertigo displayed a decreased health status in all five EQ-5D dimensions from 17%–22% ($R^2 = 0.03–0.07$). Weight displayed a decreased health status in the self-care dimension (17%, $R^2 = 0.03$) and the NYHA classification did not display any significant results.

**Discussion**

The results from the present study indicate that organizational cultures which value flexibility were...
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tively associated with a decrease in patient
health-related quality of life. The results were,
however significant, weak displaying low $R^2$
values. Furthermore, a culture which value control was not
significantly associated with patient health related
quality of life 3 months after discharge. A follow-up
regression showed that physical factors also did have
a weak impact on the long-term health outcome.

It’s has been suggested that organizational culture
which value flexibility is a favourable environment to
implement new health care models [15]. However,
the result in this study appears to be in contrast with
that suggestion. Even if flexibility is favourable in
order to implement new health care models [15], it
seems that such a characteristic is not necessarily the
optimal state to yield the better health outcomes
intended by the implementation of PCC.

A culture characterized by flexibility may, through
communication with the patient, promote a better
understanding about what are the needed activities
for discharge. However, a culture that is character-
ized by control may, through schedules made for the
patient, promote a better understanding about how
the needed activities should be done. Therefore, a
combination of opposite characters may support per-
son-centred care, i.e., a balance between flexibility
and control support the planning and implementa-
tion of the discharge health plan, respectively. This
highlights the importance of complex and sometimes
paradox organizational cultures which was hypothe-
sized by different studies to be considered essential
to implement and maintain the change within safe
boundaries [12,13,16,30].

However, it seems important to value flexibility
and openness during a change process. It also seems
important to maintain a combination of cultural
dimensions in order to sustain new care models. Even
if a culture which value flexibility has been proven to
facilitate change process implementing PCC [15], it
also has a negative effect on the outcome of the
expected effects of the reform [14].

A limitation was that EQ-5D is not considered a
highly-sensitive instrument to measure health-
related Quality of life, and it was used 3 months
after discharge. The effects of culture would proba-
bly be stronger immediately after discharge and a
period of 6 months to a year would probably make
it difficult to detect an effect of culture because the

<table>
<thead>
<tr>
<th>Table III. Bivariate regressions OVQ and EQ-5D.</th>
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<tbody>
<tr>
<td><strong>Bivariate regression</strong></td>
</tr>
<tr>
<td>Independent variables: OS, HR, IP and RG ($n = 117$)</td>
</tr>
<tr>
<td>Dependent variables: EQ-5D ($= 224$)</td>
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<tr>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>Dependent variable, EQ-5D Mobility</td>
</tr>
<tr>
<td>OS</td>
</tr>
<tr>
<td>HR</td>
</tr>
<tr>
<td>IP</td>
</tr>
<tr>
<td>RG</td>
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<tr>
<td>Dependent variable, EQ-5D Self-care</td>
</tr>
<tr>
<td>OS</td>
</tr>
<tr>
<td>HR</td>
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<tr>
<td>IP</td>
</tr>
<tr>
<td>RG</td>
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<tr>
<td>Dependent variable, EQ-5D Usual activities</td>
</tr>
<tr>
<td>OS</td>
</tr>
<tr>
<td>HR</td>
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<tr>
<td>IP</td>
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<tr>
<td>RG</td>
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<tr>
<td>Dependent variable, EQ-5D Pain discomfort</td>
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<tr>
<td>OS</td>
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<tr>
<td>HR</td>
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<tr>
<td>IP</td>
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<tr>
<td>RG</td>
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<tr>
<td>Dependent variable, EQ-5D Anxiety depression</td>
</tr>
<tr>
<td>OS</td>
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<tr>
<td>HR</td>
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<tr>
<td>IP</td>
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<td>RG</td>
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</table>
Table IV. Multiple regression of the OS and HR cultures and EQ-5D variables.

<table>
<thead>
<tr>
<th>Dependent variable, EQ-5D Mobility</th>
<th>Bivariate regression</th>
<th>Multi-regression</th>
<th>Difference</th>
<th>T value</th>
<th>Sign.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS</td>
<td>Standard Beta</td>
<td>R = 0.13</td>
<td>R² = 0.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HR</td>
<td>Standard Beta</td>
<td>0.09</td>
<td>0.13</td>
<td>-0.05</td>
<td>1.15</td>
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</table>

<table>
<thead>
<tr>
<th>Dependent variable, EQ-5D Self-care</th>
<th>Bivariate regression</th>
<th>Multi-regression</th>
<th>Difference</th>
<th>T value</th>
<th>Sign.</th>
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<tbody>
<tr>
<td>OS</td>
<td>Standard Beta</td>
<td>R = 0.08</td>
<td>R² = 0.01</td>
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<td></td>
</tr>
<tr>
<td>HR</td>
<td>Standard Beta</td>
<td>0.05</td>
<td>0.09</td>
<td>-0.03</td>
<td>0.62</td>
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<table>
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<tr>
<th>Dependent variable, EQ-5D Usual activities</th>
<th>Bivariate regression</th>
<th>Multi-regression</th>
<th>Difference</th>
<th>T value</th>
<th>Sign.</th>
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<tbody>
<tr>
<td>OS</td>
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<td>R = 0.10</td>
<td>R² = 0.01</td>
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<tr>
<td>HR</td>
<td>Standard Beta</td>
<td>0.09</td>
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<table>
<thead>
<tr>
<th>Dependent variable, EQ-5D Pain/Discomfort</th>
<th>Bivariate regression</th>
<th>Multi-regression</th>
<th>Difference</th>
<th>T value</th>
<th>Sign.</th>
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</thead>
<tbody>
<tr>
<td>OS</td>
<td>Standard Beta</td>
<td>R = 0.22</td>
<td>R² = 0.05</td>
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</tr>
<tr>
<td>HR</td>
<td>Standard Beta</td>
<td>0.04</td>
<td>0.09</td>
<td>0.01</td>
<td>0.56</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependent variable, EQ-5D Anxiety/Depression</th>
<th>Bivariate regression</th>
<th>Multi-regression</th>
<th>Difference</th>
<th>T value</th>
<th>Sign.</th>
</tr>
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<tbody>
<tr>
<td>OS</td>
<td>Standard Beta</td>
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<td>R² = 0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HR</td>
<td>Standard Beta</td>
<td>0.21</td>
<td>0.23</td>
<td>-0.02</td>
<td>2.98</td>
</tr>
</tbody>
</table>

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Effect of other spurious factors during the months after discharge. If EQ-5D were measured at the discharge, the results could have been different, e.g., a stronger co-variation. The present study display, despite statistical significance, low R and R² values. This indicates a covariance of spurious and so far unknown reasons. This emphasizes the need of further studies. The significance does, however tentatively show a potential impact of culture on health outcomes.

Another limitation is that the data collection is performed in one hospital in Sweden. Cultures can shift between countries, within countries and hospitals, something that calls for more studies from different contexts.

Conclusion

The results from the present study do tentatively indicate an association between an organizational culture and patients’ health-related quality of life 3 months after discharge. Even if the current understanding of organizational culture which is dominated by flexibility is considered favourable when implementing a new health care model, it could be hindering instead of helping the new health care model in achieving its objectives.

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Conflict of interest

None declared.

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References

Organizational culture in markets, bureaucracies, and clans. 


Dawes J. Do data characteristics change according to the number of scale points used? An experiment using 5 point, 7 point and 10 point scales. Int J Market Res 2008;51:77.


