ORIGINAL ARTICLE

The relationship between organizational health and performance indicators of Iran University hospitals

Mohammad Khammarnia,[1] Abdolvahab Baghbanian,[2] Ramin Mohammadi,[3] Ahmad Barati,[4] Hossein Safari[5]

Abstract

Objective: To investigate hospital employees' perception on organisational health, and to examine the contribution of organisational health to hospital performance indicators.

Methods: The explanatory study was conducted over six months in 7 teaching hospitals affiliated with Iran University of Medical Sciences. A sample of 320 hospital employees were chosen through a random, cluster, sampling strategy from four job categories: hospital support, nursing, paramedical and medical staff. The pre-designed Parsons' model was adapted to develop the study questionnaire, aiming at measuring the organisational health, while self-designed checklists were used to measure performance indicators of the relevant hospitals. SPSS 18.0 software was used for statistical analysis.

Results: Of the total 320 questionnaires distributed, 20(6.25%) had to be discarded. The study population, as such, was 300(93.75%). Of then 216(72%) were males and the largest group (n=111; 37%) was in the 30-39 age group. According to the respondents' perception, all hospitals were assumed healthy. Although two dimensions of organisational health institutional integrity and initiating structure were closely linked to some hospital performance indicators ($p \leq 0.05$), but the overall organisational health scores of the hospitals showed no correlation with performance indicators.

Conclusion: Organisational Health Index has the potential to offer a simple diagnostic tool for healthcare authorities to measure the organisational health of their facilities.

Keywords: Healthy Organisation, Hospital indices, Hospital performance indicators. (JPMA 63: 1021; 2013)

Introduction

Healthcare systems are becoming increasingly complex and inter-dependent. Political, economic, institutional, ethical and other decisions shape the quality of health systems' environment as well as delivery of care and interactions with their customers through many choices among available alternatives.[1,2] It is now common knowledge that quality of health systems, their performance and services are greatly judged by considering the essential features of healthy organisations. Organizational Health (OH), pioneered by Miles,[3] first emerged as a concept to reflect the effectiveness of schools in various environments and to show how they react to changes in difference circumstances. In other words OH, as a concept, refers to an organisation's ability to effectively achieve sustainable outcomes and to cope appropriately with its environment, in an effort to enhance organisational performance and to support employees' well-being.[3-5] These perspectives are somehow different, but they are not mutually exclusive, and issues in one have an influence on the other.

Organisational performance is a true measure of how well a system of management operates. It is the ultimate result of the organisation's business processes and activities. An organisation's success in improving performance depends largely on the skills and motivation of its workforce.[3-6] Any improvement in organisational performance requires a thinking approach to the development of human resources in the organization.[7] In contrast, employee well-being is a subjective state that incorporates employees' physical, psychological and social health, and their satisfaction within the context of the workplace. Increasing employees' level of well-being can sustain or improve their engagement in an organization.[4,5,7,8]

In general, Organizational Health includes several dimensions/elements like:

Goal Focus: The ability of persons, groups, or organisations to have clarity, acceptance, support and advocacy of goals and objectives.

Communication Adequacy: The state when information is relatively distortion-free and travels

[1,2]Health Promotion Research Centre and Faculty of Health, Zahedan University of Medical Sciences, [3,4]Iran University of Medical Sciences, [5]Tehran University of Medical Sciences, Iran.

Correspondence: Abdolvahab Baghbanian. Email: vahab.b@gmail.com

both vertically and horizontally across the boundaries of an organisation.

Optimal Power Equalisation: The ability to maintain a relatively equitable distribution of influence between the leader and members of his/her work unit.

Resource Utilisation: The ability to coordinate and maintain inputs, particularly personnel, effectively with a minimal sense of strain.

Cohesiveness: The state when persons or groups have a clear sense of identity; are attracted to membership; want to stay; and are willing to influence and to be influenced.

Morale: That state in which a person, group, or organization have feelings of security, satisfaction, well-being, and pleasure.

Innovativeness: The ability to be and allow others to be inventive, diverse, creative and risk-taking.

Autonomy: That state in which a person, group, or organisation has the freedom to fulfill their roles and responsibilities.

Adaptation: The ability to tolerate stress and maintain stability while changing to meet the unique needs of their stakeholders.

Problem-Solving Adequacy: The ability to perceive problems and to solve them with minimal energy. Problems get solved, stay solved and the problem-solving procedures are strengthened.[3]

A multifaceted interplay of factors contribute to OH, largely due to the interrelated components of a system functioning together to seek a dynamic balance in complex environments.[5,7] For example, conflict regarding the two requirements of OH, and the way this conflict is managed, places a significant influence on the health of an organization.[9] While the interaction between organisational performance and employees' well-being requirements affects the organisation's ability to improve efficiency and effectiveness of its services, unhealthy conflicts between the two may put the system in danger and overall result in lack of productivity in community development sectors.[9]

All social systems, including hospitals, face complexities and uncertainties. Hospitals, within healthcare networks, are well placed to play a key role in the development of communities. They provide a range of medical, treatment, teaching and research services. A number of indicators are used for internal and external evaluation of a hospital performance. However, they should be designed in ways that measure the attainment level to the expected goals. These indicators are central to identifying a hospital's performance, and should be regularly updated at specific times and places to reflect new developments. Some of the key performance indicators and the indicators of a hospital include; in-patient bed occupancy rate, patient's average length of stay, active/fixed (licensed) bed ratio, rate of admissions per (active and licensed) bed, hospital death rate (gross and net), bed turnover interval, and bed turnover rate.[10] Like any other organisation, hospitals should be kept healthy if they are to provide healthcare services and maintain and enhance the communities' health.

Yet, little is known about how healthy hospital organisations are. Hospital executives' commitment has been recognised as an effective route to hospital's success. However, it is not clear how performance indicators and hospitals OH affect each other. The current study was planned to examine the respondents' perceptions of hospital OH, and to shed further light on the contribution of OH to improving hospital performance indicators.

Subject and Methods

The explanatory study was conducted over six months during 2010 and the study population comprised 320 employees working at 7 teaching hospitals affiliated with the Iran University of Medical Sciences. The sample size was determined using alpha=0.05 and r=17.80. The subjects were recruited through a proportional, stratified sampling strategy from four job categories: hospital support, nursing, paramedical and medical.

The Parsons' model, designed by Hoy & Feldman,[4] was adapted to assist with the development of the questionnaire, which aimed at measuring the (OH), while self-designed checklists were used to measure performance indicators of the 7 hospitals. The questionnaire had two parts: demographic (e.g. age, gender, working experience, marital status, employment type and job category) and other specific questions about OH of the hospitals. The specific questions were framed according to the study objectives. They included three parts: technical, administrative and institutional which were categorised into seven dimensions of morale, academic emphasis, consideration, initiating structure, resource support, principal influence, and institutional integrity. Likert scale questions were applied to collect the data.

The final version of the questionnaire was tested for

validity and reliability using conventional methods, including professionals' advice and Cronbach's alpha (0.88). Questions numbered 2-7, 12 and 30 were scored reversely. Accordingly, a hospital OH was considered 'very much healthy' if the total score was calculated to be between 170 and 220. If the total score was between 132 and 169, the organisation was considered 'highly healthy'. Furthermore, if the score was between 88 and 131, the organisation was considered 'healthy'. However, the organisation was 'unhealthy' if the total score was between 44 and 87.

The checklist included questions regarding hospital performance indicators (HPIs), such as bed occupancy rate, patient's average length of stay, active/fixed bed ratio, rate of admissions per bed, hospital death rate, bed turnover interval and bed turnover rate. Hospital records were applied to gather the required data. The validity and reliability of the checklist has already been evaluated.[11]

Data was analysed using SPSS 18. Spearman correlation test was used to determine the correlation between variables. Further statistical analyses were applied to describe the data. These included frequency tables and Likert-type preferences. The study was approved by the Ethics Committee of the university.

Results

After leaving out 20(6.25%) questionnaires for individual non-response and missing data, 300 (93.75%) responses represent the final study sample. Most of the respondents (n=216, 72%) were male, while the remaining (n=84, 28%) were female. Besides, III (37.09%) were in the 30-39 age group, and the least (n=5; 1.7%) were over 50 years old. The majority (n=276, 90.9%) had undergraduate qualifications bachelor's degree or less), whereas just 24 (9.1%) had higher degrees, including Masters and doctorate. In addition, 82(27.33%) respondents had less than 5 years of work experience, 63(21%) had 5-10 years, 66(22%) has 10-15 years, and 57(19.1%) had 15-20 years of work experience in health-related fields. Only 32(10.66%) had more than 20 years of working experience. With regard to employment status, 146(48.7%), 96(32%) and 58(19.3%) of the respondents had respectively tenure (permanent) status, long-term agreement (fixed-term) and contract-based employment with their hospitals. Nursing (n=138, 46%), supportive or auxiliary (n=98, 32.7%) and paramedic (n=42, 14%) employees were the most dominant professions. Only 22(7.33%) were from the medical staff category.

Further, based on the participants' views, the average OH scores were computed for each hospital, and it was found that 12(4%) of the participants evaluated their hospitals as 'highly healthy' with a score between 170 and 220; 204(68%(evaluated their hospital OH as 'high' (132-169 scores), and (28%) evaluated their hospitals as being 'healthy' (88-131 scores). Nonetheless, according to the respondents' perception, the overall OH scores for all

Table-1: Frequency Distribution of Organizational Health Scores among the hospitals.

	Hospitals							Total
Organisational Health level	Shahid Yahyaeian	Firouzgar	Ali-e-Asghar	Iran psychiatric	Motahari	Akbar-Abadi	Rasool-e-Akram	
Very high (220-170)	0 (0.0%)	3 (8.0%)	0 (0.0%)	0 (0.0%)	2 (6.6%)	2 (6.6%)	2 (1.6%)	9 (3%)
Up (169-132)	23 (76.0 %)	23 (65.0%)	25 (71.0%)	17 (85.0%)	19 (63.3%)	22 (73.4%)	78 (65.4%)	207 (69%)
Normal (131-88)	7 (24%)	9 (27.0%)	10 (29.0%)	3 (15.0%)	9 (30.1%)	6 (20%)	40 (33%)	84 (28%)
Total	30 (100%)	35 (100%)	35 (100%)	20 (100%)	30 (100%)	30 (100%)	120 (100%)	300 (100%)

Table-2: Performance indicator of the hospitals.

Performance Indices Hospital	Active-to Licensed Bed ratio	Net Death Rate	Gross Death Rate	Bed Turnover Interval	Average Length of Stay	Number of Death	Discharged Patients	Admission per Active Bed	Admission per Licensed Bed	Total Hospitalisations	Bed Occupancy Day	Total Bed Occupancy Day
Hazrat-e Rasoul	87%	5.1	6.2	0.07	5.5	984	37538	7.62	8.43	37646	78%	127944
Akbar-Abadi	70%	5.2	6	0.03	2.2	609	21074	4.61	9.4	13087	63%	37229
Motahari	65%	7.0	7.0	8.0	7.0	143	1819	4.17	33.11	1984	48%	15124
Iran psychiatric	76%	0.0	0.0	0.44	27	0.0	1188	6.1	12.8	1218	90%	31760
Ali-e-Asghar	89%	66.1	35.2	9.3	6.0	137	4681	39.0	32.0	5813	58%	30885
Firouzgar	70%	7.2	1.3	-	6.0	415	12450	48.0	38.0	13000	83%	81000
Shahid Yahyaeian	60%	1.0	1.0	-	6.0	4	5106	94.25	59.15	3892	51%	28895

Table-3: Correlation between Various Dimensions of Organisational Health/Overall Organisational Health and Hospital Performance Indicators.

Hospital Performance Indices		Active-to Licensed Bed ratio	Net Hospital Death Rate	Gross Hospital Death Rate	Bed Turnover Interval	Average Length of Stay	Discharged Patients	Admission per Active Bed	Admission per Licensed Bed	Total Hospitalisations	Bed Occupancy Day	Total Bed Occupancy Day
Dimensions of Organisational Health												
Morale	r*	-0.05	-0.01	-0.05	0.99	0.03	-0.03	-0.05	-0.05	-0.02	0.2	-0.003
	p*	0.15	0.84	0.34	0.14	0.62	0.59	0.36	0.36	0.68	0.73	0.95
Academic Emphasis	r	-0.057	0.002	-0.027	-0.086	0.087	-0.115	-0.094	-0.078	-0.112	0.013	-0.092
	p	0.34	0.96	0.64	0.2	0.14	0.053	0.11	0.19	0.06	0.83	0.12
Consideration	r	-0.093	-0.011	-0.02	-0.037	-0.14	-0.081	-0.065	-0.063	-0.084	-0.038	-0.076
	p	0.11	0.85	0.73	0.57	0.8	0.17	0.27	0.28	0.15	0.52	0.2
Initiating Structure	r	-0.105	0.103	0.137	-0.187	-0.062	-0.103	-0.019	-0.016	-0.129	-0.093	-0.144
	p	0.07	0.07	0.18	0.05	0.29	0.07	0.75	0.78	0.027	0.11	0.01
Resource Support	r	-0.001	-0.03	-0.063	-0.015	0.104	-0.05	-0.064	-0.052	-0.039	0.06	-0.017
	p	0.91	0.61	0.28	0.82	0.07	0.39	0.28	0.38	0.51	0.3	0.7
Influence	r	-0.029	0.09	0.119	-0.11	-0.074	-0.02	0.037	0.037	-0.039	-0.05	-0.051
	p	0.62	0.13	0.048	0.1	0.22	0.73	0.54	0.54	0.52	0.4	0.36
Institutional Integrity	r	0.043	0.07	0.038	0.274	-0.134	0.204	0.16	0.144	0.21	0.078	0.214
	p	0.48	0.24	0.53	0	0.026	0.001	0.008	0.017	0	0.19	0
Overall Organizational Health	r	-0.1	0.02	0.007	-0.05	0.025	-0.11	-0.08	-0.07	0.11	-0.03	-0.1
	p	0.132	0.712	0.922	0.458	0.706	0.079	0.197	0.266	0.075	0.604	0.12

studied hospitals were between 132 and 169 (Table-1).

Further analysis showed that the means overall OH scores for all hospitals were nearly equal: [Hazrat-e Rasoul (134.36±12.04), Akbar-Abadi (137.77±25.07), Motahari (138.90±18.75), Iran psychiatric (137.80±5.45), Ali-e-Asghar (137.18±12.56), Firouzgar (140.00±15.72), and Shahid Yahyaeian (136.80±1.12)].

Regarding HPIs, Hazrat-e Rasoul and Motahari hospitals had the highest and the lowest total number of occupied bed days with 127944 and 15124 days, respectively. Regarding the bed occupancy rate, Iran Psychiatric and Motahari Hospital's had the highest (90%) and the lowest rate (48%), respectively. Furthermore, Hazarat-e Rasoul Hospital had the highest total number of hospitalisations with 37646 admitted patients per year, and Iran. Psychiatric had the lowest number with 1218 patients per year. In contrast, Hazarat-e Rasoul Hospital had the most discharges (n=37538) and deaths (n=984), while Iran Psychiatric had the lowest discharges (n=1188) and zero death rate. With regard to the average length of stay, Akbar-Abadi Hospital, with 2.2 days, and Iran Psychiatric with 27 days, had the lowest and the highest lengths of stay, respectively (Table-2).

No significant correlation was found between morale, academic emphasis, consideration and resource support dimensions of OH and HPIs ($P \geq 0.05$). However, the correlation between OH initiating structure and hospital performance indicators such as bed occupancy rate, total hospitalisations, bed turnover interval and hospital mortality rate was statistically significant ($P \leq 0.05$). There was a significant correlation between institutional integrity dimension of OH and indicators such as bed occupancy rate, total hospitalisations, active/fixed bed ratio, discharged patients, average length of stay, and bed turnover interval ($P \leq 0.05$). However, in general, no significant correlation was found between overall OH and HPIs of the studied hospitals (Table-3).

Discussion

The study found that the initiating structure dimension of OH correlated significantly with HPIs including bed occupancy rate, total hospitalisations, bed turnover interval and hospital mortality rate. This finding implies the managers' interest (and more likely their need) in following some certain principles or rules to better align with organisational goals and objectives, and further signals their opinions towards high-quality services and future activities. It also shows that healthy hospital climate influenced the quality of care, and that in the light of appropriate structure, performance would improve.

This finding differs from the results of a study[12] where no significant correlation was found between initiating structure dimension of school's OH and the employees' performance. Similarly, this finding reflects

the findings of one study[13] which showed no significant correlation between initiating structure dimension of OH and the students' progress in learning mathematics. The study's results were, however, in line with a study which reported significant correlation between initiating structure and organisational commitment.[14]

In addition, a significant correlation existed between institutional integrity of OH and HPIs, including bed occupancy rate, total hospitalisations, active/fixed bed ratio, discharged patients, hospital death rate as well as average length of stay and bed turnover interval. While this relationship indicates that healthy hospitals have institutional integrity, they are vulnerable to destructive outside forces, and face environmental complexities and uncertainties, as well as irrational or unreasonable clients' demands. This finding supports earlier studies which indicated significant correlations between institutional integrity and employees' organisational commitment.[12,15]

In contrast, the study found that there was no significant correlation between workforce-supporting dimension of OH (resource support) and the HPIs. This finding shows that workplace materials and information may not be good or available enough to provide employees with necessary support, guidance and feedback, needed to improve organisational performance; and that employees do not receive early education or facilities, essential to the operation of the organisation (healthcare settings). This finding contrasts with one study which found a positive correlation between the two among a number of school principals.[16] This different is likely explained by the nature and context of schools which differ from healthcare facilities.

Further analysis revealed no significant correlation between other elements of OH (including dimensions of morale, academic emphasis, consideration and principal influence) and HPIs. At the technical and operational level, employee morale and hospital academic emphasis (press for achievement) are seen as fundamental ingredients of good OH. At the executive level, leadership and managers' support are key elements in terms of consideration and influence with superiors.[17] None was found influential in improving HPIs in the current study. Often, unhealthy organisations exhibit little encouragement and support for their workforce (low consideration), show little direction or structure to them (low initiating structure) as well as little clout with superiors (low influence). In part, employees may feel suspicious about their colleagues or display guarded or defensive behaviours (low morale).[17]

The study showed no statistically significant correlation between OH, as a whole, and the HPIs, even though the overall score of OH was relatively high among the studied hospitals (i.e. 132-169). This is in contrast with the study findings in which that OH significantly correlated with organisational effectiveness;[16] although no correlation was found between OH and the students' educational progress as well as teachers' general teaching efficacy. Similar studies have come to the same conclusion. For example, one study found a statistically significant correlation between hospitals' accreditation scores and their performance indicators such as bed occupancy rate, average patients' length of stay, admission per bed as well as patients' satisfaction with hospital services.[18] Another study also showed a positive relationship between OH and productivity as well as managers' creativity, and pointed out that the higher the OH, the more was the level of productivity.[19] This is in line with yet another study which found that participatory management style had a considerable influence on the HPIs compared with other styles such as autocratic or consultative management styles.[11] Participation and collaborative effort would imbue the healthy organization.[5]

Conclusion

Hospital policy-makers should be encouraged to address constraints on OH, in order to improve HPIs and the level of the employees' well-being. Our study was possibly biased by the nature of the survey which was initially designed for measuring schools' OH, and not for healthcare settings. Howerver, organizational Health Index outlined in thie study may have the potential to offer a simple diagnostic tool for healthcare authorities to measure the OH of their facilities.

Acknowledgements

We are grateful to all the participants for their co-operation, and to the Iran University of Medical Sciences, for funding the study.

References

1. Baghbanian A, Hughes I, Kabriaei A, Khavarpour F. Adaptive decision-making: how Australian healthcare managers decide. Aust Health Rev 2012 ; 36: 49-56.
2. Baghbanian A, Hughes I, Khavarpour F. Resource allocation and economic evaluation in Australia's healthcare system. Aust Health Rev 2011; 35: 278-83.
3. Miles MB. Planned change and organizational health: figure and ground. In: Trusty FM(ed.). Administering Human Resources. Berkeley, CA: McCutchon Publishing Co; 1971.
4. Hoy WK, Feldman JA. Organizational health: the concept and its measure. In: Hoy WK, DiPaola MF, (eds.). Essential Ideas for the Reform of American Schools (PB). USA: Information Age

Publishing; 2007; pp 49-66.
5. Omoyemiju MA, Adediwura AA. A study of teachers' perception of schools' organizational health in Osun State. World Journal of Education 2011; 1: 165-70.
6. Potocki KA, Brocato RC. A system of management for organizational improvement. Johns Hopkins APL Technical Digest 1995; 16: 402-12.
7. Alman D. Organizational health: improving organizational performance and employee wellbeing. (Online) 2010 (Cited 2011 October 11). Available from URL: http://proventivesolutions.com.au/Organizational%20Health.v1.pdf.
8. Perrin T. Employee well-being: taking engagement and performance to the next level. (Online) 2010 (Cited 2011 October 11). Available from URL: www.towerswatson.com.
9. Alman D. Healthy organizations from conflict management: how conflict management helps manage change, performance, and well-being. (Online) 2009 (Cited 2011 October 11). Available from URL: http://proventivesolutions.com.au/Healthy%20Organizations%20from%20Conflict%20Management%20v1%20pdf.pdf.
10. Osborn CE. Basic statistical data used in acute care facilities. In: Osborn CE, (ed.). Essentials of Statistics in Health Information Technology. Ohio: Jones and Bartlett Publishers; 2008.
11. Arab M. Influence organizational structure and management style on hospital indicator and determine appropriate model for general hospitals. PhD. Tehran University of Medical Sciences; 2001.
12. Hoy WK, Woolfolk AE. Teachers' sense of efficacy and the organizational health of schools. Elem Sch J 1993; 93: 355-72.
13. Smith PA. The organizational health of high schools and student proficiency in mathematics. International Journal of Educational Management 2002; 16: 98-104.
14. Andarudi R. Relation Between Organizational Health and Commitment at School. M.S. Degree. Shahid Beheshti University, Tehran; 2002.
15. Tsui KT, Cheng YC. School organizational health and teacher commitment: a contingency study with multi-level analysis. Educ Res Eval 1999; 5: 249-68.
16. Shariatmadari M. Investigation of the relationship between organizational health and effectiveness of educational management schools' principals' of Tehran. Journal of Training Sciences 2009; 65: 119-51.
17. Hoy WK, DiPaola MF, (eds.). Essential Ideas for the Reform of American Schools (Research and Theory in Educational Administration). USA: Information Age Publishing; 2007.
18. Baghbanian A. A study of relationship between organisational performance and accreditation score at the teaching hospitals affiliated with Shiraz University of Medical Sciences: Implications for policy and practice. Tehran: Health Care Administration, Tehran University of Medical Sciences; 2001.
19. Haghighatjoo Z. Relation between manager initiative, organizational health and staff productivity in Medical University. M.S. Degree. Tehran; 2006.