

A Balanced Scorecard Approach to Determine Accreditation Measures with Clinical Governance Orientation: A Case Study of Sarem Women's Hospital

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This research is conducted to determine measures of accreditation with a focus on clinical governance and balanced scorecard approach. This descriptive survey was conducted on 80 members of staff of Sarem Hospital through random sampling and by Morgan's table. The participants were the staff from different wards who were involved in the accreditation process. For data collection, the "Balanced scorecard" and "Clinical governance" questionnaires were used. 54 indicators of accreditation were determined with a focus on clinical governance in terms of the Balanced Scorecard. Correlation between Clinical Governance indicators and Balanced Scorecard perspectives contributes to reduce the complexity of hospital Accreditation concepts.

INTRODUCTION

Evaluation is an integral part of any executive activity. Since the application of measureable information leads to the improvement of executive activities and such improvement is the main objective. In addition, evaluation focuses on appropriate effectiveness and efficiency as well as expected productivity without requiring any extra money (Sedghiani, 2005). The main objective of any health plan is to improve health and reduce pain and suffering. However, it has other objectives such as reducing the days of hospitalization, maximizing the efficiency of personnel, improving the methods of expending financial resources, and carrying costs (Sedghiani, 2005). Considering, the increasing changes in the environment and factors affecting organizations, performance evaluation systems can be effective for the pervasive evaluation of an organization and insert nonfinancial criteria into the evaluation in addition to financial ones (Khajavi, 2001).

Grading and determining the credit of hospitals, which is called accreditation in health and medical circles, are carried out by auditing standards which have become common in the developed and some developing countries. This is a reliable and inevitable method for the assessment of the performance and quality of hospital services (Sedghiani E. , 2003). Accreditation is used to explain the quality of medical

and health services and as a basis of the thought (Khlifegari, 2008). Accreditation is the systematic evaluation of healthcare centers using defined standards focusing on sustainable quality improvement, patient orientation, and increase in safety of patient and personnel (Khlifegari, 2008). Clinical governance does not only focus on achieving high quality of healthcare service but also sustainable improvement of healthcare quality (Chandharan, 2007). Clinical governance is a framework through which organizations providing clinical services are considered accountable for improving safety by creating an environment in which excellence in clinical care flourishes and high standards of care are safeguarded. Clinical governance consists of seven elements including patient and public involvement, risk management and patient safety, clinical effectiveness, education and training, using information, and staff management (Heidarpour, 2011).

According to Heidarpour, who quotes from Kelson, patient and public involvement can be explained both in individual and collective levels. He believes that individual involvement means participation of a person in making medical decisions related to his health, while public involvement is the active involvement of a group of people or a person as the representative of a group in developing health system policies and plans (Heidarpour, 2011). Education and training refer to continuous development of professional skills and expertise. Recognition and forecast of risks and accidents and decrease in the probability of their occurrence and effects are the different elements of risk management. Proper information is required for planning, implementation, management, and evaluation of services. Clinical effectiveness is useful for the correct and punctual fulfillment of services provided to the patient and related to the improvement of quality and performance (Heidarpour, 2011). According to studies, clinical audit aims to recognize the key beneficiaries of clinical audit for the prioritization of the topics of auditing, recognition of skills required for auditing, the ability of designing and planning for the projects of auditing, grading of hospitals (Khlifegari, 2008). Staff management includes selection and recruitment of employees, their evaluation and supervision, development of personal skills, and providing them with welfare (Heidarpour, 2011).

Balance scorecard method was introduced to the management circle as a powerful tool not only for the evaluation of performance, but also for the implementation of strategy. According to Kaplan and Norton, successful companies employ three perspectives including customer, internal processes, education and growth, in addition to financial measures for the evaluation of their performance (Bakhtiari, 2007). The review of literature shows that the repetitious high number of measures and disagreement among evaluators as well as discrepancies between plans and evaluation of clinical governance and accreditation have caused ambiguity in the indices of accreditation and raised challenge to its implementation.

As it was mentioned, this research aims to study accreditation indices, pillars of clinical governance, and perspectives of balanced scorecard to achieve a simply understandable, executable, and unified concept for the indices used to evaluate performance in medical sector. In addition, its objective is to determine the pillars of clinical governance in form of the perspectives of balanced scorecard as well as accreditation measures based on clinical governance and in form of balanced scorecard.

METHODS AND MATERIALS

This research is a descriptive survey. Its statistical population consists of the employees working at the different wards of Sarem Private Hospital and involved in the implementation of accreditation project in 2013-2014. They include totally 100 persons. Using Morgan's table, 80 questionnaires were distributed among the personnel of the hospital. The questionnaires contained five-level Likert items. Considering the purpose and nature of the research, two questionnaires were employed for the collection of data. One questionnaire contains 33 questions about the perspectives of balanced scorecard, and another one consists of 29 questions on the pillars of clinical governance. Questionnaires include two types of questions: demographic and specialized ones. To test the validity of the questionnaires, they were provided to 10 experts of accreditation at hospitals and they were corrected. The reliability of the questionnaires was tested by Cronbach's alpha. This value for the questionnaire of balanced scorecard is

0.92 and that for the questionnaire of clinical governance is 0.90. They were calculated after their distribution among 20 persons. After distributing the questionnaires among the members of the statistical sample, these values were 0.89 for the first questionnaire and 0.91 for the second one. In other word, the reliability of the questionnaires remained intact after its distribution among the total members of the sample. The raw data collected for the description of demographic data and study of variables in the statistical sample, the techniques of frequency and percentage have been employed. Finally, inferential statistics including one-sample t-test and Pearson correlation have been employed for the analysis of the variables and hypothesis.

FINDINGS

The findings obtained Kolmogorov-Smirnov test show that all quantitative data of this research were distributed normally ($p>0.05$). The demographic data of the testees have been provided separately in the table 1:

TABLE 1
DEMOGRAPHIC DATA OF THE STUDIES SAMPLE

Variables		Frequency	Percentage	Variables		Frequency	Percentage	
Gender	Female	69	89.6	Organizational units	Nursing office	3	4.3	
	Male	8	10.4		Medical equipment	2	2.9	
	Total	77	100		Quality improvement	4	5.8	
Age	20-30	21	26.9		Administrative unit	13	18.8	
	30-40	32	41		Clinic	15	21.7	
	40-50	17	24.3		Para-clinic	8	11.6	
	Total	70	100		Maternity ward	3	4.3	
Working years	Less than 5 years	18	23.4		Operating room	8	11.6	
	5-10 years	32	41.6		Hospitalization	10	14.5	
	More than 10 years	27	35.1		Pharmacy	3	4.3	
	Total	77	100		Total	69	100	
Position	Clinical employees	17	23.6		Specialty	Midwife	21	30.4
	Nonclinical employees	12	16.7			Nurse	15	21.7
	Clinical and nonclinical experts	43	59.7			Physician	7	10.1
	Total	72	100	Administrative official		15	21.7	
Education	High school	4	5.2	Laboratory technician		8	11.6	
	Associate's degree	11	14.3	Technical-engineering expert		3	4.3	
	Bachelor's degree	52	67.5	Total		69	100	
	Master's degree	3	3.9					
	PhD	7	9.1					
Total	77	100						

The other findings of this research indicate that the total percent of agree and strongly agree levels is higher than 50 in all 11 criteria. It means that the positive response to the measures determined by the perspectives of balanced scorecard and pillars of clinical governance is higher than 50 percent. Among the balanced scorecard perspectives, customer perspective has assigned the highest percent (91.98%) to itself. That means, this perspective has gained the highest percent of agree and strongly agree levels among all other criteria. After customer perspective, the patient and public involvement, a pillar of clinical governance has the second place (85.11%) after customer perspective and the percent of agree and strongly agree is of higher level. This high percent of agreement with customer perspective and patient-public involvement show that the measures of both are of high importance at Sarem Hospital. In addition, the pillar staff management has the lowest percent in terms of the levels agree and strongly agree (55.60). The total percent of the items agree and strongly agree has been provided in the table 2.

TABLE 2
THE TOTAL FREQUENCY OF AGREE AND STRONGLY AGREE LEVELS

Variables	Total Frequency of Agree and Strongly Agree Levels in Percent
Financial perspective	60.19
Customer perspective	91.98
Internal process perspective	70.56
Learning and growth perspective	61.79
Clinical audit pillar	64.06
Public and patient involvement pillar	85.11
Risk management and patient safety pillar	76.28
Clinical effectiveness pillar	63.81
Using information pillar	74
Education and training pillar	83.88
Staff management pillar	55.60

T-test has explained variables and their measures. The results show that the measures including employee satisfaction and retention in the learning and growth perspective as well as the index evidence-based clinical practice in the clinical effectiveness pillar and the index employee welfare in staff management pillar have been confirmed averagely. In staff management pillar, the index teamwork measurement is of low importance. The results of t-test have been provided in the table 3.

Considering the content of the table 4, and the balanced scorecard model provided by Kaplan and Norton, the final model of the research was developed. In the figure 1, this final model has been provided.

TABLE 3
THE RESULTS OF THE T-TEST OF THE MEASURES OF BALANCED
SCORECARD AND CLINICAL GOVERNANCE

Index	Sig (2-tailed)	Average	Standard deviation	T-test	95% confidence interval	
					Upper limit	Lower limit
Income	0.000	3.80	1.053	6.582	1.04	0.56
Profit	0.000	3.49	1.005	4.251	0.72	0.26
Employee productivity	0.000	3.83	0.999	7.368	1.06	0.61
Return on investment	0.000	3.58	1.074	4.699	0.82	0.33
Cost structure	0.000	3.62	0.812	6.739	0.81	0.44
Market share	0.000	3.38	0.889	3.717	0.58	0.17
Economic value-added	0.000	3.53	0.754	6.200	0.70	0.36
Resource exploitation	0.000	3.64	0.868	6.526	0.84	0.45
Financial perspective	0.000	3.6082	0.54592	9.840	0.7313	0.4851
Speed of providing services	0.000	4.13	0.978	10.137	1.35	0.91
East of access to service	0.000	4.42	0.656	18.937	1.56	1.27
Costs imposed on patient	0.000	4.13	0.779	12.792	1.30	0.95
Behavior with patient	0.000	4.58	0.614	22.679	1.72	1.44
Interaction with patient	0.000	4.40	0.591	20.835	1.54	1.27
Patient complaints	0.000	4.55	0.573	23.904	1.68	1.42
Patient satisfaction	0.000	4.60	0.543	26.079	1.72	1.48
Errors	0.000	4.23	0.788	13.789	1.41	1.05
Performance speed and quality	0.000	4.22	0.595	18.067	1.35	1.08
Customer perspective	0.000	4.3615	0.44903	26.778	1.4627	1.2602
Deviation from the time of each process	0.000	3.47	0.777	5.202	0.65	0.29
Deviation from the period of stay	0.000	3.54	0.972	4.838	0.76	0.32
Ease of access to information	0.000	3.89	0.776	10.052	1.07	0.72
Using information	0.000	3.91	0.819	9.659	1.10	0.72
Bed occupancy rate	0.000	3.79	0.822	8.377	0.98	0.60
Volume of services	0.000	4.07	0.664	13.903	1.22	0.91
Use of technology	0.000	4.17	0.773	13.213	1.35	0.99
Internal process perspective	0.000	3.8343	0.47853	15.199	0.9436	0.7249
Number of projects	0.000	3.83	0.844	8.480	1.02	0.63
Number of papers	0.000	3.95	0.978	8.442	1.17	0.72
Educational budget	0.000	3.55	1.017	4.654	0.78	0.31
Development of technology	0.000	3.88	0.966	7.959	1.10	0.66
Information system	0.000	4.12	0.727	13.230	1.29	0.95
Teamwork culture	0.000	3.61	1.138	4.669	0.88	0.35
Employee satisfaction	0.336	3.14	1.303	0.968	0.44	- 0.15
Employee retention	0.850	2.97	1.211	- 0.189	0.25	- 0.30
Employee performance	0.002	3.47	1.270	3.252	0.76	0.18
Learning and growth perspective	0.000	3.6078	0.72927	7.266	0.7745	0.4412
Budget of clinical services	0.000	3.45	0.900	4.332	0.65	0.24
Periodical audit	0.000	3.96	0.874	9.711	1.16	0.76
Beneficiary interests	0.000	3.44	0.980	3.954	0.66	0.22
Clinical audit pillar	0.000	3.6218	0.70541	7.785	0.7808	0.4628
Communication channels	0.000	3.83	0.813	9.058	1.02	0.65
Educational classes	0.000	4.71	0.486	30.960	1.81	1.60
Hearing complaints	0.000	4.47	0.639	20.375	1.62	1.33
Satisfaction survey	0.000	4.41	0.746	16.692	1.58	1.24
Error record	0.000	3.88	0.843	9.198	1.07	0.69
Policy for coping with errors	0.000	3.88	0.980	7.972	1.11	0.66
Risk and safety management classes	0.000	4.39	0.632	19.308	1.53	1.25

Patient and public involvement pillar	0.000	4.22833	0.461770	23.493	1.33244	1.12421
Relation between medical staff for intersectional transfer	0.000	3.87	0.858	8.971	1.07	0.68
Monitoring of safety indices	0.000	3.94	0.888	9.311	1.14	0.74
Safety and risk management pillar	0.000	3.9038	0.76895	10.381	1.0772	0.7305
Application of modern technologies	0.000	3.72	0.873	7.224	0.92	0.52
Introduction to evidence-based medicine	0.000	3.16	1.007	1.366	0.39	- 0.07
Clinical effectiveness pillar	0.000	3.4408	0.80815	4.755	0.6255	0.2561
HIS system	0.000	3.59	0.826	6.190	0.79	0.40
Employees and managers access to computer	0.000	4.05	0.951	9.652	1.27	0.84
Appropriateness of information system	0.000	3.93	0.854	9.539	1.13	0.74
Employees access to information	0.000	4.03	0.816	10.964	1.21	0.84
Using information for planning	0.000	3.79	0.963	7.076	1.01	0.57
Using information pillar	0.000	3.8829	0.65200	11.805	1.0319	0.7330
Personal development plan	0.000	3.99	0.931	9.242	1.20	0.77
Employees education	0.000	4.34	0.758	15.433	1.52	1.17
Appropriate method of education	0.000	4.14	0.778	12.826	1.32	0.97
Periodical educational plans for employees	0.000	4.25	0.785	13.877	1.43	1.07
Training and education pillar	0.000	4.1809	0.64498	15.962	1.3283	1.0335
Employee admission and recruitment	0.000	4.24	0.862	12.508	1.43	1.04
Employee selection	0.000	3.72	1.091	5.785	0.97	0.47
Employee satisfaction survey	0.000	3.37	1.198	2.680	0.64	0.09
Employee welfare	0.241	3.15	1.074	1.182	0.39	- 0.10
Employee performance assessment	0.000	3.46	0.958	4.189	0.68	0.24
Teamwork assessment	0.002	2.61	1.047	- 3.288	- 0.16	- 0.63
Staff management pillar	0.000	3.4219	0.76640	4.799	0.5971	0.2468

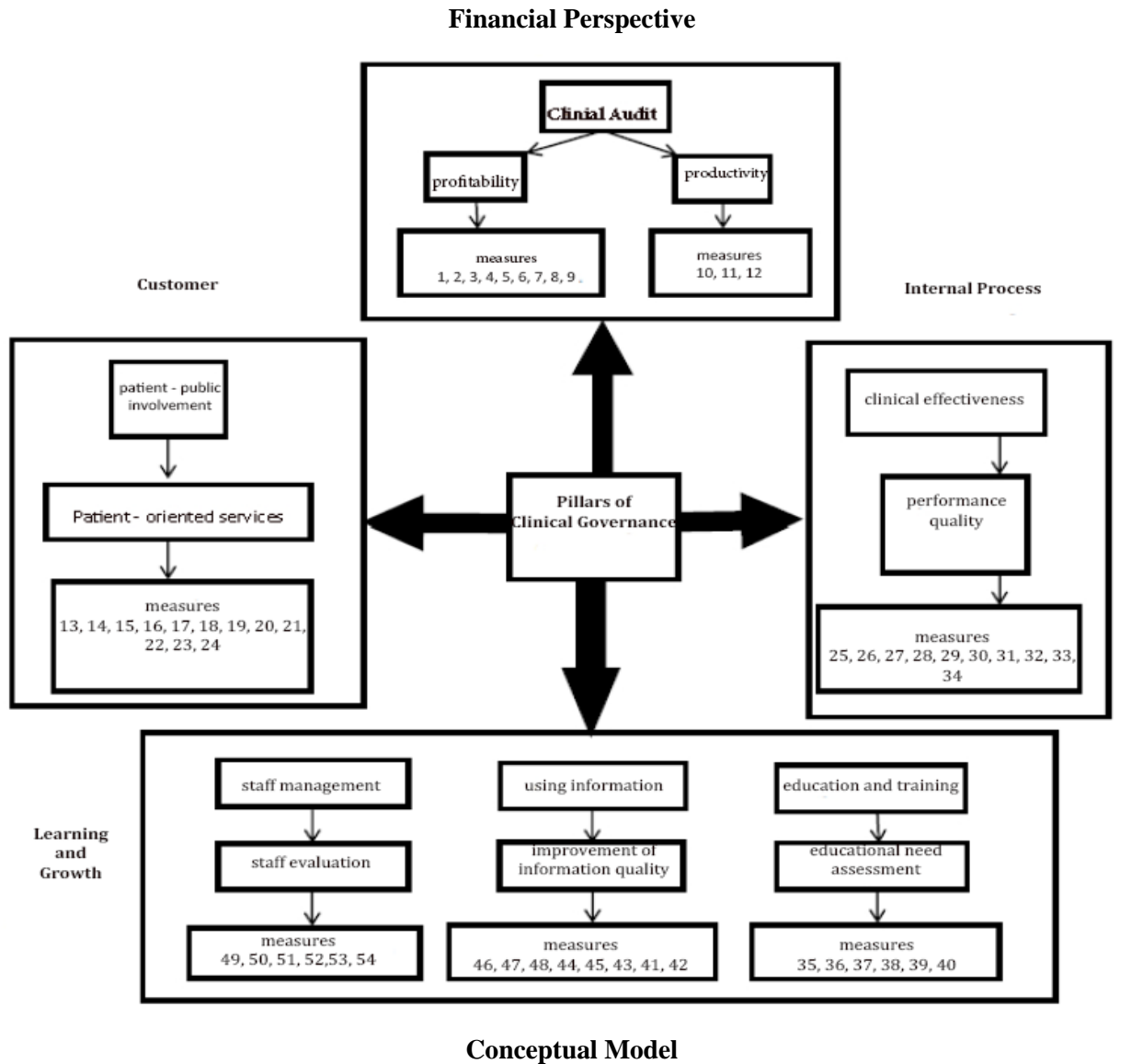
According to Pearson correlation test, the relation of financial perspective with clinical audit pillar, customer perspective with patient-public involvement pillar, internal process perspective with clinical effectiveness pillar, learning and growth perspective with using information pillar, education and training, and with staff management is confirmed. However, the relation of customer perspective with risk management is rejected. Based on the analyses, the final measures determined by perspectives and pillars were obtained and presented in the table 4.

TABLE 4
ACCREDITATION MEASURES DETERMINED BY PERSPECTIVES AND PILLARS

Perspective	Remarks	Pillar of Clinical Governance	Objective	Measure
Financial	If we succeed, how we are evaluated by the stockholders, beneficiaries and financial sponsors?	Clinical audit	Increase in profitability (Bakhtiari, 1989: 22)	1- Income (gross income, developing income opportunities, basic income, operating income) 2- market share 3- Return on investment 4- Economic value-added 5- Earned profit (operating profit) 6- General financial allocation 7- achieving organizational objectives 8- Beneficiary of organization 9- Grading
			Increase in productivity (Bakhtiari, 1989: 22)	10 – Improvement of cost structure 11 – Productivity of nursing personnel 12 – Optimal use of resources and assets
Customer	What is the expectation of patients and their families from us? How do our customers judge us?	Patient-public involvement	Planning for and providing medical and care services to patients; the pillar of patient expectation and opinions and their care (Heidarpour <i>et al</i> , 2011: 23)	13 – Period of receiving services 14 – holding patients in respect during the provision of services 15 - contribution in medical treatment 16 – Problem decrease rate 17 – Cost reduction volume 18 - Reduction of obstacles to the patients and their families 19 – The interval between diagnosis and medical treatment 20 – Complaint rate 21 - Complaint hearing rate 22 – Patients and their family satisfaction 23 - better understanding of personal needs 24 – Positive and better relation of the specialists leads to positive sustainable effects on health
Internal process	Which processes should be the best and most effective to gain the satisfaction of patients?	Clinical effectiveness	Clinical performance: taking correct measure at proper time, improving the use of systems and developing structures, improving performance quality (Heidarpour <i>et al</i> , 1390: 70)	25 – the time spent for each process 26 – the rate of clinical and Para-clinical referrals from other centers due to the state-of-the-art technologies used by the hospital 27 – duration of staying at hospital 28 – bed occupancy rate at the hospital 29 – frequent referrals 30 – use of HIS at hospitals 31 – change in service volume 32 – application of technology in different processes 33 – rate of quality improvement 34 – relation between clinical skills of the physician and patient values and priorities
		Education and training	Providing educational programs inside and outside the hospital based on need	35 – number of projects in operation 36 – budget required to protect education and development 37 – time required for the development of the next generation of technologies

Learning and growth	Should we continue improvement? Which types of culture, skills, and technological education are required to be developed to protect processes		assessment, growth and development opportunity, personnel expertise and skills, continuous learning processes (Heidarpour <i>et al</i> , 2011: 31)	38 – infrastructure for completing the processes and meeting the objectives 39 – personal development plan 40 – access to education and evaluation of necessary services
		Using information	Improvement of information quality (Heidarpour <i>et al</i> , 2011: 67)	41 – access to information 42 – using information resources 43 – method of information collecting and recording 44 – type of information 45 – presence of HIS 46 – planning, implementation, management and evaluation of necessary services 47 – online or written access of patients for the transfer of their experiences of treatment process and events happened during their hospitalization 48 – effective research processes
		Staff management	Employee evaluation and supervision (Heidarpour <i>et al</i> , 2011: 84)	49 – Employee performance 50 – employee satisfaction survey 51 – correct selection and recruitment of employees 52 – employee supervision and evaluation 53 – development of personal and professional skills 54 – teamwork culture

**FIGURE 1
FINAL MODEL OF RESEARCH**



In the final conceptual model, the pillar patient safety and risk management from customer perspective has been deleted. In addition, measure of evidence-based medicine, employee satisfaction, retention, and welfare as well as teamwork assessment have been deleted respectively in clinical effectiveness pillar from internal process perspective, and in staff management pillar from learning and growth perspective.

DISCUSSION

The discussions of this research (table 3) show that according to the t-test, the significance (sig.) of the measures employee retention and satisfaction from learning and growth perspective is higher than 5%. This value indicates that the null hypothesis (the average importance of the index equals 3) is confirmed.

In other words, the average of these measures has no significant difference with the test value (the digit 3). As the upper limit of the confidence interval is positive (0.44 for satisfaction and 0.25 for employee retention) and the lower limit is negative (- 0.15 for satisfaction and - 0.189 for employee retention), the average significance of measures has no significant difference with the test value (the digit 3). Therefore, the said measures from learning and growth perspective are confirmed averagely by the statistical sample. It must be noted that other measures of this perspective have been confirmed strongly.

According to the t-test, the significance value of the introduction to evidence-based medicine in clinical effectiveness pillar has been higher than 5%. This value confirms the null hypothesis and shows that the studied index has not significant difference with the test value. In other words, as the upper limit of the confidence interval of medicine is positive (0.39) and the lower one negative (-0.7), the average significance of these indices has no significant difference with the test value, which is 3. As a result, this index of clinical effectiveness was confirmed averagely by statistical sample.

The significant value (sig.) of the index employee welfare is more than 5%. This value confirms the null hypothesis. In other words, the lower limit of this index is negative (-0.10) and the upper limit positive (0.39). That means the average of this index has no significant difference with the test value. Therefore, this index is of average significance in the statistical sample.

According to the t-test, the significant value (sig.) of teamwork assessment index is less than 5%. As the upper and lower limits are both negative (-0.16,-0.63), the average of this value (equal to 2.61) is less than the test value (3) and as a result, this index is of low significance in the statistical sample. Moreover, employee satisfaction and employee retention from learning and growth perspective as well as evidence-based medicine index in the clinical effectiveness and employee welfare index in staff management have been confirmed averagely. The index teamwork assessment in the staff management pillar is of low significance. Other measures of the balanced scorecard and those in the clinical governance have been strongly confirmed. That means 92% of the indices are confirmed.

According to the results of this research, 54 measures were selected as strong ones and accreditation measures. This number is considerably fewer than that of the accreditation measures (Jafari, 2010) set forth in accreditation standards evaluation manual (Ramezani, 2011) of each hospital. However, Nasiripour (2013) has introduced 27 measures in the balanced scorecard in his studies. This number is 56 measures in the study of Ajami (2010) and 30 in the research of Iravani (2012). The difference in the number of these measures confirms that measures may be different in each healthcare organization, while they may be similar in their type. This diversity can be found in the number of the measures in the balanced scorecard of other foreign studies too (Baker, 1996; The Mountain States Group, 2010).

In addition, the findings of this research show relation between financial perspective with clinical audit pillar, customer perspective with patient-public involvement pillar, internal process perspective with clinical effectiveness, learning and growth perspective with education training pillar, and using information with staff management. However, no relation was found between customer perspective with risk management and patient safety pillar. Considering the Pearson correlation coefficient (0.215) and its comparison with Pearson correlation coefficient table as well as the degree of freedom and probability level (0.05) which is less than the value set forth in the table, no relation was found between risk management and patient safety pillar with customer perspective. In other words, the measures of customer perspective cannot be the same as the accreditation measures within the framework of risk management and patient safety pillar. According to the review of literature, no studies were found on the relation between the pillars of clinical governance with other performance evaluation methods including balance scorecard. However, the results of this research on the relation between clinical governance pillars and balanced scorecard perspectives can act as the supplement of the studies on clinical governance such as those conducted by Buetow (1999) and Chandraharan (2007). Moreover, the clinical governance pillars (Ravaghi, 2014) expressed from four perspectives of the balanced scorecard can be better understood by this method of expression. Considering the experiences on the application of the balanced scorecard model in health and medical organizations, and the need to implement accreditation, and the results of this research, it seems that the localization of this conceptual model can play an important role in the improvement of the performance of hospitals. Therefore, it is recommended that this model be employed

in private hospitals. The implementation of this model requires measuring measures, defining objectives, taking required measures to improve the performance of hospitals, and scoring the indices. Since this model is flexible, it can be adjusted based on the progress of the different units.

CONCLUSION

The recognition of accreditation measures based on balanced scorecard perspectives and clinical governance pillars reduces the large number of measures arising perhaps out of their iteration. In addition, the conceptual model of this research can provide cohesion to accreditation and clinical governance and lead to the elimination of disagreement between assessors and enhances insufficient motive of the medical personnel. The application of this model can facilitate the implementation of accreditation at all health centers. Considering the existing experiences on the use of the balanced scorecard at health and medical organizations and the need to accreditation, as well as based on the results of this research, it seems that localization and use of this conceptual can considerably improve the performance of hospitals. Therefore, it is recommended that this model be employed at private hospitals. The implementation of this model requires measuring indices, defining objectives and measures required for the improvement of hospital improvement, and finally scoring the indices. Considering that the model is flexible, it can be adjusted based on the requirements of each unit.

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