

The relationship between cybernetic management and organizational productivity in selected hospitals of Iran

University of Medical Sciences

Fateme Darbandi¹, Leila Riahi^{2*}, Anise Nikravan³

¹Department of Health Services Management, Science and Research, Branch, Islamic Azad University, Tehran, Iran

²Department of Health Services Management, Science and Research Branch, Islamic Azad University, Tehran, Iran

³Department of Health Services Management, Science and Research Branch, Islamic Azad University, Tehran, Iran

Abstract

Background and Objectives: of the Research: Cybernetic management is a science that studies and studies control and regulation in complex systems and its main intention is to find the easiest, best and most effective way to control and regulate complex organizations and systems such as hospitals, in order to improve productivity. The purpose of this study was to investigate the relationship between cybernetic management and organizational productivity in selected hospitals of the University of Medical Sciences.

Methods: If we look at this research in terms of results, it is an applied research, from the point of view of time, it is cross-sectional and from the point of view of implementation method, it is analytical-correlation. The study population consisted of all staff and managers of hospitals in Iran University of Medical Sciences in which 328 people were selected through Krejcie-Morgan table using random sampling method. The standard organizational productivity questionnaire of John Stone and Peter Jones and Ghorbanizadeh Cybernetic Management Function Questionnaire were used to collect data. The collected data were tested by Pearson correlation method and multivariate linear regression analysis in SPSS software version 23.

Results: The findings indicate that between cybernetic management with organizational efficiency at a significant level ($p < 0.01$), between cybernetic management with organizational effectiveness at a significant level ($p < 0.01$), between cybernetic management with Client satisfaction was at a significant level ($p < 0.01$), and there was a relationship between cybernetic management and bureaucracy at a significant level ($p < 0.01$).

Conclusion: The present study indicates a positive and significant relationship between cybernetic management and organizational productivity. Therefore, providing training based on the application of cybernetic management functions in hospital settings to increase productivity is one of the recommendations of this study.

Keywords: Organizational Productivity, Cybernetic Management, Iran University of Medical Sciences

Background and Objectives

The increasing development of engineering and hardware sciences, although they play a decisive role in advancing the goals and objectives of organizations to achieve success, but in some cases, the rigid and rigid machine system has led organizations to become overly mechanical and hit hard. Enters the social and human structure of organizations. Therefore, a good management structure for service organizations is very important in dealing with complexities¹. There is no doubt that one of the most important factors in advancing the goals of an organization is to apply the right management practices. And since, according to many experts, the management of hospitals is an important team work today; therefore, in order to provide the ground for participation in organizations; it is necessary to know and apply appropriate management and then determine the solution according to the resources and limitations².

*Corresponding Author: Leila Riahi

Email: lrighi@srbiau.ac.ir

Various organizations, including hospitals, are on the verge of these changes, and in order to survive, they must adapt to these rapid and unprecedented changes. In this way, change in organizational management and leadership practices is inevitable. Because the traditional methods of management and leadership in today's changing and dynamic conditions, lack the necessary effectiveness. Organizational systems, whether they like it or not, have to be very flexible in the face of these changes to meet the needs of human society, so that they can cope with their environment and not get into chaos³. In systems theory, there are 9 theories, the ninth of which is related to cybernetics^{4,5} or the art of steering and the art of management⁶. Cybernetics has always been associated with the concept of remote control. One of the pioneers of cybernetics, Norbert Wiener, described the discipline as "the science of control and communication in man (machine)"⁷. Cybernetics is a tool for cultivating control and monitoring of people's behavior to achieve their goals⁸. In this regard, cybernetic management in various fields such as software development⁹, self-regulation of behavior¹⁰, social mass behavior Human¹¹, management activity technology¹², education¹³, e-learning¹⁴ and flexibility of physicians in hospitals¹⁵ have been used.

Cybernetics is one of the sciences that emerged in the twentieth century and with its rapid growth was able to reach other fields. One of these areas is service areas such as health centers. Whether they like it or not, health centers must be flexible in the face of these changes to meet the needs of human society, so that they can cope with their environment and not become chaotic, so the leadership of health centers to adapt or cope with the phenomena Unknown because coronas need a newer model in order to be able to guide organizations appropriately and meet the needs of the

tense hospital environment to improve their productivity³.

For example, the functions of the cybernetic management system have been effective on the development of flexibility of physicians in Tabriz and showed that the functions of the cybernetic management system; Participatory decision making, organizational commitment, correct flow of information, fair payment, flat structure, development of sense of ownership and continuous training caused 0.63, 0.91, 0.92, 0.92, 0.88, 0.25, respectively. , 0.83 and 0.96 units change in the flexibility of doctors in hospitals of Tabriz University of Medical Sciences². Cybernetics has been able to emerge as an independent and at the same time interdisciplinary science. In this science, much attention is paid to the classification and organization of information and therefore it is of special importance in information management as well as in the design of information systems. Stafford considers cybernetics to be the science of effective organization; cybernetics deals not with things but with behaviors. Cybernetics does not ask¹⁶. There are several definitions of cybernetics, including the efficient knowledge of the organization or the art of steering and the art of directing⁶. The process of transmitting and disseminating information is vital in cybernetics or systematic management; That is, without the transfer of information and without the flow of information in the system, there is no output. Receiving feedback, correction, editing, inspection and review in the production of input are essential¹⁷.

In today's world, cybernetic achievements are being used to solve social, economic, biological, medical and humanitarian problems, and the automation of administrative and commercial activities has become increasingly important. The main

goal now facing managers is to rationalize cybernetics in the management process based on paperless methods⁵. Cybernetic management can improve the effectiveness of organizations and modify several variables. One of the variables on which cybernetic management can have a positive effect is organizational productivity. Peter Drucker, a management scientist, believes that Bahri Hori requires efficiency and effectiveness; It means doing things properly or appropriately and effectively; It means to do decent and appropriate things¹⁸. Productivity is when an organization achieves its goals and does so at the lowest cost by changing or converting data into headquarters; Therefore, productivity requires the effectiveness and efficiency of the organization¹⁹. The goal in productivity is for a person to reach the belief that he can do his job and tasks better every day than yesterday and to do his best to achieve this. Decreasing the overall level of productivity will increase the high costs of producing products and services. In general, from an economic point of view, it should be known that low levels of productivity, reduced incomes and issues such as inflation, unemployment, low benefits and declining living standards in society, and vice versa, by increasing productivity in society can be the foundations of the country's economy. Firmly asserted that this will improve the standard of living and a better quality of life and increase well-being²⁰. John Stone and Peter Jones²¹, experts in this field, believed that organizational productivity has four dimensions: efficiency, effectiveness, customer satisfaction and reducing bureaucracy. The low level of productivity, which is characteristic of most developing countries, is due to various factors affecting productivity. Some of these factors are uncontrollable and others can be controlled and corrected. Manpower improves productivity with efficient and effective

management²². Broghni²³ showed in his research that participatory management has a positive effect on organizational productivity. Hashemi²⁴ also confirmed the relationship between knowledge management and productivity in a study.

Considering the above cases as well as the importance and role of cybernetic management and implementation of its concepts in the organization in order to improve productivity on the one hand and little research has been done on the effects of this new management method in the organization and especially in service organizations such as hospitals. Related research in this area is felt.

Accordingly, the purpose of this study is to investigate the important question of whether cybernetic management is related to organizational productivity in selected hospitals of Iran University of Medical Sciences? And we examine the relationship between cybernetic management with organizational efficiency, organizational effectiveness, client satisfaction and with organizational bureaucracy and finally with organizational productivity.

Methods

The present study was applied in terms of results, analytical in terms of how it was collected and performed, and case-control and cross-sectional in terms of time. The study population included all staff and managers of selected hospitals of Iran University of Medical Sciences. Statistical population of hospitals under the auspices of Iran University of Medical Sciences: 8446 (Tehran province hospitals: by Firoozgar: 901, Hazrat Rasoul: 1551, Haft Tir: 698, Firoozabadi: 671, Hasheminejad: 531, Akbarabadi: 483, Shafa: 355, Motahhari: 391, Ali Asghar: 388, Yaftabad: 437, Hazrat Fatemeh: 319, psychiatry: 204, Lolagar: 333 and Fahmideh: 325 and Tehran hospitals:

Imam Sajjad 464 and Fatemeh Zahra Robot Karim 395).

The sample size according to Krejcie-Morgan table was 382 people. And the method of determining the sample size per hospital in relation to the population of each hospital of the total population of the sample was determined. The sampling method was stratified random. In this study, the criteria

for entering the study were more cooperation of hospitals, homogeneity of hospitals in terms of education and treatment, and cooperation of staff and managers. The following diagram shows the steps of conducting research.

In this section of the research, the researcher has stated the executive process of the research

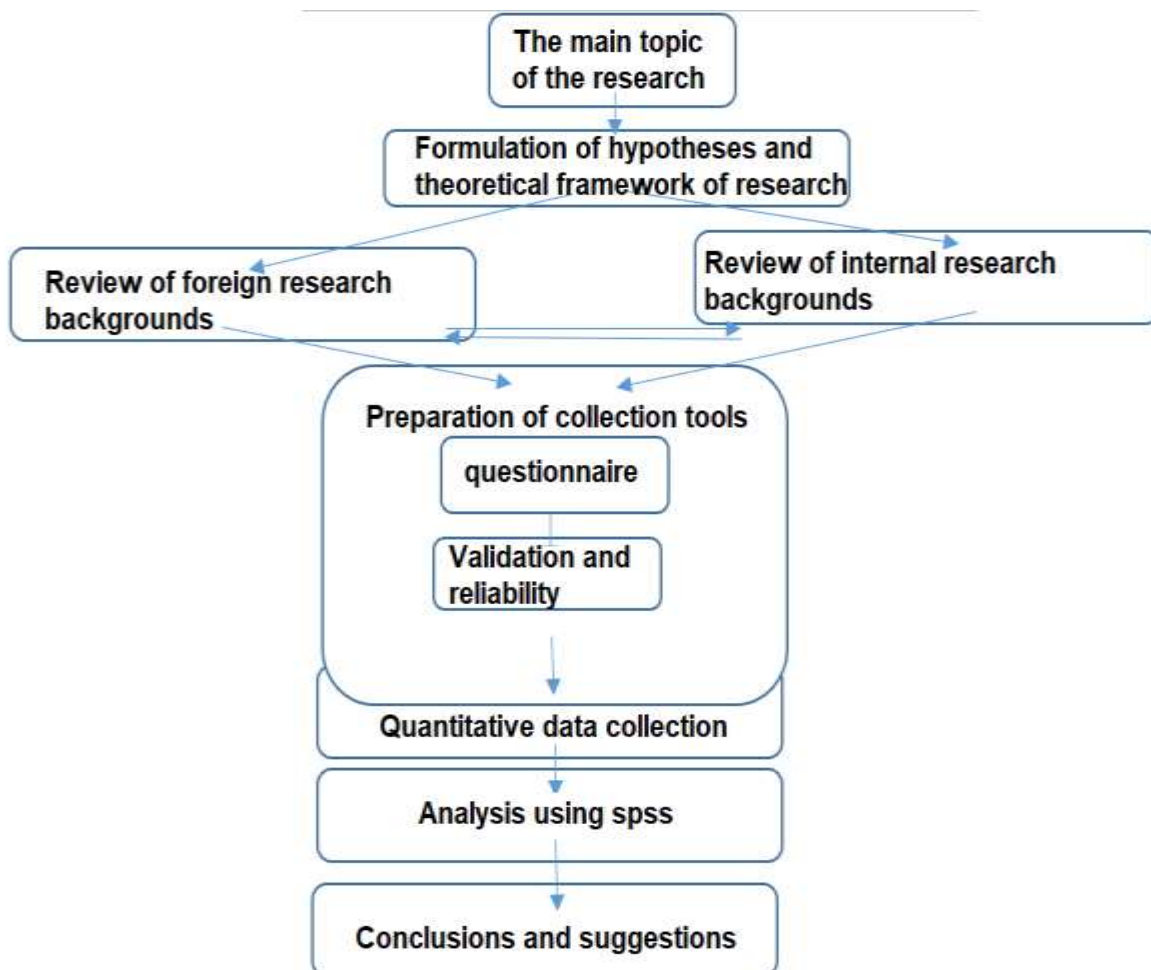


Figure 1. Research implementation steps

Data collection tools were two questionnaires, organizational productivity of John Stone and Peter Jones²¹ and cybernetic management of Ghorbanizadeh²⁵, which are described in detail in the continuation of each questionnaire.

Questionnaire of cybernetic management functions: To evaluate cybernetic management in this study, Ghorbanizadeh questionnaire²⁵ was used. This tool has 21 questions and is component free. In this questionnaire, a 5-point Likert scale was used to answer; He had the lowest score

completely against¹ and the highest score completely against⁵. Formal or symbolic validity has been used to assess the validity and the reliability of the Cybernetic Management Function Assessment Questionnaire based on Ghorbanizadeh's

research is 89%, which indicates good reliability. Rahimi and Amiri (2) in their research obtained the validity of this questionnaire as 0.78 and its reliability as 0.77.

Table1. Structure of data collection tools (questionnaire)

	Performance	Questions 5, 10, 11, 13, 23, 25
Organizational productivity	Effectiveness	6, 8, 27, 17, 16, 15, 12, 9, 7
	Customer satisfaction	14, 18, 19, 20, 21, 22
	Reduce bureaucracy	1, 2, 3, 4, 8, 24

This questionnaire was designed by John Stone and Peter Jones²¹ and has 4 components and 28 questions based on a five-choice range (very low, low, medium, high to very high). Scoring is such that if a score of 28 is obtained indicates low productivity, a score of 84 means average productivity and a score of 140 means very high productivity. The validity and

reliability of this tool has been reported by its manufacturers to the desired level. Cronbach's alpha is 0.82. Inferential statistics (Pearson correlation coefficient according to the type and relationship of the variable) and Kalmogorov-Smirnov test assumptions, Watson camera statistics and skewness and elongation were used to analyze the data.

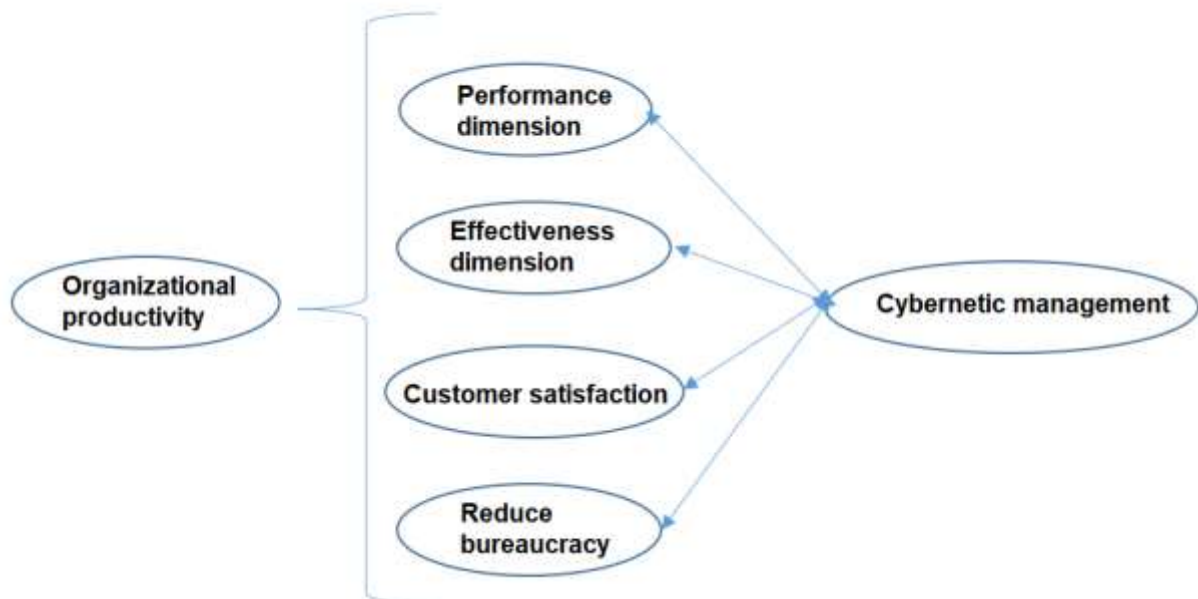


Figure 2. Theoretical model of research

Table 2. Theoretical model of research

Variable name	Role		Type		Scale
	Main	Subsidiary	Quantitative	Qualitatively	Distance
Cybernetic management	*		*		*
Organizational productivity	*		*		*
Performance		*	*		*
Effectiveness		*	*		*
Customer satisfaction		*	*		*
Reduce bureaucracy		*	*		*

Results

According to the results of the study, the age of the sample members was 83, 20 to 30 years old, 114, 30 to 40 years old, 107, 40 to

50 years old, and 78, 50 years old and older. Also, 155 sample members had 1 to 10 years of experience, 131 had 10 to 20 years, 82 had 20 to 30 years and 14 had 30 years and older.

Table 3. Comparison of the average of cybernetic management in selected hospitals of Iran University of Medical Sciences

Hospital	Firoz Abadi	Haft tir	Yaft Abad	Hashemi Nejad	Hazrat Rasoul	Firozgar	Motahari	Shafa	Akbar Abadi	Fahmide	Shahid Fateme	Hazrat Ali Asghar	ravanpezes hki	Lolagar	Sajad	Hazrat Fateme
No	30	32	20	24	70	41	18	16	22	15	14	18	9	15	21	17
Average	77/47	44/65	47/77	58/63	24/63	73/59	56/65	31/51	36/63	93/58	21/56	94/55	22/57	13/64	14/59	53/52

Table (3) shows that the average of cybernetic management in Yaftabad, Haft Tir and Motahhari hospitals is higher than

other hospitals and in Firoozabadi, Shafa and Hazrat Fatemeh (Robat Karim) hospitals had the lowest cybernetic management.

Table 4. Correlation coefficient between cybernetic management and organizational efficiency in selected hospitals of Iran University of Medical Sciences

Correlation		Cybernetic management	Organizational efficiency
Cybernetic management	Correlation	1	0/141
	Significance level	-	0/006
	Number	382	382
Organizational efficiency	Correlation	0/141	1
	Significance level	0/006	-
	Number	382	382

According to the results obtained from Table (4) (correlation matrix), we can say about the relationship between cybernetic

management and organizational efficiency in selected hospitals of Iran University of Medical Sciences can be said with 0.99

confidence and error level less than 01 0.00 (0.006) There is a relationship. On the other hand, the value of this relationship R between zero and positive is one (0.141) is

incomplete and direct, which means that with the increase of cybernetic management, the level of organizational efficiency to Increases relatively.

Table 5. Correlation coefficient between cybernetic management and organizational effectiveness in selected hospitals of Iran University of Medical Sciences

Correlation		Cybernetic management	Organizational effectiveness
Cybernetic management	Correlation	1	0/183
	Significance level	-	0/001
	Number	382	382
Organizational effectiveness	Correlation	0/183	1
	Significance level	0/001	-
	Number	382	382

According to the results obtained from Table (5) (correlation matrix), it can be said about the relationship between cybernetic management and organizational effectiveness in selected hospitals of Iran University of Medical Sciences can be said with 0.99 confidence and error level less

than 01 0.00 (0.001) There is a relationship. On the other hand, the value of this relationship R between zero and positive is one (0.183) is incomplete and direct, which means that with the rise of cybernetic management, the level of organizational effectiveness to Increases relatively.

Table 6. Correlation coefficient between cybernetic management and client satisfaction in selected hospitals of Iran University of Medical Sciences

Correlation		Cybernetic management	Customer satisfaction
Cybernetic management	Correlation	1	0/117
	Significance level	-	0/022
	Number	382	382
Customer satisfaction	Correlation	0/117	1
	Significance level	0/022	-
	Number	382	382

According to the results obtained from Table (6) (correlation matrix), it can be said about the relationship between cybernetic management and client satisfaction in selected hospitals of Iran University of Medical Sciences can be said with 0.95 confidence and smaller error level. From

0.05 (0.022) there is a relationship. On the other hand, the value of this relationship R between zero and positive one (0.117) is incomplete and direct, which means that with the increase of cybernetic management, the level of satisfaction The clientele is relatively high.

Table 7. Correlation coefficient between cybernetic management and bureaucracy in selected hospitals of Iran University of Medical Sciences

Correlation		Cybernetic management	Bureaucracy
Cybernetic management	Correlation	1	0.199

Correlation		Cybernetic management	Bureaucracy
	Significance level	-	0.001
	Number	382	382
Bureaucracy	Correlation	0.199	1
	Significance level	0.001	-
	Number	382	382

According to the results obtained from Table (7) (correlation matrix), it can be said about the relationship between cybernetic management and bureaucracy in selected hospitals of Iran University of Medical Sciences can be said with 0.99 confidence and error level less than 0.01 (0.001) There is a relationship. On the other hand, the

value of this relationship R between zero and positive is one (0.199) is incomplete and direct, which means that with the increase of cybernetic management, the amount of bureaucracy in Hospital is relatively increasing.

Table 8. Summary of the model obtained from multivariate linear regression based on predictor variables

Regression model	Total squares	Degrees of freedom	Average squares	F	Significance level
Regression	23400.936	4	5850.234	10.27	0/001
Left over	214729.338	377	569.574		
Total	238130.275	381			

According to the results of Table (8), which is the result of linear regression analysis with the dependent variable of cybernetic management and independent variables of organizational efficiency, organizational effectiveness, client satisfaction and bureaucracy, a significant result is obtained according to the significance and statistical value. F (10/271) At an error level less than 0.01, it can be concluded that there is a relationship between cybernetic management and organizational productivity. Therefore, the null hypothesis (H0) is rejected and the researcher's hypothesis (H1) confirms the relationship between cybernetic management and organizational productivity.

Discussion

The role of hospitals as one of the large and complex service organizations and the most important service units in the health system

is very prominent. Since the risk of the productivity of this organization is high, the productivity provided must be of acceptable quality. There are many factors that affect the productivity of hospitals, but it seems that one of the most important and influential structures that affect the productivity of hospitals and less research has studied it is cybernetic management. For this purpose, examining and determining the relationship between cybernetic management and organizational productivity in order to improve and improve productivity in selected hospitals of the University of Science will be effective.

The results showed that there was a relationship between cybernetic management and organizational efficiency. The result of this hypothesis was in line with the results of Rahimi and Amiri^{2,15}, Heidari²⁶ and Mirsafian, Afshari and Kalateh Seifri²⁷.

Explaining this finding, we can say that the nature of cybernetic management is based on gradual or step-by-step decisions, defining a certain range or range as a measure of the correctness of activities, avoiding rapid and impulsive action and controlling employees. While respecting and involving employees in the central decisions of the organization, they control the management of employees and whenever they realize the potential of employees, they use feedback optimally. Both the internal motivation and the external leverage of cyber management make the organization more efficient.

Williams also believed that in cybernetic management there is a team environment and because of the participatory organizational culture, individuals are reluctant to join informal groups and pursue only organizational goals that align with individual goals and efficiency. Promotes the organization.

Finding cybernetics is the fastest, most appropriate, and most effective way to control and regulate complex organizations to increase efficiency²⁸; In other words, cybernetic knowledge is considered as a tool to solve socio-economic, biological and medical problems of humanitarian affairs⁵.

There was also a relationship between cybernetic management and organizational effectiveness. The result of this hypothesis was consistent with the results of research by Mohammad Amini²⁹, Mirsafian, Afshari and Kalateh Seifri²⁷, and Zamenopoulos and Alexio³⁰. The cybernetic process acts as a causal orbit. This process begins when some changes in the internal and external environment lead to an organizational response that modifies the value of some variables. If that variable is monitored by some formal or informal groups (regulatory units) and the change in value causes that variable to deviate from acceptable limits,

the group will try to manage (or some regulatory units) to change the response. An organization is forced to take a position until the variable is returned to an acceptable range.

Another finding of this study was the relationship between cybernetic management and client satisfaction. The result of this hypothesis was consistent with the results of research by Rahimi and Amiri² and Mirsafian, Afshari and Kalateh Seifri²⁷.

Explaining this finding, it can be said that efficient organizations delegate authority to employees, create their organizations as a team, and develop human capacity in commitment. Members of such organizations feel that they are part of the organization. People at all levels feel involved in decisions that affect their work and feel that their work is directly related to the goals of the organization, so they have a more flexible organizational structure. This flexibility saves time and money. Tasks will be done and clients will be done faster and as a result they will be more satisfied.

Cyber-surveillance helps large, complex social systems, such as organizations, regulate their activities. This means that self-correction mechanisms give members, and when events occur that lead the organization in an unpleasant direction, negative feedback systems detect errors and another event that returns the organization to its original path, Automation starts to work and reduces the complexity of the organizational structure and the concentration of organizational structures, and accelerates the work of clients and clients will be more satisfied³¹.

The latest finding of this study also emphasized the relationship between cybernetic management and bureaucracy; This result was consistent with the results of

research by Mohammad Amini²⁹ and Rahimi and Amiri².

In explaining this finding, it can be said that since the nature of cybernetic behavior is similar to the system management attitude, and when it examines the internal environment of the organization; Avoids dry control of employees and the system of punishment and reprimand, and uses coordinated decision-making to coordinate activities to solve the problem, treats them with respect and consultation. When the central unit of the organization identifies a problem or threat, it begins to take actions to correct or eliminate it. Cybernetics management in the organization seeks to structure by examining the internal environment that modifies its factors and indicators in order to achieve its systems. (Self-control), which is specific to cybernetic systems, to organize activities in a coordinated manner. As a result, when all employees are involved in the internal and external decisions of their department or organization and their opinions are considered important and even applied, the structure of the organization is decentralized, flexible and less complex and bureaucratic due to its flexibility. The management system of the office creates a clear communication and coordination between the departments of the office.

The more managers use cybernetic knowledge in their management methods in organizations; For example, have more trust in subordinates and consider them worthy people, as a result of delegating authority to subordinates will increase and eventually in the organization, there will be decentralization. The greater the mechanisms for exchanging information at decision-making points, and the more appropriate the feedback system to evaluate the results of decisions, the greater the decentralization. The more influential the

decisions made by one unit on the operations of other units, the greater the participation of other units in decision-making. This provides the ground for organizational decentralization and the creation of an appropriate organizational structure².

Limiting the statistical population to the staff of selected hospitals of Iran University of Medical Sciences, which limited the generalization of results and the lack of cooperation of some hospitals and their exclusion from the study was one of the limitations of this study. Departments and organizations should be done to determine the application of cybernetic model in offices, obstacles and problems resulting from the implementation of cybernetic model in these institutions. Experimental research and experimental implementation of cybernetic management model in one of the university research communities to determine the implementation of the model.

Conclusion

The results of the present study indicate the importance of important and capable functions of cybernetic management in explaining appropriate organizational productivity. Participatory decision-making in the management of organizations and the correct flow of information to make the right decisions and increase and optimal efficiency of organizational productivity can be one of the useful results of cybernetic management application. It is suggested that managers of organizations by welcoming challenges and changes in the organization, creating an open organizational environment for people to comment and freedom of action to employees in performing tasks, using participatory decision-making methods and decentralization in decision-making, communication and interaction with research centers and consultants. Create conditions for employees to have access to

the information they need, try to reduce bureaucracy.

Authors contributions:

Dr. Leila Riahi and Fatemeh Darbandi developed the main idea and contributed to it. Fatemeh Darbandi collected data and analyzed the data and prepared a manuscript and used the suggestions and opinions of Dr. Leila Riahi in all stages. At the end, Dr. Ansieh Nikravan presented her opinions in all fields. It was welcomed and in the end all the authors read and approved the article and the manuscript was finalized. The first author is Fatemeh Darbandi, the second author is Dr. Leila Riahi and the third author is Dr. Ansieh Nik Ravan.

Competitive benefits:

The authors stated that they had no financial, personal or other relationships with individuals or organizations that may have a real or potential competitive advantage in relation to the submitted article.

Acknowledgments

Thanks to all the managers and staff who participated in this study. I also thank the directors of the studied hospitals.

This article is an excerpt from Fatemeh Darbandi's master's thesis with the code of ethics IR.IAU.SRB.REC.1399.044 and has not been sent to any other scientific research journal.

References :

- Herrmann T LK, Jahnke I. (2009). Sociotechnical walkthrough: a means for knowledge integration. Emerald Group.14(5):450-67. .
- Rahimi G, Amiri S. Investigate the Impact of Cybernetic Management Functions on the Flexibility of Doctors in the Hospitals of Tabriz University of Medical Sciences. Bimonthly of Education Strategies in Medical Sciences. 2017;10(2):149-56.
- Hashembeik N SA, Hoveida R. A study of the extent of application of cybernetic model indices in management of the Isfahan University of Medical Sciences in the 2009- 2010 academin years. 2011; 5(49): 47-57.(Persian).
- Deldar IS, Azita; Alidoost Ghafarkhi, Ibrahim. (1394). Investigating the position of cybernetic model in general departments of sports and youth of selected provinces of the country. Sports Management Studies, 30: 85-34.
- Bulz N, Systemic and cybernetic Kindness: relating a symmetry and subtleness? Cybernetic, 38(7), pp: 1121-1161.
- Rowe. (2010). the cybernetics of organizing: management and leadership c, 39(7), pp: 11. .\''\''-..
- Baber C, Golightly, D., & Waterson, P. (2019). Editorial: The cybernetic return in Human Factors and Ergonomics. Applied Ergonomics. doi:10.1016/j.apergo.2019.01.011
- Peña-Ayala A, & Cárdenas-Robledo, L. A. (2019). A cybernetic method to regulate learning through learning strategies: A proactive and reactive mechanism applied in U-Learning settings. Computers in Human Behavior. doi:10.1016/j.chb.2019.03.036 url to share this paper:.
- Liu H, Liu, Y., & Liu, L. (2017). The verification of program relationships in the context, of software cybernetics. Journal of Systems and Software, 212–227.
- Chen L, Huang, L., Li, C., & Wu, X. (2017). Self-adaptive architecture evolution with, model checking: A software cybernetics approach. Journal of Systems and Software, 124.
- Chang VAcscJoSaS, 124,, 195–211.

12. Schuh G, & Kramer, L. (2016). Cybernetic approach for controlling technology management, activities. *Procedia CIRP*, 437–442.
13. Scott B, & Bansal, A. (2014). Learning about learning: A cybernetic model of skill acquisition., *Kybernetes*, 1399–1411.
14. Gushchin A, & Divakova, M. (2015). Trends of E-education in the context of cybernetics, laws. *Procedia-Social and Behavioral Sciences*, 890–896.
15. Rahimi G
ASItIoCMFotFoDitHoTUoMSESM.
16. Malmir AACattrsoTNAoINA, Fourth Year, Issue 3, Serial Issue 15: 20-36.
17. Ismailpour RaFP, Nizamuddin (2015). Cybernetic approach to information retrieval storage systems, *Library and Information Research Journal*, 6 (1).
18. Ahmadi M, Fundamentals of Organization and Management (General Management) Second Edition. Sari: Cultural Research. Ministry of Science, Research and Technology, Shahid Ashrafi University of Isfahan. Faculty of Administrative Sciences and Economics, Department of Management.
19. Ahmadi MTrbmo-cbaopS-RQoRMiLE, Fourth Year, No. 4: 87-107.
20. smailpour RaN, Hani (2015). Investigating the effect of transcendent leadership on organizational productivity with emphasis on spirituality in the workplace. *Productivity management*. 10 (40): ۱۵۹-۱۸۳
21. Johnston RJ, peter.2003, Service productivity ,*Journal, Emeraldinsight* p-.
22. Alwani SMM, Somayeh and Mirzaei, Mehdi (1391). The effect of organizational culture on the productivity of organizational manpower. (Researcher) *Management Quarterly*, Year 9, No. 28: 25-39.
23. Brughni AAItmroobjsaopUoM, Faculty of Physical Education and Sports Sciences, Master Thesis in Physical Education, Sports Management.
24. Hashemi SATrbkmapwtmroociLIAUJoNAiE.
25. Ghorbanzadeh V, Asadpour A. The role of exploratory-cybernetic management in the organizational learning process. *Industrial Management Studies*. 1386; 16 (1): 125-66.
26. Heydari NItokmoopwrttmroocCsas-bk-b.
27. Mirsafahian H, Afshari M, Kalateh Seifari M. The effect of applying cybernetic management model on the development of self-management behaviors and its role on the development of psychological empowerment of employees and model presentation. *New approaches in sports management*. 1397; 6(21)-..
28. Mirzaei Ahrnjany HCit, Management mJo, Knowledge 1988; No. 1 pP.
29. Mohammad Amini ATtotrbcaicaosigoiSTfMsD, Islamic Azad University, Saqez Branch, Department of Public Administration.
30. Zamenenophoulos T, Alexiou, K. (2009). Rethinking the cybernetic basic of design: The concepts of control and organization. *Journal Kebernetes*, 36,9(10):1570-1589.
31. Dadkhah RTeoaapocmimtpedoIpMTIAUoKB.

Please cite this article as:

Fateme Darbandi, Leila Riahi, Anise Nikravan. The relationship between cybernetic management and organizational productivity in selected hospitals of Iran University of Medical Sciences. *Int J Hosp Res*. 2020;9 (4).