

Assessment of Productivity in Health Centers after Health Transformation Plan in Iran

Mohammad Khammarnia¹, PhD; Mehdi Zanganeh Baygi¹, PhD; Morteza Mooziri², MD; Mohammad Okati², MD; Mostafa Boolaghi², MD; Mehdi Okati², MD; Fatemeh Setoodehzadeh¹, PhD

¹Health Promotion Research Center, Zahedan University of Medical Sciences, Zahedan, Iran
²Student Research Committee, Zahedan University of Medical Sciences, Zahedan, Iran

Correspondence:

Fatemeh Setoodehzadeh, PhD;
 Health Promotion Research Center,
 Zahedan University of Medical
 Sciences, Zahedan, Iran

Tel: +98 9177364693

Email: fsetudezade@gmail.com

Received: 17 April 2021

Revised: 25 May 2021

Accepted: 30 June 2021

Abstract

Background: In 2014, Health Transformation Plan (HTP) started in Iranian health system to improve productivity of health organizations. The aim of the present study was to assess the employees' productivity in health centers after HTP.

Methods: This cross-sectional study with analytical approach was carried out in Zahedan University of Medical Sciences in 2018. 150 health workers were selected using census method. Data were collected by Hersey & Goldsmith Workforce Productivity Questionnaire. For the data analysis, descriptive and statistical methods such as Pearson correlation 2-tailed, one-way ANOVA, T-tests and regression model were used.

Results: Our findings showed that 96% of health workers were female. Mean score of productivity was 63.8 ± 12.7 , which is in the moderate level. Besides, we found a significant negative relationship between productivity and job experience of the employees ($P=0.021$, $F=2.975$).

Conclusion: In this study, productivity was at a moderate level. It seems with better motivation of the staff, there might be an improvement in productivity.

Please cite this article as: Khammarnia M, Zanganeh Baygi M, Mooziri M, Okati M, Boolaghi M, Okati M, Setoodehzadeh F. Assessment of Productivity in Health Centers after Health Transformation Plan in Iran. *J Health Sci Surveillance Sys.* 2021;9(3):179-183.

Keywords: Cross-sectional studies, Motivation, Censuses, Data analysis, Iran

Introduction

Human resources are considered as fundamental resources and the most important factor for developing any organization. Today, due to the effect of the employees' efficiency on overall function, many organizations preliminarily focus on increasing the employees' productivity. European Productivity Agency defines productivity as "the level of using each producing factor properly, which first seems an overview that constantly tries to improve the existing condition".¹⁻³

Today, the most important factor in community development is increased attention to human productivity, and organizations can only reach their achievement via using human resources because human being defines waste or productivity of physical resources or materials.⁴ To motivate the employees, who provide high quality cares and help the development of a society, we need to invest on human resources management. Despite

this global importance, today, health systems ignore the mentioned fact; as a result, decreased human productivity has become a challenge.⁵

According to the existing reports, health centers and organizations in Iran, in contrast to industry and business ones, have rarely investigated effective ways of improving the employees' productivity; also, Iranian human productivity index is weaker than the mean East Asian countries.⁴ Studies have shown that without long-term, thorough, and evidence-based plan, this goal seems unachievable.⁶ We should also consider that decreased productivity in health area can lead to decreased quality of life and social security in communities.³ According to a study, the costs that are the result of decreased productivity in health care organizations can be many times more than direct costs of medical conditions.⁷ This is also important that the human resources productivity in health organizations is more significant than other organizations because these organizations, besides

doing their routines, have the ability to face the crisis, too. This area of health is considered as one of the most basic parts of economic development in different countries. In health care organizations, in order to get productivity, we need to take a systemic, local, and practical overview. That is, organizational factors like employees' motivation, working culture, mental health, right choice of workers, effective leadership, occupational function, and other factors cannot improve productivity individually and they must work as a system. We should also pay attention to reciprocal relationship between these factors. Sufficient organizational structure, effective function, proper work equipment, balanced area, and most importantly professional and effective human resources are necessary to reach adequate productivity.^{3, 6, 8}

On May 5, 2014, a series of reforms has been done in Iranian health system under the title of Health Transformation Plan (HTP), with three main approaches of financial protection of patients, fairness in access to health services, and improvement of the quality of services.⁹ Because there is a special look at health area in this plan, and absence of proper research on this topic, this study seemed necessary to be conducted. Therefore, this study aimed to evaluate the employees' productivity in health centers after HTP. The results of this study can provide required information for health policymakers and managers to improve the human resources productivity and in turn can result in increased quality of service delivery.

Methods

For productivity assessment among health workers, a cross-sectional study was carried out in Zahedan University of Medical Sciences (ZAUMS) in Sistan and Balochestan province in 2018-2019. As the widest province, Sistan and Balochestan is located in the southeast of Iran with almost three million people. The study population consisted of all health services providers in ZAUMS in 2018-2019. According to the study population (150 persons who have worked in primary health cares), census method was used for sample size. Since we used the census method, inclusion criteria were employment in the health centers. Also, reluctance to cooperate in the study was considered as the exclusion criterion.

Hersey and Goldsmith Workforce Productivity Questionnaire, as a standard instrument, was used for data collection. In addition, the reliability and validity of the questionnaire were approved in a previous study.¹⁰ The questionnaire contained two parts; the first section included demographic variables (sex, age, job position, job experience and education), and the second section consisted of 26 questions about productivity assessment in centers with five-point Likert scale. The mentioned questionnaire

covers seven dimensions of employees' productivity including clarity (three items), ability (four items), feedback (four items), organizational support (four items), validity (four items), environment compatibility (three items), and motivation (four items). Each item was scored on a 5-point Likert scale (1=never, 2=occasionally, 3=often, 4=usually, and 5=true most of the time). Since no cut-off point has been indicated to define the upper and lower limits for productivity index in the scientific literature, the minimum and maximum attainable scores of this index (29–130) were used to judge about the level of productivity of the study population. Accordingly, if the mean score of productivity score was near the lower limit score (29), near the midpoint (79.5), and near the upper limit score (130), productivity was considered as lower, moderate, and high, respectively.¹¹

In the beginning of the study, the researchers contacted the Deputy of Health of ZAUMS for coordination and obtaining license for data gathering. The questionnaires were given to all participants, and after three days, were returned to the researchers. According to the participants' cooperation, all the questionnaires were gathered (response rate was 100%).

Ethical Considerations

The Ethics Committee of Zahedan University of Medical Sciences approved this study (ethical code: IR.ZAUMS.REC.1397.117). The assurance of anonymity and confidentiality of the participants was the other ethical concerns considered in the study. All the participants were aware of the goal of this study, and their cooperation was optional.

Data Analysis

For data analysis, we used SPSS version 21. Mean score of productivity was calculated by descriptive statistics. Moreover, T-tests (productivity and sex) and one-way ANOVA (productivity with education level, age, job position and job experiences) were used to determine the relationship of productivity and its dimensions with demographic variables. The level of significance was considered as 0.05.

Results

Of the 150 participants, 144 were female (96%). The mean age of the participants was 33.6 years. The other demographic variables are shown in Table 1. Besides, the mean score of productivity was 63.8 ± 12.7 (out of 130) which lies in the range of medium. The scores of productivity for each demographic variable are shown in Table 1. In addition, there was a relationship between productivity and job experience of the employees ($P=0.021$, $F=2.975$) (Table 1). In addition, the average scores of primary health care providers (6.6 ± 2.7) and

Table 1: Mean of productivity based on demographic variables in ZAUMS health centers in 2018-2019

Demographic Variables	Dimensions	Frequency (%)	Productivity	
			Mean±SD	P value
Sex	Male	6 (4.0)	72.3±12.9	0.680
	Female	144 (96.0)	63.4±12.6	
Age	< 25 years	19 (12.7)	65.5±7.9	0.189
	26-40 years	105 (70.0)	64.3±12.8	
	41-50 years	23 (15.3)	59±14.7	
	> 50 years	3 (2.0)	71±14.4	
Job Position	PHC provider	127 (84.7)	63.3±12.9	0.466
	Nutrition counselor	10 (6.7)	69.9±13.4	
	Psychosocial counselor	8 (5.3)	63.1±6.7	
	Physician	5 (3.3)	65.4±13.0	
Job Experience	< 5 years	57 (38.0)	66.9±10.7	0.021*
	6-10 years	28 (18.7)	64.3±11.7	
	11-15 years	28 (18.7)	61.5±14.1	
	16-20 years	25 (16.7)	57.3±12.5	
	>20 years	12 (8.0)	66.5±16.5	
Education	B.S.	35 (23.3)	61.59±SD	0.530
	M.S.	98 (65.3)	64.74±SD	
	>M.S.	15 (10)	63.26±SD	

* Significant level <0.05

Table 2: Relationship of dimensions of productivity and job position and job experience in ZAUMS health centers in 2018-2019

Dimensions	Mean±SD	Job position		Job Experience	
		P value *	F	P value	F
Ability	10.2±2.1	0.598	0.628	0.424	0.974
Clarity	10.4±2.5	0.993	0.030	0.271	1.30
Organizational support	8.2±2.6	0.635	0.571	0.347	1.12
Motivation	6.7±2.7	0.301	0.839	0.036	2.64
Feedback	11.1±2.8	0.408	1.231	0.063	2.28
Validity	8.6±3.3	0.475	0.972	0.327	1.20
Compatibility	8.6±2.9	0.081	2.291	0.096	2.01
Productivity	67.8	0.466	0.854	0.021*	2.975

*Correlation is significant at the level of 0.05 (2-tailed)

psychosocial counselors (6.6±1.9) for the dimension of motivation were very low. As shown in Table 1, nutrition counselors had the highest score of productivity in ZAUMS (69.9±13.4).

The demographic variables (age, sex, education, job position and job experiences) and employees' productivity were analyzed using Pearson correlation 2-tailed, one-way ANOVA, T-tests, and regression. Results suggested that there was no significant relationship between the demographic variables, except for job experience and productivity.

According to Table 2, using backward regression model between demographic variables and employees' productivity, in which all the variables were entered, it was only job experience which showed a significant relationship with productivity. The personnel who had lower job experience had higher productivity score than those with higher job experience.

The study findings for the assessment of different dimensions of productivity showed that ability (10.0±2.1), clarity (10.4±2.5), organizational support (8.2±2.6), validity (8.6±3.3) and environmental

compatibility (8.6±2.9) were in the range of moderate; motivation was low (6.7±2.7) and feedback was high (11.1±2.8) (Table 2)

Discussion

Productive human resources have an important role in progression of any organization. Therefore, authorities look for methods to assess and improve their employees' productivity.¹¹ The aim of this study was to determine human resources' productivity in health centers after HTP in Zahedan, Sistan and Baluchestan, Iran. One aim of implementation of HTP in the Iranian health system was providing better health care services by improving the employees' productivity.

This study showed that productivity was in the moderate level; this finding was similar to those of Shirsavar et al.¹² In addition, in another study, Khammarnia et al. found that productivity in ZAUMS staff before HTP was moderate.¹³ A comparison of the results of these two studies shows that the level of employee productivity has not changed before and after the transformation plan in ZAUMS. The

results of Masoumi et al. revealed that the majority of health center employees stated that their work motivation had decreased compared to before the implementation of the HTP plan, and more than half of them were willing to leave their jobs.¹⁴ Hoboubi et al. reported productivity in a moderate rate among the employees.¹¹ Mirkamali et al. in their study (2019) showed that various factors such as burnout could affect the employee's productivity.¹⁵ Therefore, it is necessary to increase the productivity of employees by identifying these effective factors and reducing their effects. Accordingly, it is hoped that in a near future, primary health care providers working in ZAUMS health centers perform more productively. This aim is achievable through more attention to the factors affecting productivity in a systemic, local, and practical overview.⁶ Needless to say that standardizing and better equipping the health centers and also better motivation of the staff can have an undeniable role in the improvement of the employees' productivity in health systems.

The study findings showed that there was no significant relationship between job position and any of productivity dimensions ($P>0.05$), while findings of Khammarnia et al. showed that there was a negative relationship between the employees' productivity and job position, where nurses had the highest and the support staff had the lowest productivity score.¹³ This difference could possibly be the result of greater study population in the mentioned study. It was found in this study that the average scores of primary health care providers and psychosocial counselors in the dimension of motivation were very low, and it seems necessary to implement further studies on this issue in order to better understand the cause.

Our findings showed that there was a significant negative relationship between productivity and job experience. Employees with lower job experience had higher productivity than those with higher job experience, meaning the employees with a job experience of less than 5 years had the highest productivity. Although employees with a job experience of more than 20 years showed higher productivity than the middle groups. Another study in Iran did not show this relationship. To understand the reason of this event, we need to pay attention to the new online system, called Iranian Electronic Health Records, used in Iranian primary health care system after the implementation of HTP that could have possibly increased productivity of the staff with lower job experience. In this study, there was no difference between men and women in productivity scores. Also, Khammarnia et al. and Hoboubi showed similar findings in their study.^{11, 13} The study could not show a significant relationship between the employees' education and their productivity, which is in the same line with previous studies in this region.¹³

Limitations

Crowded health centers and lack of access to participants in the early working hours was one of the limitations of this study. In this regard, the researchers had coordinated with the participants and often referred to them in the last hours of work. The present study was a cross-sectional one; this method does not give actual causative conclusions. Further studies are required to find the reasons behind the events found in this study.

Conclusion

According to the study results, productivity score in health centers was moderate. It is notable that one purpose of implementing HTP in the health domain has been promoting primary health care services by means of improving health care providers' productivity. Due to the importance of productivity of health centers, it is necessary for managers of health care networks to increase the productivity of human resources with appropriate approaches. Further studies are recommended to be done in other medical universities, and in different cultures and their results should be compared with the findings of this study.

Funding/Support

This project had approved and funded by Student Research Committee of Zahedan University of Medical Sciences. Grant number: 8825

Conflict of Interest: None declared.

References

- Heydari A, Kabir M J, Babazadeh Gashti A, Jafari N, Lotfi M, Aryaei M, et al. Job satisfaction of health workers in Golestan Province based on Herzberg's model in the year 2012. *Jorjani Biomed J.* 2014; 2 (2):49-42.
- Forouzanfar MM, Alitalashi H, Hashemi B, Baratloo A, Motamedi M, Majidi A, et al. Emergency nurses job satisfaction and its determinants. *Journal of Shahid Beheshti School of Nursing & Midwifery.* 2013; 23(80).
- Sadeghi G, Adham D, Panahi M, Khalili Z, Naseri M, Abbasgholizadeh N, et al. Survey of "Improving Productivity of Clinical Staffs' Law" Enforcement in Hospitals Affiliated to Ardabil University of Medical Sciences. *j.health.* 2017; 8 (2):151-159.
- Hajinabi K, Nasiripoor A A, Zahedkar P, Mehrabian F. Relationship between nurses' working shifts with human resources productivity. *J Holist Nurs Midwifery.* 2013; 23 (1):7-12.
- Danesh kohan A, Alipour M, Ahmadi N, Sajjadi F, Sari M. Job Satisfaction Among Employees of Azna District Health Network, 2009. *JRUMS.* 2013; 12 (7):505-518.
- M. Bahadori, E. Teimourzadeh, and H. Masteri

- Farahani, "Factors affecting human resources' productivity in a military health organization," *Journal of Military Medicine*, vol. 15, no. 1, pp. 77–86, 2013.
- 7 Mattke S, Balakrishnan A, Bergamo G, Newberry SJ. A review of methods to measure health-related productivity loss. *Am J Manag Care*. 2007; 13:211–217.
 - 8 Rezghi Shirsavar H, Moosavi, M. Relationship between job satisfaction and productivity of employees in Tehran Medical Sciences Islamic Azad University. *Journal of healthcare management*. 2014. 3 (3-4). 19-27.
 - 9 Nabilou B, Salem Safi P, Yusefzadeh H. Performance Assessment Of Health System Reform Plan In The Hospitals Affiliated With Urmia University Of Medical Sciences. *J Urmia Nursing and Midwifery Fac*. 2017; 14 (11):896-905.
 - 10 Shaemi Barzoki A, Mohammdi M. A survey of the impact of transformational leadership on manpower productivity with the mediating role of organizational entrepreneurship. *Management*. 2016. 6 (12). 1-28.
 - 11 Hoboubi N, Choobineh A, Kamari Ghanavati F, Keshavarzi S, Hosseini AA, The Impact of Job Stress and Job Satisfaction on Workforce Productivity in an Iranian Petrochemical Industry. *Safety and Health at Work*. 2017; 8 (1): 67-71
 - 12 Karimi S, Mohammadinia L, Mofid M. The Survey of Relation between Compasses of Socialization and Productivity of Employees in Selected Hospitals. *Health Inf Manage* 2015; 1(7):1046.
 - 13 Khammarnia M, Kassani A, Peyvand M. Relationship between partnership working and employees' productivity in a University of Medical Sciences in the South of Iran. *J Health Man & Info*. 2016;3(3):89-93.
 - 14 Masoumi Ganjgah P, Geranmayeh M, Haghani S. The Influential Factors in the Job Motivation among Midwives as the Healthcare Providers in the Iranian Health Sector Evolution Plan. *IJN*. 2020; 33 (125) :13-27
 - 15 Mirkamali K, Ahmadizad A, Kazemzadeh S, Varmaghani M. Determining the Relationship Between Job Burnout and Employee Productivity. *Iran J Ergon*. 2019; 7 (1):37-44