Relationship between establishing a quality-based payment program and performance indicators of health care providers and health workers in health centers of Miyaneh city

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Abstract

Background and Objective: The main purpose of this study is to investigate the relationship between establishing a quality-based payment program and performance indicators of health care providers and health workers in health centers of Miyaneh city.

Method: The target population of this study is health care providers and health workers in health centers in Miyaneh city and sampling is by census. Health workers working in all health centers, numbering 180, and health care workers working in health centers in Miyaneh city, numbering 48, were included in the study. Since in the present study, all members of the statistical community are studied, so the sampling method used is census. Data collection in this study was done through system data (registration) of East Azerbaijan Health Center on performance indicators of health workers and health care providers. The present study is descriptive of correlation and applied in terms of purpose. Repeated Measure test (repeated measures analysis of variance) was used to compare performance indicators over time. Because in this study, the target groups are measured at different times to determine the changes due to an intervention, the test includes: descriptive statistics and the introduction of variables related to the analysis, Multivariate Tests, two-to-two analysis and marginal mean And analysis of variance was repeated measures of size and combination of levels of operating variables. The significance level of the tests was considered 0.05. All data were analyzed using SPSS-19 statistical software.

Results: The results showed that between the implementation of quality-based payment program with the performance indicators of health care providers including pregnancy care coverage index (pv=0.001 and p<0.05) and elderly care coverage index (pv=0.000 and p<0.05) a significant relationship was observed and also the results showed that between the implementation of quality-based payment program with the performance indicators of health care providers including child care coverage index (pv=0.168 and p>0.05) and Student care coverage index (pv=0.585 and p>0.05) a significant relationship was not observed. The results also showed that between the implementation of quality-based payment program with the performance indicators of health workers including pregnancy care coverage index (pv=0.000 and p<0.05), child care coverage index (pv=0.000 and p<0.05) students care coverage index (pv=0.000 and p<0.05) and elderly care coverage index (pv=0.000 and p<0.05) a significant relationship was observed.

Conclusion: Quality-based payment method can lead to the improvement of quantitative and qualitative indicators related to the performance of health workers and caregivers with measures such as improving the individual and team performance of service providers in health centers.

Keywords: quality-based payment performance indicators health care providers health workers health centers

Background and Objective

Although formal efforts to promote health have increased dramatically over the past few years there has been little improvement in health in low- and middle-income countries. One of the reasons for this is related to the low productivity and morale of health care providers, which often

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leads to employee dissatisfaction and absenteeism[1]. In this regard, a promising intervention and strategy to improve the performance of service providers is performance-based payment, which provides incentives in the form of rewards (or fines) to providers to improve productivity and quality of care[1,2]. Health systems around the world suffer from deep gaps between actual performance and possible excellent performance in several areas. Many of these gaps can be repaired. Despite a significant increase in efforts to improve the performance of the health system over the past few years, only minor progress has been made, especially in low- and middle-income countries[3]. P4Q is a P4P approach that uses quality indicators to pay incentives to service providers and can assess quality using indicators of structure, process, outcome, or coordination of care in a variety of ways. In such an approach, composite indicators that are quantitatively a combination of multiple quality indicators in one index may be used[4].

Recent studies have confirmed the global interest in the quality payment programs as a promising initiative to improve the quality of health care[5]. The payment system, which is also referred to as the service compensation system or the salary and benefits system, is one of the functions of the human resource management system, which is responsible for all payments that human resources pay for doing organizational work during the period. Receives a fixed time. In fact, the payment system is related to financial and non-financial rewards that human resources receive in return for doing work in the organization fairly and equitably. The determinant factors of a fair payment system have always been the focus of managers; Because employees expect to receive adequate pay for their services and participation in organizational goals. In response to this need, various approaches have been proposed to design an appropriate payment system, including the performance-based payment approach[6].

Jani et al. (2017) in their study concluded that the alignment of the objectives of the Ministry of Health, Treatment and Medical Education with its staff in medical centers and hospitals can result in a more financially controlled system and improvement of the quality of health services as well as the productivity and efficiency of the health system in general[7]. Also, Iezadi et al. (2017) in their study initiated a quality-based payment method by using 139 individual performance indicators and 41 organizational team performance indicators as incentive targets of the payment method. "Achieving a certain level of the index" and "improving the indicators" were chosen as the payment strategies. The results of the evaluation of the program showed that the highest level of the satisfaction was related to improving the performance of employees (approximately 53%), the highest level of dissatisfaction was related to fairness in payment (approximately 37%). Approximately 10% improvement was observed in the average total score of health centers. The intervention had no significant effect on the mean score of organizational performance. As a result, the design and implementation of the P4P program based on health contextual priorities led to improvement of the individual and team performance of service providers in health centers[5]. Tavakoli et al. (2016) in their study expresses the strengths of the performance-based plan, which included the definition and development of correct instructions, improving and upgrading the monitoring system, improving and upgrading the information management system and organizing the payment system. Accordingly, in order for the health system to be more efficient, the strengths of the performance-based plan should be well studied and used so that less dissatisfaction can be seen with hospital staff[6].

The main purpose of performance-based payment is to improve patient-related outcomes while reducing unintended consequences (such as increasing inequality)[2,8,9]. Performance-based payment, if effective, can prevent the uncontrolled growth of costs through the prevention and management of chronic diseases

while maintaining efficiency, and has the potential to change the medical landscape from focusing on treatment-oriented services to preventive care through Provide incentives to physicians and other service providers to focus on clear goals for common illnesses[10]. Although these studies demonstrate the positive impact of performance-based payment plans on health services, they have been recognized as an effective strategy for improving reimbursement methods for service providers. So far, a health study has been conducted to investigate the impact. This program is not done.

Overall, considering the importance of the issues raised and also considering the effect that payment systems based on quality and performance can have on the performance of health care providers and health workers in health centers of Miyaneh city, the present study aims to investigate the relationship between quality payment program and performance indicators of health care providers and health workers in the health centers of Miyaneh city.

Method

The present study is a cross-sectional study conducted in 1399. The research method used in this study is applied based on purpose and correlational based on research method.

The study population in this study were health workers and health care workers of Miyaneh city health network. Health workers working in all health centers with 180 people and health care workers working in health centers of Miyaneh city with 48 people were included in the study. The data of this study were collected through system data (registration) of East Azerbaijan Province Health Center regarding the performance indicators of health workers and caregivers which was designed in Excel data collection forms and included two parts: demographic information and performance indicators of health workers and caregivers.

Measures

Prenatal Care Coverage Index: The care that is provided to pregnant women by service providers during pregnancy and also includes the information needed to assist in the decision-making process about services.

Child Health Care Coverage Index: A child care program is a seemingly healthy or disease-prone person who has not yet developed symptoms.

Student Health Care Coverage Index: School health includes a set of activities that are continuously and continuously performed at school ages (6-18 years old) in order to provide, maintain and improve the health of students and their parents and through that situation. The physical, mental, psychological, emotional and social health of students, their parents and the physical and mental environment of the school are also monitored, controlled and improved.

Elderly Health Care Coverage Index: Integrated care means the use of risk factors and simple integrated and comprehensive clinical signs for early detection of the disease, appropriate treatment and timely referral. In integrated care, the elderly is evaluated in terms of priority physical and mental illnesses in the country.

Description of a quality-based payment program

Tabrizi et al. In 2016, by planning and implementing a quality-based payment program (P4Q) in health centers affiliated to Tabriz University of Medical Sciences, made improvements in the method of payment to service providers. Prior to the P4Q program, payment to service providers was based on judgmental criteria and in some cases on the basis of the results of annual monitoring, which did not meet the scientific criteria for performance appraisal. Mental judgments in performance monitoring and pay based on it made service providers, especially health workers, receive much less than staff. On the other hand, despite the fact that the criteria for the payment of employees was not targeted the quality of performance. On the other hand, the difference in

the amounts of salaries received among the staff and also among the service providers was very large. Traditional incentive payment method could not motivate service providers to improve the quality of services and primary health care processes. With the design of a new payment method with the aim of improving the quality of the performance of service providers and health centers using the quality-based payment model, significant improvements were made in the payment method. In this program, incentives were paid to service providers based on performance indicators. Individuals received financial incentives in proportion to their scores on a number of pre-determined indicators[5,3].

Data analysis

In order to compare performance indices over time, repeated measures analysis of variance was used. The reason for using repeated measures analysis of variance is that in this study, the target groups are measured at different times to determine changes due to an intervention. The test includes: descriptive statistics and introduction of variables related to the analysis, multivariate test, analysis Two-way and marginal mean and analysis of variance with repeated measures and combining levels of factor variables. The significance level of the tests was considered 0.05. All data were analyzed using SPSS-19 statistical software.

Results

The performance of health workers in the pre-intervention period in the student health care coverage index was in a better position than other indicators. But six months after the intervention, as can be seen, the performance of health workers in the indicators of elderly care, child health care index and pregnancy health care index has improved. But in the student health care index has decreased compared to the period before the intervention. In the twelve months after the intervention, the performance of health workers in the field of coverage of elderly health care and pregnancy health care has decreased compared to previous periods (before the intervention and six

months after the intervention). The performance of health workers in the field of health care coverage index of students and children has not changed compared to the previous period (six months after the intervention).

The performance of health care providers in the pre-intervention period in the student health care coverage index and the pregnancy care coverage index was in a better position than other indicators. But six months after the intervention, it can be seen that the performance of health care providers in the elderly health care index has improved. But there has been a sharp drop in the pregnancy health care index. The performance of health care providers has also decreased in the two indicators of child and student health care. However, in the twelve months after the intervention, the performance of health care providers in the elderly health care index has improved compared to the previous periods (before the intervention and six months after the intervention). The pregnancy health index has improved compared to the previous period (six months after the intervention). Also, the child health care index has improved compared to the previous period (six months after the intervention) and the performance of health care workers in the student health index has decreased compared to the previous period (six months after the intervention).

Comparison of performance indicators related to health workers over time by analysis of variance with repeated measures

According to the results of Table (1) based on the significance of multivariate test in the elderly health care coverage index, the assumption that the mean of observations of different stages are the same was rejected, in other words, the average change in the stages before the intervention, six months later From the intervention and twelve months after the intervention, we have a significant increasing trend in the score of the elderly health care coverage index. The covariance assumption of the covariance matrix for the elderly health care coverage index has

been rejected. Due to the fact that the significance level is less than 0.05, so it is necessary to use the Greenhouse-Geisser test. Considering the significance of the Greenhouse-Geisser test, whose significance level is equal to 0.000, the test is significant, i.e. with an error of less than five percent, the average score of the elderly health care coverage index over three periods cannot be considered the same.

Based on the significance of the multivariate test in the child health care coverage index, according to the significance level of 0.000, at the level of 0.05 this test is significant. Therefore, based on the significance of the test, the assumption that the mean of observations of different stages are the same is rejected, in other words, the average change in the stages before the intervention, six months after the intervention and twelve months after the intervention with a significant increasing trend in We are the index score of child health care coverage. The covariance assumption of the covariance matrix for the child health care coverage index has been rejected. Due to the fact that the significance level is less than 0.05, so it is necessary to use the Greenhouse-Geisser test. Considering the significance of the Greenhouse-Geisser test, whose significance level is equal to 0.000, the test is significant, ie with an error of less than five percent, the average score of the child health care coverage index during the same three periods cannot be considered the same. .

Based on the significance of the multivariate test in the student health care coverage index, according to the significance level of 0.000, at the level of 0.05 this test is significant. Therefore, based on the significance of the test, the assumption that the mean of observations of different stages are the same is rejected, in other words, the average change in the stages before the intervention, six months after the intervention and twelve months after the intervention with a significant increasing trend in We are the index score of students' health care coverage. The Covariance assumption of the covariance matrix for the student health care coverage index has been rejected. Due to the fact that the significance level is less than 0.05, so it is necessary to use the Greenhouse-Geisser test. Considering the significance of the Greenhouse-Geisser test, whose significance level is equal to 0.000, the test is significant, ie with an error of less than five percent, the average score of the student health care coverage index during the same three periods cannot be to know.

Based on the significance of the multivariate test in the pregnancy care coverage index, according to the significance level of 0.000, at the level of 0.05 this test is significant. Therefore, based on the significance of the test, the assumption that the mean of observations of different stages are the same is rejected, in other words, the average change in the stages before the intervention, six months after the intervention and twelve months after the intervention with a significant incremental trend in the index score. We cover pregnancy care. The covariance assumption of the covariance matrix for the pregnancy care coverage index has been rejected. Due to the fact that the significance level is less than 0.05, so it is necessary to use the Greenhouse-Geisser test. Considering the significance of the Greenhouse-Geisser test, whose significance level is equal to 0.000, the test is significant, ie with an error of less than five percent, the average score of the pregnancy care coverage index during three periods cannot be considered the same.

Table 1: significance of multivariate test

Source		Anova	Degrees of freedom	Average square	Statistics F	Significance level	Partial squares
Elderly Health Care Coverage Index	Greenhouse-Geisser	30147/826	1/108	2720/7981	80/661	0/000	0/341
Error level Index of elderly health care coverage	Greenhouse-Geisser	58306/841	172/895	337/238			
Child health care coverage index	Greenhouse-Geisser	32335/036	1/050	30786/652	326/709	0/000	0/677
Error level Index of child health care coverage	Greenhouse-Geisser	15439/631	163/846	94/233			
Student health care coverage index	Greenhouse-Geisser	4549/185	1/135	4007/808	118/092	0/000	0/431
Error level Index of student health care coverage	Greenhouse-Geisser	6009/482	177/073	33/938			
Prenatal care coverage index	Greenhouse-Geisser	31065/125	1/211	26644/710	92/927	0/000	0/373
Error level index of pregnancy care coverage index	Greenhouse-Geisser	52150/208	188/973	275/966			

Comparison of performance indicators related to health care providers over time by analysis of variance with repeated measures

According to the results of Table (2), based on the significance of the multivariate test in the elderly health care coverage index, according to the significance level of 0.000, at the level of 0.05, this test is significant. Therefore, based on the significance of the test, the assumption that the mean of observations of different stages are the same is rejected, in other words, the average change in the stages before the intervention, six months after the intervention and twelve months Based on the significance of the multivariate test in the child health care coverage index, due to the significance level greater than 0.05, at the level of 0.05 this test is not significant. Therefore, based on the significance of the test, the assumption that the mean of observations of different stages are the same is accepted, in other words, the average change in the stages before the intervention, six months after the intervention and twelve months after the intervention with a significant upward trend in score We are not an indicator of child

after the intervention with a significant increasing trend in We are the index score of elderly health care coverage. The covariance assumption of the covariance matrix for the elderly health care coverage index has been rejected. Due to the fact that the significance level is less than 0.05, so it is necessary to use the Greenhouse-Geisser test. Considering the significance of the Greenhouse-Geisser test, whose significance level is equal to 0.000, the test is significant, ie with an error of less than five percent, the average score of the elderly health care coverage index over three periods cannot be considered the same.

health care coverage. The covariance assumption of the covariance matrix for the child health care coverage index has been rejected. Due to the fact that the significance level is less than 0.05, so it is necessary to use the Greenhouse-Geisser test. Due to the insignificance of the Greenhouse-Geisser test, whose significance level is equal to 0.585, the test is not significant, ie with an error of less than five percent, the average score of the child health care coverage index during the same three periods can be to know.

Based on the significance of the multivariate test in the student health care coverage index, due to the significance level greater than 0.05, at the level of 0.05 this test is not significant. Therefore, based on the significance of the test, the assumption that the mean of observations of different stages are the same is accepted, in other words, the average change in the stages before the intervention, six months after the intervention and twelve months after the intervention with a significant upward trend in We are not the index score of student health care coverage. The Covariance assumption of the covariance matrix for the student health care coverage index has been rejected. Due to the fact that the significance level is less than 0.05, so it is necessary to use the Greenhouse-Geisser test. Due to the insignificance of the Greenhouse-Geisser test, which has a significance level of 0.168, the test is not significant, ie with an error of less than five percent, the average score of the student health care coverage index over three periods can be He knew the same.

Based on the significance of the multivariate test in the pregnancy care coverage index, due to the significance level of less than 0.05, this test is significant at the level of 0.05. Therefore, based on the significance of the test, the assumption that the mean of observations of different stages are the same is rejected, in other words, the average change in the stages before the intervention, six months after the intervention and twelve months after the intervention with a significant increasing trend in We are the index score of pregnancy care coverage. The covariance assumption of the covariance matrix for the pregnancy care coverage index has been rejected. Due to the fact that the significance level is less than 0.05, so it is necessary to use the Greenhouse-Geisser test. Considering the significance of the Greenhouse-Geisser test, whose significance level is equal to 0.001, the test is significant, ie with an error of less than five percent, the average score of the pregnancy care coverage index during three periods cannot be considered the same.

Table 2: The significance of the multivariate test in the elderly health care coverage index

Source		Anova	Degrees of freedom	Average square	Statistics F	Significance level	Partial squares
Elderly Health Care Coverage Index	Greenhouse-Geisser	12067/852	1/478	8164/620	20/862	0/000	0/373
Error level Index of elderly health care coverage	Greenhouse-Geisser	20246/148	51/732	391/364			
Child health care coverage index	Greenhouse-Geisser	97/056	1/094	88/744	0/336	0/585	0/010
Error level Index of child health care coverage	Greenhouse-Geisser	10105/611	38/278	264/006			
Student health care coverage index	Greenhouse-Geisser	250/647	1/175	213/360	1/962	0/168	0/056
Error level Index of student health care coverage	Greenhouse-Geisser	4216/020	38/767	108/753			
Prenatal care coverage index	Greenhouse-Geisser	5699/658	1/017	2849/843	11/750	0/001	0/251
Error level index of pregnancy care coverage index	Greenhouse-Geisser	16977/648	35/605	476/830			

Discussion

Performance-based payment (P4P) is an effective strategy to improve service quality and improve provider performance. The purpose of this study was to investigate the relationship between establishing a quality-based payment program

and performance indicators of health care providers and health workers in the central health care network. In the present study, the information related to the indicators was analyzed during 3 periods of implementation of the quality-based payment program (one period before the implementation of the quality-based payment program and 2 periods after its implementation with 6-month intervals). The reason for choosing the three courses and the time intervals was easy access to the information of these courses. Data were collected using the data collection form in Excel. The Excel file consisted of two parts: demographic information and performance indicators of health workers and caregivers. Demographic information includes gender, age, and level of education, which were routinely recorded in quality-based payment program documents. Functional indicators also include pregnancy care coverage index, child health care coverage index, student health care coverage index, and elderly care index, which are taken from the standard guidelines of the quality-based payment program. The results showed that between the implementation of quality-based payment program with performance indicators of health care providers including pregnancy care coverage index, and elderly health care coverage index a significant relationship was observed. The results also showed that there is a significant relationship between the implementation of quality-based payment program with the child health care coverage index, and the student health care coverage index. Not found. The results also showed that between the implementation of quality-based payment program with health indicators performance including health care coverage index, child health care coverage index, Student Health Care Coverage Index and Elderly Health Care Coverage Index showed a significant relationship.

Aghajani et al. (2017) in their research concluded that the alignment of the objectives of the Ministry of Health, Treatment and Medical Education with its staff in medical centers and hospitals of the country can be further

coordinated through a financial system to be supervised and coordinated. The quality of health services leads to the improvement of productivity and efficiency of the health system in general[7]. Also, Izadi et al. (2017) in their research concluded that quality-based payment is the main axis of intervention. 139 individual performance indicators and 41 organizational team performance indicators were selected. Achieving a certain level of "index" and "index promotion" was chosen as the reward payment strategy. The highest level of satisfaction was related to the performance of employees (approximately 53% (80 people)), the highest level of dissatisfaction was related to fairness in payment (approximately 37%). (56 people) was approximately 10% (21.97) improvement in the mean score of total performance of health centers. The intervention did not have a significant effect on the mean score of organizational performance. Therefore, designing and implementing P4P program based on field priorities Health improved the individual and team performance of service providers in health centers[5].

The children's program is one of the most basic health programs and its purpose is to provide, maintain and improve the health of children, reduce the burden of priority diseases and mortality and improve their nutrition through the provision of health services. The overall goals of this program are to reduce mortality Infants and children under five years of age and health promotion of children under eight years of age. The results of this hypothesis are consistent with the results of a 2012 study by Chryschner et al. The results of a study by Chryschner et al. In 2012 showed that designing a P4P program for primary care with the participation of the target group provides a comprehensive view of their motivations that can help others discuss similar programs. This leads to an increase in people's commitment to the implementation of the program and the achievement of relevant indicators[11].

Today, investing in the health of adolescents and young people in educational settings has been

considered as one of the most important interventions in health systems. The study of health promotion indicators in schools is a very suitable tool for measuring the effectiveness of health interventions in the field of adolescent and youth health in the country and can be designed before the aggravation of health problems in this age group, and with the necessary investment Provided a reduction in the burden of disease. The results obtained from this hypothesis are in line with the results of Tavakoli et al.'s (2016) studies. Tavakoli et al. (2016) in their research expresses the strengths of the performance-based plan, which included the definition and development of correct instructions, improving and upgrading the monitoring system, improving and upgrading the information management system and organizing the payment system. Accordingly, in order to make the health system more efficient, the strengths of the performance-based plan should be well explored and used so that less dissatisfaction can be seen with hospital staff [6]. Elderly health and patterns of service delivery to this group is one of the most important concerns of community health service providers that addressing the biological, psychological and social dimensions of the aging process. The results obtained from this hypothesis are consistent with the results of research by Aghajani et al. (2017). Mr. Jani et al. (2017) in their research concluded that the alignment of the objectives of the Ministry of Health, Treatment and Medical Education with its staff in medical centers and hospitals of the country can be coordinated through a more financially controlled system. Increase the quality of health services and improve the productivity and efficiency of the health system in general[7]. The results of the present study also confirm the hypotheses of this research. According to the results of the hypothesis test, we conclude that there is a significant relationship between the establishment of quality-based payment program with performance indicators of health care providers and health workers in health centers of Miyaneh city and the results of this research can be used in scientific / research and executive

Researchers, managers and planners to be used in the Ministry of Health and University Health Departments.

Limitations

Most researchers face various limitations in accessing the resources and information they need, regardless of the subject matter. The present study also faces limitations, some of which, such as data access restrictions, can be considered as a general limitation for most studies, and some have emerged in the field of study.

- The results obtained in this study are only related to the time period of the study and require other studies at other times.

- It is worth mentioning that the present study is cross-sectional. Therefore, one cannot expect a relationship that is relevant in other experimental and research studies.

- Distance and transportation problems in a number of health centers in the study area were other limitations of this study.

Ethical considerations

This research is taken from the master's thesis student in the field of health services management in the Islamic Azad University, Science and Research Branch with the ethical code IR.IAU.SRB.REC.1398.225. Ethical considerations of the research are: voluntary participation of individuals, confidentiality of information obtained about the city under study, obtaining permission from the Vice Chancellor of the University of Medical Sciences, observing honesty and trustworthiness, conducting research with neutrality and avoiding any particular tendency

Acknowledgement

The authors thank the health workers and caregivers for their participation in the research, for their valuable collaboration.

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