

*Original Article***Structural Quality & utilizing outpatient Curative Care under Family Medicine Scheme in Rural Areas of Mazandaran –Iran*****Samad Rouhani¹** Jamshid Yazdani Charati¹ Reza Ali Mohammadpour¹

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Background and purpose: Since 2005, a reform known as Rural Insurance and Family Medicine Scheme has introduced to primary health care network in Iran in rural areas and small towns. The content of the reform implies a substantial change in those aspects of health centers that mainly could be categorized as structural quality. Although, this is the requirement of all health care providers, they are not identical in those items. In this article, we have tried to report the relation between structural quality of health centers and utilization of curative care in Mazandaran province.

Materials and Methods: This was a cross-sectional study conducted in 2013. Secondary and routinely collected data was used to answer the research questions. The source of original data was provincial health authority's data set. A check list containing pre-identified variables was used to extract the data. Using SPSS software package, regression analysis was run to measure the role of different independent variable on dependent variable.

Results: There were 215 rural health centers affiliated to 16 cities or small towns that the reform has taken place. The outreach area population of these health centers was 1,330,212 of which 834,189 (62.71%) were covered by rural insurance solely. Health centers are not identical in terms of the characteristics of health centers and their utilization. Among the variables with significant impact on the utilization of outpatient care, except for number of physician in each health centre and existence of state owned pharmacy that were found in some health centers, the rest of variables had significant positive impact on the demand for physician visit.

Conclusion: Structural quality has significant impact on the utilization of curative care of primary healthcare units at rural area in Iran. The reform seems well targeted the quality improvement and utilization of effective primary health care. [**Rouhani S. Yazdani J. Mohammadpour RA. Structural Quality& utilizing outpatient Curative Care under Family Medicine Scheme in Rural Areas of Mazandaran, Iran. IJHS 2013; 1(2):28-34*] <http://jhs.mazums.ac.ir>

Key words: Structural Quality, Outpatient Care, Family Medicine, Primary Health Care, Insurance

1. Introduction

The quality of health care is usually evaluated in two ways. One is evaluating the quality of health care from demand side factors known as perceived quality of care as a subjective matter. Another is supply side factors or objective aspects of quality of health care that is more considered by policy makers as it is more amendable by policy interventions (1). Consequently, in developing countries, in particular most studies on quality and demand for health care fall in the latter category (2). Studies of this kind usually originated from the work of Donabedian (3, 4, and 5) who defined three components of quality of health care that are structure, process and outcome. In his framework, structural quality denotes the attributes of health care settings. In this dimension, some characteristics such as material resources (building, equipment, available drugs, services, examinations, and money), human resources (number and qualification of personnel) and organizational structure (medical staff organization, method of peer review, reimbursement methods, accessibility, continuity, and referral) are considered (6)

Since 2005, a reform known as rural insurance and family medicine scheme has been introduced to primary health care network in Iran at rural area and small towns. The reform has been implemented jointly by the ministry of welfare and ministry of health. The former plays the role of services buyer as major national health insurance companies are affiliated to it and the latter plays the main role providing primary health care services as it has almost a monopolistic position in rural areas in

Iran (7). Although primary health care system in Iran, particularly in rural areas and preventive care has been successful, providing appropriate and effective curative care has been mentioned as its main weakness (8,9). The recent reform has aimed to change the situation by imposing more pressure on the providers to improve the quality and availability of services and linking these conditions to the payment to providers (7,10). The content of the reform implies the substantial change on those aspects of health centers that mainly could be categorized as structural quality dimensions pointed out by Donabedian's framework (6) and the others(11,12,13). For instance availability of at least 270 items of essential drugs, 18 cases of basic laboratory tests, accessibility to physicians and midwives with enrolled lists, accessibility to 24 hours services in the nominated centers are among the conditions of contract between the financier and the provider. Although this is the requirement for all health care providers, they are not identical in those items. In this article, we have tried to report the relation between structural quality of health centers and utilization of curative care in Mazandaran, a province in the northern part of Iran that has fully implemented the reform.

2. Materials and Methods

This was a cross-sectional study conducted in 2013. The secondary and routinely collected data was used to answer the research questions. For this purpose, the data of health centers for the year (2012) was used.

The data collection included all health centers of rural areas and small towns that implemented the reform. The source of original data was provincial health authority's data set. A check list containing pre-identified variables was used to extract the data. The study included all health centers in Mazandaran province except one city (Babol) whose health centers are affiliated to the other regional health authorities. An Excel file containing the collected data was provided. By using SPSS software package, regression analysis was conducted to measure the role of different independent variables on dependent variable that is the utilization of curative care by outreach area population of rural health centers.

3. Results

Like the other parts of Iran, the reform of family medicine and rural insurance has simultaneously been implemented in Mazandaran province since the second half of 2005. There were 215 rural health centers affiliated to 16 cities or small towns where the reform has taken place. The outreach area population of these health centers was 1,330,212 out of whom 834,189 (62.71%) were covered by solely rural insurance. Table 1 shows the characteristics of health centers and the utilization of curative care in terms of the number of patients visited by physicians.

Table 1. Structural quality of health centers and the demand for curative care under family medicine scheme in Mazandaran province-2013

district Name	centers No.	Total population	Population enrolled	physicians No.	Average retention of physicians (months)	Midwives No.	Existing public pharmacy	Existing laboratory	24 hours operation	On call physician	Average distance to town (Kilometers)	Visits per physician in 1 year
Amol	28	158739	140269	41	46.6	40	19	12	2	9	22.1	4030.5
Babolsar	9	72763	42408	14	33.6	19	0	3	0	2	11.0	4790.6
Behshahr	11	60544	41256	18	40.3	19	7	3	1	7	27.8	2213.6
Chalos	10	70501	57443	16	49.7	14	9	2	2	1	21.5	3287.2
Feridonkenar	2	25153	18120	6	23.3	6	0	1	0	1	7.0	3528.0
Galogah	6	39685	14426	8	34.5	7	5	2	1	2	13.0	4242.0
Ghaemshahr	19	121377	54597	24	45.0	20	9	5	0	1	11.6	4665.0
Joybar	7	47438	26892	10	60.7	12	6	2	1	1	9.4	4445.1
Mahmoodabad	11	70224	42396	11	44.5	11	3	1	1	0	16.7	4294.8
Nekah	13	58471	35452	17	23.4	17	12	3	1	5	19.0	2782.6
Nohshahr	11	75367	63927	22	36.0	16	9	3	0	4	31.3	2624.3
Noor	16	81144	56337	15	56.2	15	10	4	1	4	34.2	4957.3
Ramsar	6	37291	20602	7	23.4	8	1	1	0	3	31.6	3843.0
sari	34	203945	117564	53	48.9	45	18	6	3	7	27.1	3984.3
Savadkoh	13	57571	9063	16	15.9	15	11	7	2	3	27.5	2420.7
Tonekabon	19	149999	93437	34	55.7	22	7	3	3	6	15.4	5052.5
Total	215	1330212	834189	312	42.8	286	126	58	18	56	21.8	3901.0

As table 1 shows, the health centers are not identical in terms of the health centers characteristics and their utilization. Table 2

indicates a regression analysis showing the influential factors of structural quality on curative care utilization in studied health centers.

Table 2. Association between structural quality variables and curative care utilization under family medicine scheme in Mazandaran province-2013

Variables	Regression Coefficient	Standard Error	P-value	95% Confidence Interval	
				Lower Bound	Upper Bound
Total population (1000)	286.91	52.91	.000	182.06	390.73
Number of physicians	-2049.40	254.10	.000	-2550.42	-1548.38
Existing laboratory	1529.13	282.95	.000	971.22	2087.04
Population enrolled (1000)	257.38	79.13	.001	101.34	413.41
Existing public pharmacy	-972.65	269.42	.000	-1503.79	-441.32
Average retention of physicians (months)	15.03	5.94	.012	3.32	26.75

As table 2 reveals, among the variables with significant impact on the utilization of outpatient care, except for the number of physicians in each health centre and the existence of state owned pharmacy that were found in some health centers, the rest of the variables had significant positive impact on demand for physician visit.

4. Discussion

Improving access to quality care particularly primary health care for rural and remote areas population and increasing the utilization of such services has high priority in assisting vulnerable people's health condition. Primary health care facilities in Iran that are mostly state owned entities are the cheapest health care services. These facilities at rural areas are almost the only health care available to these needy and relatively vulnerable populations (8,15,16). Underutilization of such services in

Iran should be a concern of policymakers as a matter of low quality of services.

Taking the other factors existing at rural area of developing countries as well as in Iran that are not in favor of using private sector into account facilities the underutilization of these sorts of care at rural areas that should be taken as a matter of unmet health needs. This issue was well recognized in the case of Iran that in response to the reports highlighting the underutilization of almost freely provided curative care at primary health facilities frequently reported by authors (7-9,14,15).

Thus recently implemented reform has targeted low quality of care and payment to the health care providers of curative care, as a subject to meet some degree of quality improvement majority of which are structural quality indicators (10). In this study, we have found that these factors have significant impact on the utilization of such services. Although health facilities are different in a number of

characteristics as presented in table 1, some of those variables had significant positive and negative impact on the utilization of outreach area population.

Such findings could help decision-makers to revise their policy and change the situation for further improvement in utilizing health care and better allocating their scarce resources. For instance, increasing the number of physicians per population has significantly reduced the number of visits per doctor and could be a matter of low productivity of this valuable manpower. Also generally those health facilities that had a pharmacy run by official staff had lower level of demand that could be an indication of lack of profit motivation for the staff providing such services.

Retention of physician in given health centers as well as availability of laboratory test had a positive impact on the demand for physician visit. Our findings in this study are in accordance with the other studies that found an association between the quality of care and utilization of health services. For instance, improving the quality of care in order to boost health care utilization in developing countries was emphasized by Lindelow (16) because it is the concern of policy makers in most developing countries as a reflection of both improvement in health outcomes and international obligation for broadening access to health care. Other studies both in developed (17,18,19,20) and developing countries (21, 22) have highlighted the importance of quality of care in health care utilization. The impact of structural quality was found important in demand for outpatient care in rural areas of China (23) Cyprus (24).

Researchers in India have discovered that quality improvement in primary health centers

and community health centers has more impact on the utilization of health care than the utilization of hospital services (25).

Authors have concluded that the quality of care has more influential effect on the utilization of health care and then suggested that public authorities at public sector can double the price of services and improve the quality of care (3). Based on the content of reform implemented and the result found in this study, it can be concluded that Iran policy makers' decision in improving the quality of care is an appropriate decision to expand appropriate primary health care for rural population.

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References

1. Mariko, M. Quality of care and the demand for health services in Bamako, Mali: the specific roles of structural, process, and outcome Components, *Social Science & Medicine* 56, 2003; 1183–1196.
2. De Geyndt, W., Managing the quality of health care in developing countries. World Bank Technical Paper, 1995; 258.
3. Donabedian, A. Explorations in quality: Assessment and monitoring. Volume I: The Definition of Quality and Approaches to its Assessment. Ann Harbor, MI: Health Administration Press, School of Public Health, the University of Michigan, 1998.
4. Donabedian, A. Criteria and standards for quality assessment and monitoring. QRB, Special Article, 1986; 99–108.
5. Donabedian, A. The quality of care: How can it be assessed? *Journal of the American Medical Association*, 1998; 260(12), 1743–1748.
6. Maeseneer, M.J.; Driel, L.M.; Green, A.L. and Weel, C. The need for research in primary health care, *The Lancet*, 2003; 362:1314-1319.
7. Operational guide for family physician project implementation. Version 7/3. Tehran, Iran: Ministry of Health and Medical Education; 2006 [Persian].
8. Shadpour, K. The PHC experience in Iran, The Council for expansion of PHC Networks MOHME, UNICEF-Tehran, 1994 [Persian].
9. Rouhani, S., Mohammadpour, R A. Family medicine and patients' satisfaction in Iran, *Life Science Journal* 2012; 9(3): 1840-1847.
10. Rouhani, S., Akbarzadeh, F. The Impact of Change of Payment Mechanism on the Performance of Rural Health Centers in Ambulatory Care under Family Medicine Scheme in Sari and Jouybar, *J Mazand Univ Med Sci* 2013; 23(Supple 1): 96-103 [Persian].
11. Akin, J. S., Guilkey, D. K., & Denton, E. H. Quality of services and demand for health care in Nigeria: a multinomial probit estimation. *Social Science and Medicine*, 1995; 40(11), 1527–1537.
12. Mwabu, G., Ainsworth, M., & Nyamete, A. Quality of medical care and choice of medical treatment in Kenya: An empirical analysis. *The Journal of Human Resources*, 1993; 28(4), 838–862.
13. Hotchkiss, D. The role of quality in the demand for health care Cebu, Philippines. *Small Applied Research Paper*, 1993; 12, AID.
14. Rouhani, S. Assessing the patient referral in attendees of hospitals in Mazandaran university of medical sciences, *Journal of Mazandaran university of medical sciences*, 2000; 10(26): 27-31 [Persian].
15. Asadi-Lari, M., Sayyari, A A., Akbari M E., Gray D. Public health improvement in Iran--lessons from the last 20 years. *Public Health*. 2004; 118(6):395-402.
16. Lindelow, M. Understanding spatial variation in the utilization of health services: does quality matter? *The World Bank Centre for Study of African Economies*, Oxford University. Third draft, December 2003.
17. Ferlie, E. B. and S. M. Shortell. Improving the quality of health care in the United Kingdom and the United States: A framework for change. *Milbank Quarterly*, 2001; 79:2, pp. 281-315.
18. Hoggett, P. New methods of control in the public sector. *Public Administration*, 1996; 74, pp. 9-32.
19. NHS Executive. Quality and performance in the NHS: High level performance indicators." Department of Health: London. 1999.
20. WHO. Health Systems: Improving Performance. 2000 World Health Report. Geneva. Williams, B., J. Coyle, and D. Helaly. The Meaning of Patient Satisfaction: An Explanation of High Reported Levels. *Social Science & Medicine* 1998; 47:9, pp. 1351-59.
21. Vogel, R. Cost Recovery in the Health-Care Sector in Sub-Saharan Africa. *International Journal of Health Planning and Management*, 1991; 6, pp. 167-91.

22. World Bank. 1987. Financing health services in developing countries: an agenda for reform. Washington, D.C., U.S.A.: World Bank.
23. Dongfu, Q., Raymond, W. P., Aitian, Y., Nagarajan K. V., Qingyue, M. Determinants of health care demand in poor, rural China: the case of Gansu Province. *Health Policy and Planning* 2009;24:324–334. doi:10.1093/heapol/czp016
24. Hansona, K., Winnie, C. Yipb and William Hsiao. The impact of quality on the demand for outpatient services in Cyprus. *Health Econ*, 2004;13: 1167–1180.
25. Dipankar, K., Peters, D H. Quality improvement and its impact on the use and equality of outpatient health services in India. *Health Econ*. 2007; 16: 799–813. DOI: 10.1002/hec.1194