

## Factors Affecting Leave out of General Practitioners from Rural Family Physician Program: A Case of Kerman, Iran

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### ABSTRACT

**Background:** Rural family physician program as the new reform in the Iranian health system has been implemented since 2005. Its success depends much on physicians' retention. The present study aimed to identify influential factors on physicians' willingness to leave out this program in Kerman province.

**Methods:** The present cross-sectional study was performed in Kerman province in 2011. All family physicians working in this program ( $n = 271$ ) were studied using a questionnaire. Data analysis was carried out using descriptive statistics and logistic regression through SPSS version 18.0.

**Results:** Twenty-six percent (70) of the physicians had left out the program in the past. In addition, 77.3% (208) intended to leave out in the near future. Opportunity for continuing education, inappropriate and long working hours, unsuitable requirements of salary, irregular payments, lack of job security and high working responsibility were regarded as the most important reasons for leaving out the program in the past and intention to leave out in future orderly. According to univariate logistic regression, younger physicians (odds ratio [OR] = 2.479; 95% confidence interval [CI]: 1.261-4.872) and physicians who had older children (OR = 4.743; 95% CI: 1.441-15.607) were more willing to leave out the plan in the near future, however it was not significant in multivariate logistic regression.

**Conclusions:** Physician retention in family physician program is faced with serious doubts due to different reasons. The success of the program is endangered because of the pivotal role of human resources. Hence, the revision of human resources policies of the program seems necessary in order to reduce physicians leave out and improving its effectiveness.

**Keywords:** Human resources for health, Iran, leave out, rural family physician

### INTRODUCTION

The Iranian health system has attained great achievements relying on its health network established in 1979.<sup>[1-4]</sup> This system

has been regarded as one of the most successful models of the second generation of health system reform.<sup>[5]</sup> Following this, most of Iran's health indicators improved significantly.<sup>[1,4,6-9]</sup> The health network system relying on primary health care (PHC) and employing behvarz as a local multi task health practitioner,<sup>[1,10]</sup> remained the key to many health challenges of Iran for the some years. It was the late 1990's when the authorities of the health ministry felt this system was not effective in facing the new challenges of health system such as epidemiologic transition from communicable diseases to noncommunicable ones, increased expectation of the public for more access to physicians, heavy working load of behvarzes, high out of pocket payment share and unnecessary referrals to specialists, and etc.<sup>[11-15]</sup> Hence another reform seemed necessary, to shape a reform, a group of foreign experts of international agencies such as the World Bank and World Health Organization were invited to plan a new reform.<sup>[16,17]</sup>

Introducing family physician program and rural health insurance was one of the most important aspects of the later reform, which was formally established in 2005 after pilot implementation. At the first step, it was implemented only in rural areas and small cities <20,000 population.<sup>[18]</sup> According to this program, the most important role should be played by physicians, they should enroll a predetermined number of people in their plan, and they also are responsible for leading the health team, as well as acting under the referral system.<sup>[19]</sup>

Less than 29% of Iran's population live in rural areas with different developmental grades, this issue makes the workforce's retention more difficult;<sup>[20]</sup> family physician program is not an exception in this regard. Hence, one of the concerns of this program expressed by experts is the retention of family physicians since a large proportion of the physicians are supplied by the "physicians and allied workers compulsory services law."<sup>[21]</sup> According to which, all newly graduated physicians have to provide services in an area which they choose between many alternatives before they can continue their education or to start their private profession.<sup>[22]</sup> In addition there is a considerable difference between living facilities of rural and urban facilities in some part of Iran.

Human resources are regarded as the most important pillars of the health policies who have an

obvious impact on health outcomes,<sup>[23-26]</sup> this is also the case for the family physician program. Hence, retaining health professionals is a major challenge for planners and policy makers of health sector. If the program could not succeed in retaining physicians, most of the expected benefits of this program would not be achieved, so the present study aimed to determine the factors affecting physician's decision to leave out the program.

### General features of Kerman province

Having 23 cities and a population of more than 2,900,000 Kerman is one of the largest provinces of Iran, located at southeastern of Iran. It holds climatic variability and uneven development; that is, most of its regions are subject to economic deprivations. Some cities are highly deprived, while others are relatively developed.

## METHODS

### Sampling and study type

This cross-sectional study was conducted in 2012. All physicians working in rural family physician program in Kerman province were included in this study. Kerman has four medical universities (Kerman, Rafsanjan, Jiroft and Bam). All villages as well as the cities with a population of <20,000 are covered by rural family physician program. All family physicians working in rural and urban health and treatment centers were included in this study on a census basis ( $n = 271$ ).

### Data collection

A researcher-made questionnaire was used for data collection.

The questionnaire was consisted of 2 s. The first section included the questions-related to physicians' personal and professional information. The second section included four questions: (i) "Did the physician leave out the program in the past?"; (ii) When the answer was positive, the physician would be asked to indicate "what were the reasons for leaving the program?"; (iii) "Did the physician is going to leave the program in the future?"; (iv) "When the answer was positive, 'what are the probable reasons for leaving?"; After reviewing the literature, the primary questionnaire was designed and its face and content validity was confirmed using panel of experts. Concerning face validity,

the questionnaire was given to 10 participants, their comments about the uncertainties and problems associated with understanding the questions were reviewed and corrections were made. Content validity was also reviewed and revised by 10 experts. A pilot study was conducted on 30 family physicians; its reliability was confirmed using Cronbach's alpha (0.79). The study was approved by the Ethics Committee of Kerman University of Medical Science. Questionnaires were distributed to cities. To make sure that the physicians received the questionnaires and to increase response rate, two phone reminders were made at the 1<sup>st</sup> and 2<sup>nd</sup> weeks.

### Data analysis

In order to prioritize the reasons for leaving the program, the participants were asked to choose up to five major factors affecting their leave out in order of priority. The reasons were then rated based on the total number of times they were in the first five prioritized items. Univariate and multivariate logistic regression was used to evaluate the influential factors on tendency to remain in family physician program. Analysis was performed using SPSS version 18.0 (SPSS Corp., Chicago, IL, USA).

## RESULTS

Of total samples, 269 physicians completed the questionnaires (response rate = 99.26). More than half of the physicians were female, and about two-third of the participants were married. Average age of physicians was 32.3 (standard deviation [SD] =  $\pm 6.3$ ). More than half of them were 25-30. Most physicians who worked in this program were not local. About half of the physicians cooperated with this program as part-time physicians and more than a quarter of them spent their compulsory service commitment (according to the act of physicians and paramedics' services). More than half of the physicians were graduated over the past 5-year. More than a third of physicians had at least one child. Average age of the oldest children was 7.7 (with the minimum and maximum ages of 1 and 28 respectively) (SD =  $\pm 5.91$ ). Demographic data is summarized in Table 1.

Results showed that 26% ( $n = 70$ ) of physicians had left the program in the past; 72.5% ( $n = 195$ )

**Table 1:** Summary of demographics variables

| Variable                    | Frequency (%) |
|-----------------------------|---------------|
| Gender                      |               |
| Male                        | 109 (40.5)    |
| Female                      | 160 (59.5)    |
| Age group                   |               |
| 25-30                       | 137 (51.0)    |
| 30-35                       | 62 (23.0)     |
| >35                         | 70 (26.0)     |
| Marital status              |               |
| Single                      | 89 (33.1)     |
| Married                     | 180 (66.9)    |
| Native status*              |               |
| Native                      | 100 (37.1)    |
| Nonnative                   | 169 (62.9)    |
| Tenure status               |               |
| Contract                    | 123 (45.8)    |
| Compulsory service          | 72 (26.9)     |
| Employed                    | 74 (27.2)     |
| Years spent from graduation |               |
| <5-year                     | 144 (53.5)    |
| 5-10                        | 75 (27.9)     |
| $\geq 10$                   | 50 (18.6)     |
| Number of children          |               |
| No child                    | 167 (62.1)    |
| 1                           | 61 (22.7)     |
| 2                           | 37 (13.7)     |
| >2                          | 4 (1.5)       |

\*Physicians who permanently reside in their place of service provision are considered native

cooperated with the program constantly; and 1.5% ( $n = 4$ ) had no response (According to their response to a designated question for this reason).

Findings revealed that long working hours (48.8%), irregular payments (48.7%) and unsuitable requirements of salary and payments (47.5%) were the three most important reasons of leave out respectively; continuing education and lack of job security (38.5%) were in the fourth and fifth places. However, improper facilities, bad behavior of staff and region insecurity had trivial effects; but no physician regarded them as the reasons of quitting this program in the past. Other information related to leave out from the program in past is summarized in Table 2.

Other findings of the study indicated that, 77.3% ( $n = 208$ ) of physicians had decided to stop working with the program in the near future. In

**Table 2:** Priority setting of main factors related to leave out from the program in past

| Factors                               | Priority (frequency (%)) |                 |                 |                 |                 | Mean | Sum  | Rank |
|---------------------------------------|--------------------------|-----------------|-----------------|-----------------|-----------------|------|------|------|
|                                       | 1 <sup>st</sup>          | 2 <sup>nd</sup> | 3 <sup>rd</sup> | 4 <sup>th</sup> | 5 <sup>th</sup> |      |      |      |
| Long working hours                    | 6 (7.9)                  | 7 (10.4)        | 5 (7.7)         | 10 (18.5)       | 2 (4.3)         | 9.8  | 48.8 | 1    |
| Irregular payments                    | 2 (2.6)                  | 13 (19.4)       | 7 (10.8)        | 4 (7.4)         | 4 (8.5)         | 9.7  | 48.7 | 2    |
| Unsuitable salary requirements        | 19 (25.0)                | 5 (7.5)         | 6 (9.2)         | 2 (3.7)         | 1 (2.1)         | 9.5  | 47.4 | 3    |
| Continuing education                  | 13 (17.1)                | 2 (3.0)         | 3 (4.6)         | 4 (7.4)         | 3 (6.4)         | 7.7  | 38.5 | 4    |
| Lack of job security                  | 4 (5.3)                  | 4 (6.0)         | 6 (9.2)         | 4 (7.4)         | 5 (10.6)        | 7.7  | 38.5 | 5    |
| Heavy workload                        | 2 (2.6)                  | 6 (9.0)         | 3 (4.6)         | 4 (7.4)         | 4 (8.5)         | 6.4  | 32.1 | 6    |
| Poor culture of people                | 1 (1.3)                  | 5 (7.5)         | 7 (10.8)        | 4 (7.4)         | 2 (4.3)         | 6.3  | 31.3 | 7    |
| High working responsibilities         | 3 (3.9)                  | 5 (7.5)         | 6 (9.2)         | 3 (5.6)         | 2 (4.3)         | 6.1  | 30.4 | 8    |
| High deductibles                      | 1 (1.4)                  | 6 (9.0)         | 4 (6.2)         | 1 (1.9)         | 3 (6.4)         | 5.0  | 24.9 | 9    |
| Inefficient monitoring and evaluation | 5 (6.6)                  | 1 (1.5)         | 1 (1.5)         | 2 (3.7)         | 5 (10.6)        | 4.8  | 23.9 | 10   |
| Local authorities' bad behavior       | 3 (3.9)                  | 3 (4.5)         | 2 (3.1)         | 3 (5.6)         | 3 (6.4)         | 4.7  | 23.5 | 11   |
| Region depravity                      | 4 (5.3)                  | 2 (3.0)         | 1 (1.5)         | 2 (3.7)         | 2 (4.3)         | 3.6  | 17.8 | 12   |
| Vacation requirements                 | 2 (2.6)                  | 1 (1.5)         | 2 (3.1)         | 2 (3.7)         | 3 (6.4)         | 3.4  | 17.2 | 13   |
| Improper accommodation                | 2 (2.6)                  | 4 (6.0)         | 3 (4.6)         | 0 (0.0)         | 1 (2.1)         | 3.1  | 15.3 | 14   |
| Distrust to local authorities         | 2 (2.6)                  | 0 (0.0)         | 1 (1.5)         | 3 (5.6)         | 2 (4.3)         | 2.8  | 14.0 | 15   |
| Fulfillment of compulsory services    | 5 (6.6)                  | 0 (0.0)         | 2 (3.1)         | 0 (0.0)         | 2 (4.3)         | 2.8  | 13.9 | 16   |
| Family pressure                       | 0 (0.0)                  | 2 (3.0)         | 2 (3.1)         | 2 (3.7)         | 1 (2.1)         | 2.4  | 11.8 | 17   |
| Region insecurity                     | 2 (2.6)                  | 0 (0.0)         | 2 (3.1)         | 1 (1.9)         | 2 (4.3)         | 2.4  | 11.8 | 18   |
| Staff's bad behavior                  | 0 (0.0)                  | 1 (1.5)         | 2 (3.1)         | 3 (5.6)         | 0 (0.0)         | 2.0  | 10.2 | 19   |
| Improper facility                     | 0 (0.0)                  | 0 (0.0)         | 0 (0.0)         | 0 (0.0)         | 0 (0.0)         | 0.0  | 0.0  | 20   |
| Total                                 | 76 (100)                 | 67 (100)        | 65 (100)        | 54 (100)        | 47 (100)        | 100  |      |      |

addition, 17.9% ( $n = 48$ ) were willing to continue and 4.8% ( $n = 13$ ) had no response. As shown in Table 2, unsuitable requirement of salary and payment (64.4%), long working hours (53.5%) and continuing education (47.3%) were the three most important reasons of leave out from the program respectively. Irregular payments (41.8%) and high working responsibilities (33%) were the next reasons. Other reasons and their priorities are summarized in Table 3.

According to the results of the univariate logistic regression test, a significant relationship was observed between age of physicians, age of the oldest child and willingness to leave out the program. Therefore, physicians who were <35 wanted to quit 2.479 times more than other age groups (odds ratio [OR] =2.479; 95% confidence interval [CI]: 1.261-4.872). Physicians whose oldest child was more than 6-year (schooling ages) intended to leave the plan 4.743 times more than those whose oldest child was <6 (OR = 4.743; 95% CI: 1.441-15.607). However, none of these relations was significant when we incorporated other variables through a multivariate logistic regression model [Table 4].

## DISCUSSION

The retention of primary care physicians in rural areas, especially family physicians, has been a serious problem for decades, with major implications in access to health care for a substantial proportion of the population. Retention is a key component of the rural physician supply, in part because it has a multifold impact on the rural workforce; for example, one physician practicing in the same rural area during a 35-year career has a similar impact as five physicians who practice for an average duration of 7-year. The quote "No doctor, no village" from Dr Lewis highlights that for some rural communities, the lack of a doctor means a struggle to survive. Having a physician might encourage people to stay in the community, attract new residents, and ensure the sustainability of a valued way of life.

This study is the first study which reviews the factors affecting leave out of general practitioners from family physician program and rural insurance coverage in Iran. Kerman is very variable concerning development level in its cities. That is, some regions are highly deprived, while some are moderately developed. The majority of physicians

**Table 3:** Priority setting of main factors related to leave out from the program in future

| Factors                               | Priority (frequency (%)) |                 |                 |                 |                 | Sum  | Mean | Rank |
|---------------------------------------|--------------------------|-----------------|-----------------|-----------------|-----------------|------|------|------|
|                                       | 1 <sup>st</sup>          | 2 <sup>nd</sup> | 3 <sup>rd</sup> | 4 <sup>th</sup> | 5 <sup>th</sup> |      |      |      |
| Unsuitable salary requirements        | 38 (31.1)                | 18 (15.5)       | 10 (9.4)        | 4 (4)           | 4 (4.4)         | 64.4 | 12.9 | 1    |
| Long working hours                    | 10 (8.2)                 | 11 (9.5)        | 17 (16)         | 12 (12)         | 7 (7.8)         | 53.5 | 10.7 | 2    |
| Continuing education                  | 31 (25.4)                | 5 (4.3)         | 2 (1.9)         | 9 (9)           | 6 (6.7)         | 47.3 | 9.5  | 3    |
| Irregular payments                    | 6 (4.9)                  | 18 (15.5)       | 7 (6.6)         | 7 (7)           | 7 (7.8)         | 41.8 | 8.4  | 4    |
| High working responsibilities         | 1 (0.8)                  | 6 (5.2)         | 10 (9.4)        | 12 (12)         | 5 (5.6)         | 33.0 | 6.6  | 5    |
| Poor culture of people                | 5 (4.1)                  | 5 (4.3)         | 7 (6.6)         | 11 (11)         | 5 (5.6)         | 31.6 | 6.3  | 6    |
| Lack of job security                  | 7 (5.7)                  | 7 (6)           | 10 (9.4)        | 4 (4)           | 5 (5.6)         | 30.7 | 6.1  | 7    |
| High deductibles                      | 2 (1.6)                  | 11 (9.5)        | 7 (6.6)         | 8 (8)           | 4 (4.4)         | 30.1 | 6.0  | 8    |
| Distrust to local authorities         | 2 (1.6)                  | 6 (5.2)         | 1 (0.9)         | 1 (1)           | 11 (12.2)       | 20.9 | 4.2  | 9    |
| Region depravity                      | 8 (6.6)                  | 5 (4.3)         | 6 (5.7)         | 3 (3)           | 1 (1.1)         | 20.7 | 4.1  | 10   |
| Heavy workload                        | 2 (1.6)                  | 3 (2.6)         | 6 (5.7)         | 6 (6)           | 4 (4.4)         | 20.4 | 4.1  | 11   |
| Vacation requirements                 | 0 (0.0)                  | 3 (2.6)         | 2 (1.9)         | 4 (4)           | 7 (7.8)         | 16.3 | 3.3  | 12   |
| Local authorities' bad behavior       | 2 (1.6)                  | 2 (1.7)         | 1 (0.9)         | 5 (5)           | 6 (6.7)         | 16.0 | 3.2  | 13   |
| Improper accommodation                | 2 (1.6)                  | 2 (1.7)         | 5 (4.7)         | 4 (4)           | 3 (3.3)         | 15.4 | 3.1  | 14   |
| Inefficient monitoring and evaluation | 3 (2.5)                  | 1 (0.9)         | 7 (6.6)         | 2 (2)           | 1 (1.1)         | 13.1 | 2.6  | 15   |
| Region insecurity                     | 1 (0.8)                  | 0 (0.0)         | 3 (2.8)         | 4 (4)           | 4 (4.4)         | 12.0 | 2.4  | 16   |
| Fulfillment of compulsory services    | 1 (0.8)                  | 6 (5.2)         | 1 (0.9)         | 0 (0.0)         | 4 (4.4)         | 11.4 | 2.3  | 17   |
| Improper facility                     | 0 (0.0)                  | 1 (0.9)         | 2 (1.9)         | 2 (2)           | 4 (4.4)         | 9.2  | 1.8  | 18   |
| Family pressure                       | 1 (0.8)                  | 4 (3.4)         | 1 (0.9)         | 1 (1)           | 2 (2.2)         | 8.3  | 1.7  | 19   |
| Staff's bad behavior                  | 0 (0.0)                  | 2 (1.7)         | 1 (0.9)         | 1 (1)           | 0 (0.0)         | 3.6  | 0.7  | 20   |
| Total                                 | 122 (100)                | 116 (100)       | 106 (100)       | 100 (100)       | 90 (100)        |      | 100  |      |

**Table 4:** Relationship between tendency to remain in family physician program and demographic variables

| Variables              | Univariate regression |       |                      | Multivariate regression |       |                      |
|------------------------|-----------------------|-------|----------------------|-------------------------|-------|----------------------|
|                        | $\beta$               | SE*   | OR (95% CI)          | $\beta$                 | SE    | OR (95% CI)          |
| Gender                 |                       |       |                      |                         |       |                      |
| Male                   | Referent**            |       |                      | Referent                |       |                      |
| Female                 | 0.161                 | 0.330 | 1.170 (0.616-2.242)  | 0.804                   | 0.618 | 2.235 (0.707-8.913)  |
| Marital status         |                       |       |                      |                         |       |                      |
| Single                 | Referent              |       |                      | Referent                |       |                      |
| Married                | 0.237                 | 0.350 | 1.260 (0.639-2.516)  | 0.253                   | 0.331 | 1.207 (0.623-6.876)  |
| Physician's age        |                       |       |                      |                         |       |                      |
| $\leq 35$              | Referent              |       |                      | Referent                |       |                      |
| $> 35$                 | 0.908                 | 0.345 | 2.479 (1.261-4.872)  | 1.414                   | 0.870 | 4.114 (0.718-21.671) |
| Older child's age      |                       |       |                      |                         |       |                      |
| $\leq 6$               | Referent              |       |                      | Referent                |       |                      |
| $> 6$                  | 1.557                 | 0.608 | 4.743 (1.441-15.607) | 0.703                   | 0.773 | 2.20 (0.463-9.505)   |
| Native status          |                       |       |                      |                         |       |                      |
| Native of the region   | Referent              |       |                      | Referent                |       |                      |
| Native of the city     | 0.331                 | 0.143 | 1.320 (0.937-1.603)  | 0.010                   | 0.321 | 1.540 (0.153-4.442)  |
| Native of the province | 0.253                 | 0.162 | 1.440 (0.836-1.456)  | 0.033                   | 0.278 | 1.030 (0.161-3.705)  |
| Nonnative              | 0.203                 | 0.137 | 1.226 (0.243-1.328)  | 0.024                   | 0.286 | 1.024 (0.143-3.387)  |
| Head of the center     |                       |       |                      |                         |       |                      |
| Yes                    | Referent              |       |                      | Referent                |       |                      |
| No                     | 0.210                 | 0.352 | 0.979 (0.491-1.952)  | 0.124                   | 0.653 | 1.132 (0.297-3.977)  |

\*Standard error; \*\*The referent group used for regression analysis. SE=Standard error, CI=Confidence interval, OR=Odds ratio

in this program were female. Most physicians were young. Although most physicians worked part-time with this program, most of them spent their compulsory service commitment, which lasts for 2-year. Although compulsory services commitment are one of the strategies employed by developed and developing countries to attract health workers in rural and outreach areas, results of this study showed that this law cannot cause physicians to remain permanently in these areas after they finish their mandatory services.<sup>[22]</sup>

### Factors affecting leave out the program in past and future

This study revealed that more than a quarter of participants had left their jobs in the past. The main reasons included “opportunities to continue their education as an individual reason and work factors such as unsuitable and long working hours, poor salary requirements, irregular payments and lack of job security.”

In addition, more than two-third of the physicians intended to leave the program in the near future. In this regard, the most important factors included: “Poor salary requirements, long working hours, continuing education, irregular payments and high work responsibilities”.

Generally, comparing the reasons of leaving out from the program in the past and in the future revealed that no significant changes were found in the first five priorities for stopping the cooperation in both periods except for high responsibilities and lack of job security. It shows that these reasons have remained the main causes of general practitioners' leave out over time; it is in line with a study which shows that employees' attraction and retention is influenced by the relationship between personal, professional and environmental factors which are of great importance especially in rural and remote areas.<sup>[27]</sup>

More than one-third of general practitioners who had left the program considered the opportunity for continuing education as one of the reasons for quitting the program. They cooperate with this program as part time physicians and seek further education to gain a competitive advantage and better social position and income because there is a huge gap between income and position of general practitioners and specialists in Iran. Studies carried out in the USA<sup>[28]</sup> and 14 Organization

for Economic Cooperation and Development countries<sup>[29]</sup> showed that there is a large gap between income of specialists and general practitioners working in PHC. This trend increases the worries related to a shortage of general practitioners in these countries. These studies confirm the results of the present study. It can be said that medical education system is also specialized oriented in Iran and specialization is considered an advantage in their career.<sup>[30]</sup>

Another reason for leaving out the program in the past was unsuitable and long working hours which could lower the quality of service. A qualitative study on Samoa physicians<sup>[31]</sup> showed that long working hours was one of the reasons for their migration to other countries. Other studies have shown that inflexible working hours is one of the reasons of low retention of personnel in rural and remote areas.<sup>[32-34]</sup> In addition, another study carried out on pharmacists practicing in rural areas of Wales showed that long working hour was one of the reasons for leaving their service places.<sup>[35]</sup>

According to the present study, irregular payments and unsuitable salary requirements are two important reasons for leaving out the program. Irregular payments (salary and benefits) can result from delays in payments; since changes in salary and benefits are announced annually by ministry of health through executable version of the program, delays in announcing the executable version result in delays in paying increased payments. In addition, none of the studied physicians had enough information about the manner of payment and amount of salaries, and it has impaired the transparency of the payment system. When transparency of this system is weak, its validity is questionable, and it can result in this problem that health and treatment employees by no means give a positive response to the compensation system.<sup>[36]</sup> Payment system in Iran's family physician program is a combination of per capita, per case and reward system. Delay in regular payments as well as some uncontrollable factors determining the amount of salary have increased dissatisfaction and therefore decreased retention in the program. Shalileh and Mahdanian<sup>[37]</sup> reported that the main problem of this program is that payment system of this program was dysfunctional, which is in line with the present research. Several studies in the United Kingdom, Brazil, Denmark, Poland and Taiwan have shown

that reward systems improve the performance and retention of the manpower in health and treatment sector.<sup>[36,38-41]</sup> A study by McCoy *et al.* showed that the structure and management of salary and wage payments (along with other motivational factors) played a fundamental role in retention of staff, particularly in rural areas.<sup>[42]</sup>

Lack of job security for more than half of the physicians and lack of a clear career limits number of family physicians who provide PHC services. Other studies have also shown that occupational promotion is a factor which affects the retention of people in their jobs.<sup>[43-45]</sup> Since there is less opportunity for occupational promotion of staff working in rural areas, they are less willing to work in these areas compared to urban areas.<sup>[46]</sup>

High working responsibilities was one of the main reasons for discontinuation of physicians with this program. It is mainly a result of service packages and high duties of a physician. That is, various program (proportional to the needs of PHC system) are added to the previous ones and increased the workload of the staff; it will be worsened in the case of shortage of manpower. Other studies carried out in Iran have revealed that high workload and different integrated program in PHC system are among the main challenges of staff performance.<sup>[15]</sup> In addition, other studies conducted in different countries have regarded high workload as one reason for low retention of staff.<sup>[31-34]</sup>

### Demographic factors and leave out

In general, the relationship between demographic factors of "age and sex" and leave out from the program is indefinite (that demographic variables such as age, sex, and marital status affect peoples' decisions to stay or to leave is not often fixed and varies in their lives and occupational cycles).<sup>[20]</sup> The present study also showed that younger physicians were more likely to stop working with the program in the future compared to other physicians. This can be because young people have more incentives to continue education and are more ambitious than older physicians.

In the present study, no significant relationship was observed between physicians' marital status and their willingness to remain in the program. Another study showed that there was no relationship between marital status and intention

to leave the job.<sup>[47]</sup> In Malaysia, marital status had a greater impact on the movement of staff, and family responsibility on the shoulders of female employees had more influence than on the shoulders of male ones.<sup>[48]</sup>

In the present study, there was no significant relationship between being indigenous and willingness to leave out. It can be because preferences and characteristics of residing area also depend on employees' life styles and their habits. Since educating native manpower has been one of the main strategies of medical education system in Iran in order to increase physicians' retention in deprived areas, findings of this study question the effectiveness of the above mentioned strategy. Although some research conducted in high- and low-income countries<sup>[49-52]</sup> has shown that living in rural areas increases the chance of health employees to return to their living areas and to provide services there, however, this relationship is controversial.<sup>[53,54]</sup>

Our study showed that physicians whose children were at school age were far more likely to quit their jobs in the future than the physicians whose older children were not at school age. It may be because rural areas lack proper educational and academic facilities for children. International studies in most countries like India<sup>[55]</sup> and Ecuador<sup>[56]</sup> indicated that shortage of good schools for children was one of the main reasons of health personnel to leave the remote areas. In addition, a study by Mansah<sup>[57]</sup> in Ghana showed that general living conditions such as housing (providing appropriate accommodation), school and qualified teachers, good drinking water, electricity, roads and transportation could affect the retention of physicians in rural areas.

The above-mentioned factors state that health authorities in every country have a relatively limited role in improving retention of health workers in remote rural areas and that most decisions related to supplying living conditions in rural and remote areas are made out of the health section. Therefore, developing a coherent and strategic approach to human resource management requires intra-sectorial collaboration of all key decision makers, most of which are outside the scope of the health system.

This study had some limitations. It was conducted only in one province of Iran (Kerman).

Kerman has different areas in terms of level of development. That is, its southern areas are highly deprived. However, our study did not seek to generalize the results to the whole country.

This study is the first Iranian study which provides some document about reasons of leave out of family physicians from rural areas and cities with a population of <20,000 in the past and future. Both groups of physicians who had left the program in the past or those intend to leave it in near future regard working in these areas as a part time job. It results in high rotation in employing family physicians in rural areas. This temporary approach to hiring and keeping physicians results in the lack of continuous and effective relationship between family physicians and population of these areas and thus in low efficiency in presenting PHC and necessary treatment services.

## CONCLUSIONS

Since rural family physician program is one of macro-policies of health system whose aim is to improve access to primary health services and necessary treatment services and to continue cares, supplying physicians as heads of health teams is inevitable. Results of this study show that retention of physicians in this program is the main challenge policymakers are faced with; it requires using a single management of human resources and using multilateral inter-and intra-sectorial strategies to hire and keep physicians permanently. Moreover, developing this program in more populated urban areas is one of the main policies of Iran's health system; results of this study can help local and national policymakers redesign guidelines to improve physicians' retention and shortage of general practitioners in remote and rural areas compared to urban areas.

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