

Implementing family physician programme in rural Iran: exploring the role of an existing primary health care network

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Background. The primary health care (PHC) network contributed considerably to improving health outcomes in rural Iran. However, the health system suffers from inadequate responses to ever-increasing demands. In 2005, a reform comprised of a family physician (FP) programme and universal health insurance was implemented in all rural areas and cities with a population of <20 000. We explored the role of the pre-existing PHC network on the implementation of FP programme in rural Iran.

Methods. We conducted a qualitative study involving 71 semi-structured interviews at national, provincial and local levels, and three focus group discussions at local level, plus a purposeful content analysis of documents of various types. We used a mixed inductive/deductive framework approach for data analysis.

Results. We identified seven main aspects related to the existing primary health network, which contributed to the implementation of FP programme: 'a respected and functioning PHC network', 'accessibility and geographical coverage', 'efficient hierarchy', 'the only possible host', 'a remedy for chronic challenges in the rural PHC', 'FP as the gatekeeper?' and 'the role of the private sector'. The existence of a functioning PHC was pivotal in driving policy makers' decision to implement FP programme.

Conclusions. Implementing a new policy depends on its hosting context. In regards to FP programme and rural insurance in Iran, the existing PHC network proved to be a fundamental asset in facilitating the implementation of FP programme in rural areas.

Keywords. Family medicine, family physician, Iran, policy implementation, primary care, primary health care, universal health insurance.

Introduction

Primary health care (PHC) and a functioning referral system are fundamental components of an effective health system in improving health outcomes equitably and efficiently.^{1,2} PHC has been considered a reliable resource in responding to the global burden of chronic diseases and ageing populations.^{3,4} Increasing evidence shows that better health outcomes, improved access to health care, integrity and continuity of health care, efficiency, financial sustainability and user satisfaction and participation exist more often in PHC-oriented health systems.⁴⁻¹¹

Despite these, PHC has conventionally been the 'weak link' in health systems,^{12,13} due to health sector

reforms that leave front-line services with inadequate resources, staffing and management capacity.¹² Thus, the World Health Organization (WHO) emphasized that member states should prioritize strengthening their PHC systems.⁸ The World Health Report 2008 argues that increasing 'support for the renewal of PHC stems from the growing realization among policy makers that it can provide a stronger sense of direction and unity in the context of fragmentation of health systems'.¹⁴

The PHC as advocated in the report moved beyond the basic characteristics of the PHC advocated in 'Health For All 2000'.^{15,16} While 'Health For All's' PHC had all the ideals stated above, only a selection of effective interventions (i.e. growth monitoring, oral rehydration, breast feeding, immunization, plus family planning)

were followed in many low- and middle-income countries.^{4,13,15} On the other hand, many high-income countries interpreted PHC as ‘family medicine’-based systems and defined it as ‘the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community.’¹⁷ The World Health Report 2008 asked for a PHC that had these latter characteristics. The report provided several exemplars of achievements in PHC systems (including Iran), but lacked specific case studies that demonstrated lessons learned from low- and middle-income countries that have moved beyond the selective PHC approach on the basis of family physician (FP) services. Others have also called for the experiences of different countries, while advocating the expansion of FP programme in rural areas.¹⁸

Iran’s PHC and the FP programme

The implementation of PHC began in the mid-1980s in Iran. In reality, PHC became comprehensive in villages.^{19,20} Because people enjoyed much greater access to private sector providers in cities, the PHC network remained incomplete in cities.

The PHC system relied on the services of the ‘Behvarz’ (a formally trained community health worker), who was based in rural health houses (Fig. 1). Behvarz’s services were supported and supervised by general physicians, who were based in rural health centres. Access to such physicians was possible via referrals from the Behvarz. The comprehensive coverage of PHC in rural Iran revolutionized population health indices and reduced disparities (Table 1).^{14,20–22}

TABLE 1 Selected health indices in Iran just before the beginning of PHC (1981), in 2000 and in 2011²⁴

Health index	1981	2000	2011
General life expectancy (years)	46.7	69	73
Infant mortality rate (IMR), deaths/1000 live births	94	28.6	22
Population growth rate (%)	3.9	1.24	1.3
Overall vaccination coverage (%)	40	>90	>90

During the last decade, concerns have been raised in regard to the quality and efficiency of health care services provided via the PHC network in Iran’s rural areas. In line with improving health outcomes and socioeconomic status, the needs of rural inhabitants have gradually moved from common infectious diseases (that were adequately dealt with by the Behvarz) towards more long-term non-communicable conditions. A dysfunctional referral system from Behvarz to doctors (who were not readily available) (see online supplementary Appendix I) and from doctors to specialists (based in district general hospitals) hampered villagers’ access to health care.²⁵ While PHC was funded via governmental budget, secondary and specialist care in urban areas and hospitals were substantially covered via social health insurance schemes that did not apply to villagers.²⁶

In the World Health Report 2000, Iran ranked 93rd on the health system performance league table.^{27,28} This came as a shock to Iran and led the Ministry of Health and Medical Education (MOHME) to initiate a series of health sector reforms, including the pilot of FP in urban areas.^{29,30} Incidental opening of a ‘policy window’ led to the concurrent national implementation of FP

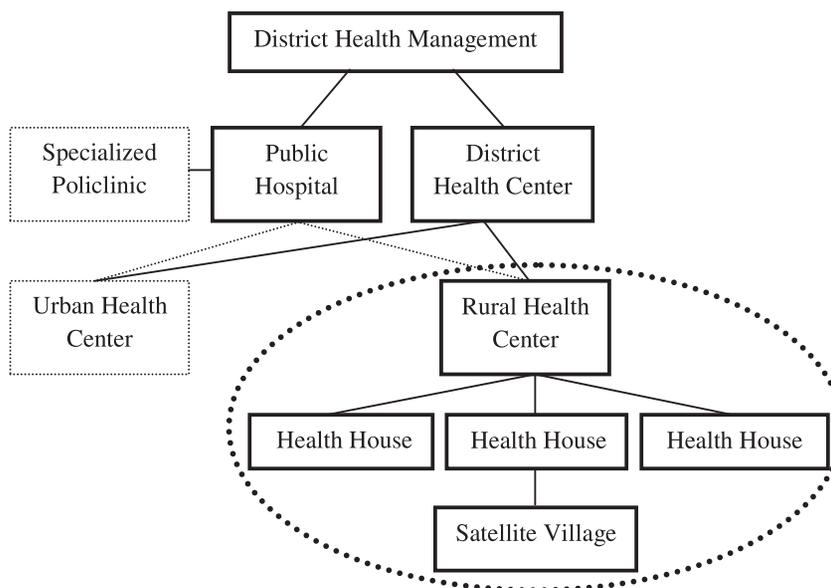


FIGURE 1 A simplified structure of PHC network* in rural Iran.²³ *Dotted oval area denotes the PHC structures located in villages. FPs are based in rural health centres.

TABLE 2 *The characteristics of FP programme and universal health insurance programmes implemented in rural Iran compared with the PHC*

	PHC before FP programme	PHC with FP programme
Main stakeholders	The MOHME as the provider and purchaser organization. No provider–purchaser split existed in the PHC before FP programme	The MOHME as the provider and purchaser organization. MSIO (under the Ministry of Welfare and Social Services) as the purchasing organization
Financing	Under the PHC, the funds are directly paid to the MOHME	Via national budget through the MSIO
Human resources	Behvarz at the Health House General physicians in rural health centres. One physician for every 9000 population. In practice, one physician for about 7000 population	Behvarz at the Health House FPs (in rural health centre) were general physicians with no special training in family medicine. A few courses (induction workshops for newcomer physicians, distance learning courses and opportunities to become a specialist in FP) were planned, but none had been conducted at the time of implementation. One FP for every 4000 population
Payment to providers	Monthly fixed salaries	Contractual agreement with FPs involving a partial capitation payment system. Substantial (about 3-fold) increases in physicians' payments compared to physicians under the PHC
Access to FPs and insurance coverage	Under the PHC, all referral to physicians was through the Behvarz	Increased access to FPs. Registered population could self-refer to FPs. Also all rural inhabitants were covered by universal health insurance as a result of the reform. Referrals to secondary care became possible through FPs, using the insurance
Service package	General physician as the manager of the health team. Delivering public health, preventive and curative services, to the designated population	FP as the manager of the health team now included nurses and more midwives. The same package as before, with more emphasis on treatment services and better opportunities for referring patients to secondary care

TABLE 3 *Expected changes as a result of implementing FP programme and some changes achieved in early stages of the implementation*

Expected main changes by FP programme at rural level ³¹	Some changes achieved by 2007 except noted otherwise
Establishment of a referral system through FP programme to enhance rationing services	Substantially more physicians per population. ³² Limited evidence of increase in hospital admission (A. Rashidian, H. Joudaki, E. Khodayari-Moez, H. Omranikho, B. Geraili, M. Arab, submitted for publication)
Increasing public's access to health services	Increase in patient visits to FPs and outreach visits to health houses. Tenfold increase in private pharmacies' contracts with PHC centres ³²
Reducing out-of-pocket and catastrophic health care expenditure	Overall out-of-pocket expenditure increased in this period. ³³ The increase is due to hospital care and private sector usage. No specific data available for rural areas
Enhancing coverage of services	Over 20 million insured under rural health insurance (about 30% of total population) in 2010 ³⁴
Enhancing equity Improving employment opportunities for physicians, midwives and nurses	Increased coverage. No evidence of impact on equitable financing Twofold and fivefold increase in the number of physicians and midwives in the PHC, respectively

programme and universal health insurance (approved by the parliament) in rural areas and cities with a population of <20 000 in 2005.²⁵ This was a compromise between the MOHME, which was seeking to implement FP programme in cities, and the Medical Services Insurance Organization (MSIO) that was funded by the parliament, to provide universal health insurance across villages in Iran (Table 2).^{25,31} The implementation of FP programme resulted in palpable changes in the health care delivery system in rural areas (Table 3).³²

We explored the role of the pre-existing PHC and its characteristics on the implementation of FP programme

and universal health insurance in Iran's rural areas. In doing so, we looked into how the PHC network shaped the nature and implementation of the FP programme and explored different stakeholders' interpretation of FP programme implementation in rural Iran.

Methods

Design and setting

This is a qualitative study, which was conducted at three levels: national, provincial and local. We collected

provincial and local level data in Golestan Province, northeast Iran. Golestan Province was selected because it was among the few ‘early adopters’ of FP programme. Interviews were conducted from November 2006 until May 2007, in two sequential phases.

Sampling

We used purposive and snowball sampling techniques to identify research participants at the national level³⁵ and used snowball sampling methods for research participants at regional and local levels. We purposefully identified six local rural health centres to represent the diversity of the province.

The participants were national and regional policy makers and managers, doctors, allied health professionals, patients and members of the public at selected local health centres, who actively or passively influenced the decision-making, management and implementation of FP programme and universal health insurance scheme.³⁶

Data collection and analysis

In total, we conducted 71 interviews: 19 national, 9 provincial and 43 local interviews. We also conducted three focus groups with representatives of the public at three (out of six) local health centres (see the list of research participants in online [supplementary Appendix II](#)), plus a purposeful content analysis of documents of various types at all three levels. Although not inclusive, we used a generic interview guide. The guide was reflexively tailored for participants at each level (see online [supplementary Appendix III](#)). Interviews and focus groups were all recorded and transcribed verbatim. We used a mixed inductive/deductive framework approach for data analysis^{37,38} and developed a thematic framework during the analysis.³⁹

Ethical considerations

The study was approved by the ethics committee of the London School of Hygiene & Tropical Medicine, the MOHME and the Golestan University of Medical Science in Iran. We obtained informed consents from the participants.

Results

We identified 75 subthemes for coding the transcripts and documents. These subthemes spanned different aspects of the policy development and implementation, including the emergence of the ‘policy window’ for implementing FP programme in rural Iran.²⁵ We then identified seven main themes that described our findings, which were relevant to the study research questions. The participants at national, provincial and local levels consistently acknowledged the facilitating role of the existing PHC network in the implementation of FP programme.

However, they offered various interpretations of how the PHC network interacted with the FP programme and universal health insurance policies in rural Iran.

These seven themes, demonstrating how the existing PHC network influenced the implementation of FP programme, are explained further below.

A respected and functioning PHC network

Participants mentioned frequently that the existence of a functioning PHC network in rural areas was a sound and reliable basis for the development of the ‘new’ FP system:

In contrast to the incomplete networks in their urban counterparts, rural health centers have been well-established across the country. This is one of our strong points (Provincial health manager).

Rural residents trusted the PHC-based rural health centres. This was to the extent that in areas where other providers, i.e. private practitioners were active, the PHC facilities were the villagers’ first-selected point to seek care:

The rural health center is the first place that I’d rather go to, to seek care for my little kid. If the problem was not fixed there, I will visit a specialist. ... (A local representative).

The PHC’s endeared position in the eyes of the public reassured the policy makers in considering the implementation of FP programme alongside universal health insurance in rural Iran.

Accessibility and geographical coverage

Consistent with the main aim of the FP programme to enhance accessibility of health care services, the PHC was an easily accessible facility for the public:

Each rural health center is designed to serve 10,000 people. The PHC network is easily accessible to the public, even in low dense population and hard access regions. ...the accessibility of the PHC network has been improved within the course of the past two decades...’ (National policy maker).

The proper distribution of the PHC’s rural health centres throughout the country meant that the policy makers did not have to worry about a geographical plan for the distribution of newly recruited FPs. The health centres were the points of locating the FPs (set at one FP for 4000 population). In addition, as the PHC was originally proportional to the population base, the assignment of FPs to a certain population was facilitated:

the PHC was the best medium for implementing FP for two reasons: the existing facilities (equipment, building, etc); and its population-based structure... (National finance official).

Efficient hierarchy

The PHC was perceived to have an appropriate and efficient organizational structure. This facilitated the implementation of the FP programme:

The PHC was the greatest opportunity for FP, partly because of its highly-regulated staff and its top-down management style. Whatever was dictated to the Behvarzes was expected to be obeyed, which led to better performance... (Former senior national health official).

The above quote also reveals the extent to which a top-down approach was embedded in the minds of central policy makers. This may point out the importance of a centralized health system for the appropriate implementation of major interventions in the context of Iran. Indeed, some participants thought that the top-down structure of PHC increased its flexibility, which in turn contributed to the progress in the implementation of FP programme:

The PHC has shown its efficacy over time. The PHC network has a flexible structure that enables it to react to challenges quickly. This is why a number of various tasks can be undertaken in the PHC facilities during a short period of time... (Provincial manager).

The only possible host

The existence of rural PHC networks over the last three decades provided a platform for the establishment of FP programme. It helped save time and expenses by allocating the PHC infrastructure to the implementation of FP programme, i.e. rural health centres and their equipment. Because the vast majority of people in rural areas lived within the catchment area of a PHC rural health centre, this could be mirrored in assigning people to FPs and the health teams:

The network (PHC) made implementation (of FP program) much easier. PHC was a well-structured network with accessible services for a defined population. We improved this by strengthening the skeleton and doing some house-cleaning (National senior policy maker).

The comprehensive PHC infrastructure in rural areas, which was advanced and performed well compared to the fragile PHC facilities in the cities, led policy makers to the decision to begin the implementation of FP programme in villages:

The timing for the beginning of FP implementation was crucial. We had to undertake a number of tasks in a very short period of time. This was not possible without the existing infrastructure and amenities in villages. I'm sure it was a right decision to initiate FP from rural places (Provincial health manager).

The existing and well-organized PHC was, to many participants, the only feasible media to accommodate FP in villages:

I think that the PHC created an appropriate environment for achieving over 90% of the aims of FP in rural areas. Thinking of hosts other than the existing PHC network for implementing FP in villages was only an illusion. Our rural health centres and houses were relatively well-equipped. The PHC model was embedded with deep theoretical concepts and became amalgamated with the experiences of the staff. All of these resulted in a reliable and well-organized network... (National senior policy maker).

Organization must follow the strategy. Could you ever imagine moving a single step forward in FP if we did not have the pre-existing PHC in place? We had nothing other than PHC health centers in the majority of rural places... (Provincial health manager).

As a limitation, it meant that a typical PHC rural health centre that might have previously located one physician (or none, see online [supplementary Appendix I](#)) for a population of 10 000 would host two to three FPs when the FP programme started. Ideally, FPs should have been placed closer to the population and distributed in different villages. However, in reality, the PHC infrastructure could not host more FPs. Neither had resources been made available in order to upgrade health houses to rural health centres or build new health centres.

A remedy for the chronic challenges in rural PHC?

The rural PHC network was generally effective in providing access to the Behvarz and other health professionals. However, challenges remained in regard to access to physicians in all rural health centres, especially in remote areas, which generally faced a chronic shortage of doctors. The FP programme with its further allocated budgets provided the PHC system with a rare opportunity of securing the required number of physicians, and even led to the recruitment of many more doctors, as had been envisaged in the PHC network:

We settled thousands of doctors in almost 2500 rural health centres across the country. This activated our health centres and enhanced the public's trust in the health system. Utilization of services has dramatically gone up by 10 times now [after the implementation of FP] (national policy maker).

As a result, FP programme was also welcomed by people in rural areas as a remedy to their long-existing troublesome shortages.

Sometimes we had to wait up to a month to visit a doctor. Now we can see our family physician on the

day that we make our appointment. This is a very big change (Villager).

FP as the gatekeeper?

The rural PHC network considered the Behvarz as the gatekeeper and the first point of access to services. This was a challenge to a main principle of FP programme, where the FP is the first point of access to care. Some participants accused the PHC of not being compatible with the gatekeeping function, highlighted in FP programme:

The PHC principle is an up and down movement across the road. Trying to match PHC and FP, the first battle is the mismatch between the first point of access in PHC (Behvarzes at health houses) and FP (family physicians at health centres). I doubt this could be tackled by continuing in the current format... (Provincial health manager).

This point indicated the need to reengineer FP programme to make it compatible with the pre-existing PHC. Some participants pointed out that the PHC might only have facilitated the prerequisites of the FP, not its intended purposes:

The existing PHC networks in villages is just an introductory tool for FP, it is far from the essence of FP... (National union manager and doctor).

In practice, the implementation of FP programme resulted in a motley range of experiences in different areas. Some at the MOHME and provinces advocated that the Behvarzes remain the gatekeepers and refer to the FP programme when needed. In practice, the public expected to see the FP when they felt need of it.

The role of the private sector

The rural PHC network was fully funded by national budget, and its services were provided by public sector practitioners, who were based at government-owned facilities (rural health centres and health houses). Some participants, noting that running FP programme requires private sector-led structure (contractual arrangements), seriously doubted the ability of PHC to satisfy the strategic aims of FP programme:

The PHC is dead as we speak, because it is public service. It is not possible to implement FP through the public sector... (National insurance policy maker).

The FP programme was built based upon a 'public sector' mentality. In some places, where FPs were recruited from the private sector, they were, in essence, 'bought-in' the public sector services. As a result, the PHC was criticized of raising governmental share in health care provision by hosting FP programme, which was against the fourth national plan for development of Iran:

The PHC has lost its original specifications... In contrast to the 4th plan, the current PHC network is being publicly managed. This has reduced the efficiency and effectiveness of PHC services. We must trust our people. We ought to have purchased services from the private providers... (National insurance manager)

Furthermore, it was argued that the model of implementing FP programme was not suitable for expanding FP programme to the cities. Due to the PHC's lukewarm presence in cities, the majority of the participants disagreed with the PHC being the natural host of FP programme in cities in future:

The PHC network is passive in cities. It would therefore be unable to perform as effectively in cities as in villages... (Provincial manager).

Predictably, almost all participants who criticized the PHC for hosting FP programme were purchasers of health care services, whose priority was commissioning treatment services from providers, rather than a comprehensive package of primary care services. As a result, they advocated direct purchasing of services from the private sector. The MOHME and the MSIO seemed to pursue contradictory goals. The former's aim was to promote health via expanding primary care services, whereas the latter aimed at bridging the gap in service provision and accessibility for the poor in rural areas (i.e. 'treatment services'). As a result, the MSIO seemed reluctant to pay for FP:

The implementation of FP was executed by an insurance company (MSIO) which was, from the outset, against the principles of FP and not in line with primary care. ...It is quite likely that the MSIO will eventually act only as an insurer, nothing more. The MSIO believes that whenever insured people get sick, the organization must respond accordingly [and does not take into account preventive and public health services]. This will, I think, be the biggest disaster FP has ever faced. (A senior national finance official).

The MOHME was not fundamentally against the expansion of the private sector; however, the presence of the private sector was very limited in villages. Further, the private sector was reluctant to invest in primary care, leaving little choice other than using the existing public sector PHC to implement FP programme in rural areas.

Discussion

Our study underpinned, we argue, the importance of a pre-existing PHC network in facilitating (and influencing the direction of) the implementation of FP

programme in rural areas. We demonstrated that the existing PHC, which was perceived as 'a respected and functioning network' with an appropriate level of 'accessibility and geographical coverage', and an 'efficient hierarchy', made the implementation of the FP programme possible in rural Iran. There was a consistent acknowledgement among our interviewees that the PHC was 'the only possible host' for FP programme in rural areas. This developed its own limitations. Some decision makers used the implementation of FP programme as 'a remedy for the chronic challenges in rural PHC'. Also it seemed that the potential conflicts between the established role of the Behvarz as the gatekeeper within the PHC, and the 'FP as the gatekeeper' after the reform, was overlooked. Moreover, the dominance of the PHC in rural areas meant that the FP programme was not challenged by 'the role of the private sector', which might happen where the presence of the private sector is strong (e.g. in urban Iran or in rural areas of many low- and middle-income countries).

The World Organization of Family Doctors (WONCA) has argued for further enhancement of primary care services in rural areas by increasing the use of FPs.^{4,13,40,41} Likewise the WHO has argued for the expansion of primary care services.¹⁴ While the expansion of rural health care services is of paramount importance, little evidence exists of how such expansion can be materialized and what the potential interactions between the PHC and FP programmes may be. Our study provides relevant evidence to clarify the relationship between a PHC system and FP in rural areas.

In assessing the potential implementation of a new policy, one of the most important factors is the context in which the policy is introduced.⁴² In this study, the pre-existing PHC network and its characteristics were part of the context that affected the concurrent implementation and shaping of FP programme and universal health insurance reforms in rural Iran. The PHC was financed by national budget and enjoyed strong political support. This was in contrary to the fragile existence of the PHC facilities in cities.⁴³ Hence, we do not expect that the expansion of the PHC to urban areas will encounter the same influences from the PHC that occurred in rural areas. Arguably, policy development in each country is increasingly shaped and influenced by forces outside state boundaries.⁴⁴ The international support for health sector reform encouraged policy makers in Iran to seek suitable changes in the health system infrastructure.^{28,31} What our study adds is in its disentanglement of how an existing PHC system can influence the implementation of a broader global agenda for the expansion of PHC systems and family medicine.

In many low- and middle-income settings, the physicians are not seen as the main point of emphasis in rural PHCs,¹³ which was also the case in Iran. Our study revealed a challenge that existed between a PHC in which a community health worker is the point

of access, and a programme that introduced the FP in such a role. Studies from other countries suggest that people might actually prefer visiting doctors as the first point of contact rather than the community health workers.⁴⁵ In a comprehensive health system, FP can provide the bridge for enhanced cooperation and mutual dialogue between the different layers of the health system, i.e. the primary care and hospital and specialist care.¹⁸

Although the pre-existing PHC network resulted in certain limitations,²⁵ this article described seven key aspects of PHC, which influenced the implementation of FP programme in rural Iran. Similar findings have been reported in other countries. For instance, recent reforms that were undertaken to expand rural primary care services to a wider population in Latin America showed positive outcomes.²¹ In Estonia, the existing PHC system created an enabling environment for the rapid uptake of FP programme.⁹ Slovenia, Bosnia and Herzegovina, Macedonia and Montenegro are examples of countries, where 'parallel' systems existed alongside FPs at the primary care level.⁷ In addition, introduction of FP was one of the main features of PHC reforms in Serbia and Montenegro.⁷ Proximity to countries with advanced PHC systems may have enhanced collaborations among them through demonstration of the potential achievements of an FP-centred PHC.⁹ The success of Croatia in the development of an advance model of FP is a good example here.⁷ Experiences from two regions in Canada showed that a functioning PHC system helped the establishment, and later on, further development of FP initiatives.⁴⁶ Finally, China established the 'new rural cooperative medical scheme' to strengthen the PHC and extend health insurance coverage to its rural residents.⁴⁷

Limitation of this study

Our research was among the first multilevel (national, provincial and local) evaluations of FP programme and universal health insurance in rural Iran. However, our findings need to be interpreted with caution, as longer-term analysis is necessary to reconstruct the implementation trajectory. Despite efforts to enhance the validity and credibility of our findings, our interpretation of data may remain subjective. We used different sources of data and analyzed the data from the viewpoints of the three authors (as researchers) until we reached a consensus. This was an essential step in ensuring that important concepts were not overlooked in the data nor were certain issues given more emphasis than they deserved. However, subjectivity is difficult to avoid in qualitative research. Last but not least, the nationwide implementation of FP programme has begun only recently. Further longitudinal research is needed to study the long-term effects of the pre-existing PHC on concurrent implementation of FP programme and universal health insurance in Iran.

Conclusions

Notwithstanding criticisms about a top-down approach to the implementation of FP programme and the lack of compatibility between the intended gatekeeping role for FPs, and the way that FPs practiced in reality, our study revealed that the pre-existing PHC network facilitated the implementation of FP programme in rural Iran. Findings of our study complement the limited literature from other countries that an existing PHC infrastructure could be used as an effective platform for facilitating other health sector reforms, i.e. FP programme, and strengthening the health system eventually.

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Declaration

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Conflict of interest: none.

Supplementary material

Supplementary material is available at *Family Practice* online.

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