
Original Article

A policy review of the community health worker programme in Iran

Sara Javanparast^{a,*}, Fran Baum^b, Ronald Labonte^c,
David Sanders^d, Gholamreza Heidari^e, and Sakineh Rezaie^f

^aDiscipline of Public Health, Flinders University, Health Science Building North Ridge Precinct, Registry Road, Bedford Park, SA 5042, Australia.
E-mail: sara.javanparast@flinders.edu.au

^bSouthgate Institute for Health, Society and Equity, Flinders University, Health Science Building, North Ridge Precinct, Registry Road, Bedford Park, SA 5042, Australia.

^cInstitute of Population Health, The University of Ottawa, 216-1 Stewart Street, Ottawa, ON K1N 6N5, Canada.

^dSchool of Public Health, University of the Western Cape, Modderdam Road, Bellville 7535, South Africa.

^eDean's Office, Boushehr University of Medical Science, Office of Chancellor, Moallem Street, Boushehr, 7514633341, Iran.

^fDivision of Network Development and Health Promotion, Ministry of Health, Deputy of Health, Ministry of Health and Medical Education, Corner of Hafez and Jomhoori Streets, Tehran, Iran.

*Corresponding author.

Abstract Iran's Community Health Worker (CHW) programme survived as an integral element of the health system during a period when many other nations' CHW programmes collapsed and therefore warrants detailed analysis of the policies supporting the programme. We draw on a wide range of information about the Iranian programme and from this analysis draw important lessons on how to improve rural population health outcomes through Primary Health Care.

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Introduction

The 1978 Alma Ata Declaration promoted Primary Health Care (PHC) as a key strategy for national governments to achieve better health status for their citizens. The Alma Ata Declaration¹ principles include

- universal accessibility and coverage on the basis of need;
- comprehensive care with the emphasis on disease prevention and health promotion;
- community and individual involvement in health systems planning and actions;
- inter-sectoral actions for health; and
- appropriate technology and cost-effectiveness in relation to the available resources.

The Declaration focuses on Community Health Workers (CHWs) as central to PHC, but subsequently many countries failed to support CHWs in their national programmes.² We describe CHWs policies in Iran and the ways in which CHWs have been central to Iranian PHC and have contributed to improving health outcomes.

Background

The 1978 Alma Ata Declaration on PHC was the first time that the role of CHWs was identified internationally,³ although the contribution of community-based health workers to health care preceded the Declaration. The barefoot doctor programme in China from 1956⁴ involved training local people to provide preventive and curative care to rural and urban communities. Although associated most frequently with basic health care in poorer rural areas, CHW programmes can be found in low- and high-income countries,^{2,5,6} and in poorer urban neighbourhoods.

CHWs are ‘men and women chosen by the community’, who ‘should have had a level of primary education’ and ‘may be employed full-time or part-time and paid by the local community or by health systems’.⁷ The term CHW can apply to well-trained health para-professionals, who may be volunteers or paid.



CHWs in Iran

After the Alma Ata Declaration, Iran established a PHC network and a new CHW programme. It refined and expanded pre-existing CHW schemes, such as *Behdar* ('healer') training project of 1942, West Azerbaijan Project of 1972,⁸ and the Village *Behdar* training scheme of Shiraz University⁹ that used local health workers to serve the rural poor. Integrated preventive and curative services through new village health houses and training of CHWs (called *behvarz* in the Farsi language) became a priority strategy to narrow the huge urban–rural gap in health, and improve equity in access to care. Behvarz (combining two Farsi words, *beh*, or good, and *varz*, or skills) are local, paid health workers trained to address the basic health care needs of the rural population. The village health house is the most peripheral health delivery facility in rural areas and the place from which the behvarz works. Each health house covers a target population of about 1500. In 2007, almost 31000 male and female behvarzes worked in about 17000 health houses covering most of Iran's 65000 villages.¹⁰

Health indicators in the rural areas have improved significantly. Infant mortality in rural areas, above 100/1000 live births in the mid-1970s, dropped to 30 by the mid-1990s.¹¹ The national maternal mortality ratio declined between 1988 and 2005 from 90.6 to 24.6 per 100000 live births.^{11,12} According to the Demographic and Health Survey in 2000, the proportion of children under 5 years who suffered from diarrhoea during the previous 2 weeks was only slightly higher in rural children (13.7 per cent) than in their urban counterparts (11.8 per cent).¹³ Oral Rehydration Therapy coverage in children with diarrhoea was 94.6 per cent in rural areas, which compared favourably with 96.4 per cent coverage in urban areas.¹³ For urban and rural areas, Table 1 demonstrates changes in some key health indicators in Iran between 1974 and 2000.

Economic growth, a rise in literacy rate, and improvement in environmental health are likely to have contributed to these changes. Nevertheless, Mehryar attributes to PHC and the behvarz programme a major role in reducing child mortality, incidence of infectious diseases, and improvement in maternal health through provision of universal immunisation, management of common infectious diseases, and improved ante- and post-natal care.¹¹

Table 1: Health indicators and trend in Iran

	1974	1985	1988	1991	1996	2000
<i>Infant mortality rate</i>						
Rural	120	71	58	43	30.2	—
Urban	62	33	31	24	27.7	—
<i>Under 5 mortality rate</i>						
Rural	—	—	72	52	Total 38.6	34.6
Urban	—	—	40	31.5		36.8*
<i>Maternal mortality ratio</i>						
Rural	370	233	137.5	80	54.5	Total 24.6 in 2005
Urban	120	77	41	29	24.3	

*The higher rate of under 5 mortality in urban areas is attributed to high rate of death due to accidents and injuries in urban settings.

Source: PDSPC,¹² Mehryar *et al.*¹⁴

Methods

We collected secondary data from the World Health Organization (WHO) website, PubMed, international and Iranian public health journals, conference papers, and bibliographies of the retrieved articles using the terms ‘community health worker’, ‘behvarz’, and ‘Iranian primary health care’. We also gathered policy documents, unpublished reports, and behvarz training materials from the Ministry of Health archives in Iran. We had hoped to collect early policy documents (from the start in 1979) to compare with newer ones, but the lack of available materials limited our review to 1996–2009.

Health authorities formulate and maintain all behvarz-related policies and programmes nationally in the Division of Network Development and Health Promotion (DNDHP) in the Ministry of Health. After obtaining ethics approvals, an Iran-based co-investigator searched the archives and sent to the principal investigator (SJ, an Iranian national) copies of 32 documents in Farsi, including meeting minutes, letters, policy reports, training materials, operational plans, behvarz statistics, and research documents. Categories from the CHW-related literature and new themes that emerged from the behvarz policy documents guided our analysis. To validate our categories and to ensure we had not missed any policies, we sent a summary to an ex-minister of health and to two heads of DNDHP who held office between 1996 and 2008; they clarified and added detail.



Findings

Since the inception of the Iranian behvarz programme in 1979, national and provincial authorities have formulated, implemented, and adjusted a wide range of policies to manage the programme, and to address population health needs and the changing environment. We identified four key elements of the behvarz programme: tasks and functions, selection and recruitment, training, and support and supervision.

Tasks and functions

The Health House (*Khaneh Behdasht* in Farsi) is the basic unit of the Iranian PHC network and the behvarz is the first contact and the one to provide health services to rural population. Core responsibilities are: annual census of the population; collection of health information and providing reports; maternal and child health care; family planning services; health education; environmental and occupational health; disease control and management; home visits; and referral. Every household has its own log book containing the names, gender, and ages of all family members, sanitation conditions, history of pregnancies, details of under 5 care, and health and illness episodes within the family.

Although the initial behvarz programme targeted infectious disease and maternal and child health, changing disease profiles have expanded what is considered 'basic' health care and hence, behvarz's responsibilities. Inclusion of elders' health, youth health, and non-communicable diseases added to programme scope and workload. Policy documents from 2004 also emphasise community engagement in health promotion activities as part of the behvarz responsibilities. Table 2 lists tasks and responsibilities assigned to behvarz in 2008; those with an asterisk show new roles that policymakers introduced since 2006.

Selection and recruitment of behvarz

Selection and recruitment have strongly reflected the WHO definition of CHWs as: 'members of the communities where they work [who] are selected by their communities'.³ The documents provide strong

Table 2: Behvarz tasks and responsibilities 2008

Annual census
Filling in book logs/forms
Providing basic health care:
Child health (vaccination, IMCI)
Maternal care (pre and postnatal care)
Delivery (by female behvarz)*
Oral health*
Family planning
Elderly health*
Youth health*
Community-based rehabilitation*
Preventive activities
Health education
Screening*
Disease management
Communicable diseases (diarrheal, TB, Malaria, and so on)
Non-communicable diseases (hypertension, diabetes, mental disorders, and so on)*
School health
School environment health
Annual physical exam of students and case detection
Environmental health
Food safety
Sanitation
Safe water
Collaboration with other sectors
Occupational health
Collaboration with rural health councils*
Collaboration with family doctors in rural health centers*
Completing insurance forms and patient referral to health centers*
Promoting community participation and other social sectors in health programs

Tasks and responsibilities with an asterisk show new roles that policymakers introduced since 2006.

evidence of the engagement of local people, religious leaders, and rural families. By 2004, district health centres established behvarz recruitment committees to identify villages that were short of behvarz (using the standard of one male and one female behvarz per 1500 population); to introduce the behvarz programme to rural communities, rural councils, and religious leaders; and to advertise and find the most appropriate candidates (with the aid of local media). A written examination and interview are the final steps of recruitment.

The qualifications required of candidates have changed considerably. The minimum education increased from primary school in



1996 to a high school degree in 2004. A candidate with a lower educational level would be selected only if there are no applicants who had completed high school. Since 2005, some behvarz candidates also have undergraduate degrees in health-related courses such as public health, family health, midwifery, and environmental health.

Of almost 31 000 behvarzes, 17 000 are women (almost 54 per cent). All health houses have at least one behvarz who is a woman, and may also have a man in this role. Although there are no specific gender related policies, the women are generally responsible for tasks within the health house (maternal and child care and recording data), while the men behvarzes deal with the activities outside the health house (following up cases of communicable diseases, and providing environmental and occupational health services).

Behvarz candidates must be residents of the rural area for at least 1 year. If there is no applicant from the main village, applicants from neighbouring ones may be recruited.

Training

Behvarzes receive both initial and continuing training. The 2-year initial training, hosted at a District Behvarz Training Centre, part of the provincial health network, includes theoretical and practical classes as well as clinical placements in health houses and rural health centres. Behvarz trainers have tertiary degrees in family health, disease management, environmental health, midwifery, and nursing.

Twice each year, students (7–15 participants) attend these classes. The programme provides free accommodation, meals, and transport. Trainees are then obliged to remain in and serve at their villages for 4 years after the completion of the initial training programme. Table 3 shows the duration and components of behvarz initial training.

Originally, the behvarz programme's training materials focused on maternal and child health, and family planning. National policy-makers have updated the content of the initial training regularly to meet the changing health needs of the rural population. In 1996, national and provincial health authorities reviewed training policies and operational plans to ensure that they addressed current health needs and covered appropriate health topics. As a result, programme reviewers added topics on non-communicable diseases. In 2006,

Table 3: Duration and components of the behvarz initial training

<i>Phase I</i> 6.5 months	First 4 months: theoretical and practical training at DBTC 2.5 months: clinical placement in health house under direct supervision Final examination
<i>Phase II</i> 9 months	3 months: theoretical and practical training at DBTC 6 months: internship in health houses (in their own village) Final examination
<i>Phase III</i> 7.5 months	3.5 months: theoretical and practical training 4 months: clinical placement Final examination for phase III and for the whole course

the national committee on behvarz training reviewed the course topics again, adding several new ones, including the health system and rural community, oral health, elderly health, research methods, inter-sectoral collaboration, and communication skills. This reflects a policy shift in Iran towards a more comprehensive notion of PHC.

In 1999, the national and provincial behvarz policymakers decided to offer behvarz initial training as part of tertiary education. This policy change assumed that university level behvarz training would encourage a larger number of rural high school graduates to choose ‘behvarz’ as their future job; and a better educated behvarz will provide higher quality care. District universities offer a 2-year programme leading to an undergraduate degree. Candidates with a high school degree who meet the eligibility criteria (2 years residence requirement in their rural area, good physical and mental health, and success in entrance exam and interview) may enrol. The undergraduate programme uses the main topics from Behvarz Training Centres, with additional topics: computers, administration and finance, English, epidemiology and statistics, mental health, anatomy and physiology, microbiology, and physical examination. Graduates return to their own villages to serve as behvarz in health houses.

The second component of behvarz training, continued or in-service training, occurs when a behvarz starts working in the health house. The PHC system in Iran recognises in-service training of a behvarz at regular intervals – workshops, monthly meetings, and refresher courses aim at integrating new policies and changes into the current work. The Ministry of Health in collaboration with one of the major universities publish a quarterly magazine called ‘Behvarz’ to update



behvarzes with new health issues, and the latest policy documents and changes.

From 2004 on, health authorities included the behvarz midwifery programme in behvarz continued training, particularly in areas short on maternity facilities. Candidates can enrol in a midwifery training course. Certification requires each student to undertake five deliveries with assistance, and ten deliveries with postnatal care independently, pass an exam on theory, and complete a clinical placement. The programme provides each graduate with a maternity bag containing supplies for conducting home deliveries.

Support and supervision

The behvarz is a full-time employee of the Iranian government health system, embedded in an institutional structure to assure programme sustainability and make employment attractive. Each behvarz is subject to standard government employment rules and disciplinary procedures. To promote quality and retention, the programme offers a training allowance and personal loans, gives an 'excellent behvarz award', and celebrates 'National Behvarz Day'.

Rural health centres make regular supervisory visits to health houses. Provincial and national teams evaluate programme effectiveness to increase the quality of care. Checklists designed by the provincial and national health deputies are used by supervisory teams to assess programmes: data recording, behvarz's knowledge, drug supplies and equipment, review of work-related problems and suggestions from each behvarz.

In 2006, the Iranian CHW programme established a 'behvarz council' at local health centres, the district, provincial, and national levels to engage behvarzes in problem identification and solving, knowledge transfer, and policy-making. To choose council members, each district health centre holds an election during one of the monthly behvarz meetings at district level; all behvarzes vote for three men and three women.

Behvarz council meetings are held regularly to discuss recent policies, behvarzes' viewpoints about in-service trainings, work-related problems, and recommendations to overcome them. A meeting coordinator takes minutes and submits a final report to the higher-level council for follow-up. A Behvarz representative is responsible for

transferring ideas and solutions to other team members and to follow up issues raised in the meeting.

Discussion

Table 4 demonstrates the extent to which the behvarz programme in Iran embodies the principles of comprehensive PHC.

Behvarz distribution, selection and recruitment policies strongly suggest equitable access to a trained and community-based health worker who offers basic health care. Training content and task descriptions from the inception of the behvarz programme in Iran demonstrate high priority given to disease prevention and health promotion and to the management of common illnesses. Training policies include regular review and adjustment based on changing pattern of illness and population needs. The educational level of behvarzes have risen – a change that may reflect increasing overall literacy in Iran, particularly among the rural population, as well as an intent to gain more respect and credibility for the behvarzes.

A trend towards more emphasis on social determinants, inter-sectoral action, and community engagement was evident in training

Table 4: Principles of comprehensive PHC in the community reflected by the behvarz program in Iran

<i>Principles of comprehensive PHC approach as notified in the Alma-Ata Declaration</i>	<i>Evidence from behvarz policy review of how well the principles and elements of PHC are reflected in Iran</i>		
	<i>Strong presence</i>	<i>Somehow presence</i>	<i>No presence</i>
Universal access and coverage on the basis of need (equity)	✓	–	–
Comprehensive care with emphasis on disease prevention and health promotion	✓	–	–
Community and individual involvement and self-reliance	–	✓	–
Inter-sectoral action for health	–	✓	–
Appropriate technology and cost-effectiveness in relation to available resources	✓	–	–



curricula and training. Job descriptions reveal an increasingly comprehensive approach to PHC,¹⁵ although the long list of basic health care tasks may, in practice, leave little time for behvarz to serve as agents for community development and change.

The new behvarz councils serve as interactive mechanisms to engage behvarzes in programme evaluation and problem identification. Ofosu-Amaah¹⁶ emphasised the role of effective supervision in CHW programme success and in maintaining the motivation of the CHWs.¹⁷ We found no documentation on the quality of behvarz supervision or the extent to which the behvarz supervisory mechanism has helped resolve barriers, provided support, or sustained behvarz interest.

We found no documentation of the extent to which Iranian health policy agendas have been influenced by actors and forces within the country's health system, sectors external to the health system, or by the national political environment or international health policy discourse. Determining the sources of policy influence could form the basis for further study.

Limitations

As we could examine policy documents for only 15 of the nearly 30 years of programme operation, we cannot draw conclusions or identify trends over the longer period. We found little information about the policy process itself, which made it difficult to identify principal stakeholders involved, and the role of research findings in policy formulation.

Conclusion

Our review of policy and implementation documents from 1996 shows that the Iranian behvarz programme supports a comprehensive PHC strategy, has itself become more comprehensive, and that the Iranian health system has taken systematic action to review and strengthen its CHW programme.

Our policy review supports the earlier conclusions by Mehryar¹¹ that these reforms, and particularly the emphasis on rural health care provided by the behvarz, contributed to dramatic improvements in infant and maternal mortality rates, and particularly the convergence

of rural and urban health indicators. Although not possible to attribute a certain portion of the health gains to the behvarz programme, the recruitment and training in terms of content and skills, is consistent with the types of health gains noted by Mehryar.¹⁴

A recent Cochrane review assessed the effects of lay health worker interventions at primary and community levels on maternal and child health and the management of infectious disease in different settings.¹⁸ The review concluded that there is evidence of the effectiveness of CHWs in promoting child immunisation, breastfeeding, increasing the likelihood of seeking care for childhood illnesses, and reducing childhood mortality and morbidity. The review by Lehmann and Sanders² also provides examples of effectiveness and cost-effectiveness of CHW programmes on health outcomes, particularly in the field of child health. It concludes that careful selection and support of training, management, supervision and logistics, are key elements for the effective contribution of CHWs to health outcomes.

Our review of CHWs policy in Iran offers important lessons for other settings that have established CHWs programmes:

- Recruitment of the Iranian CHWs from the communities they serve facilitated the programme effectiveness and acceptability.
- Provision of a comprehensive training programme enabled the CHWs to provide comprehensive care with an emphasis on disease prevention and health promotion.
- CHWs had significant role in addressing social determinants of health through community development and inter-sectoral collaboration.

From this review, we argue that behvarz programme in Iran is another example that shows the effective contribution of CHWs to health outcomes and equity.

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About the Authors

Dr Sara Javanparast, MD, PhD, is a research fellow in the Discipline of Public Health, Flinders University. E-mail: sara.javanparast@flinders.edu.au

Fran Baum, PhD, is a Professor at the Southgate Institute for Health, Society and Equity, Flinders University. E-mail: fran.baum@flinders.edu.au

Ronald Labonte, PhD, is a Professor at the Institute of Population Health, University of Ottawa. E-mail: rlabonte@uottawa.ca

David Sanders, MBChB, DCH, MRCP, DTPH, is a Professor at the School of Public Health, University of the Western Cape. E-mail: sandersdav5845@gmail.com and dsanders@uwc.ac.za

Gholamreza Heidari, DDM, MPH, is the chancellor of the Boushehr University of Medical Science, Iran. E-mail: gr_heidari@yahoo.com

Sakineh Rezaie, BA, is a programme officer in the DNDHP, Ministry of Health, Iran. E-mail: siminre@yahoo.com

References

1. WHO. (1978) *Primary Health Care: Report of the International Conference on Primary Health Care, Alma-Ata, USSR*, International Conference on Primary Health Care, Geneva: World Health Organization & United Nations Children's Fund.
2. Lehmann, U. and Sanders, D. (2007) *Community Health Workers: What do We Know about Them?* Geneva: World Health Organization.
3. WHO. (1989) *Strengthening the Performance of Community Health Workers in Primary Health Care*. WHO Technical Report Series. Geneva: World Health Organization.
4. Campos, F., Ferreira, J., Souza, M. and Aguiar, R. (2004) *Innovations in human resources development: The role of community health workers*. Joint Learning Initiative, Working Group 6.
5. Barcelon, M. and Hardon, A. (1990) *The community based health care program of the rural missionaries of the Philippines*. In: P. Streeflan and J. Chabot (eds.) *Implementing Primary Health Care*. Amsterdam, the Netherlands: Royal Tropical Institute.



6. Berman, P. (1984) Village health workers in Java, Indonesia: Coverage and equity. *Social Science and Medicine* 19: 411–422.
7. WHO. (1987) *The Community Health Worker*. Geneva: The World Health Organization.
8. Amini, F., Barzgar, M., Khosroshahi, A. and Leyliabadi, G. (1983) *An Iranian Experience in Primary Health Care: The West Azerbaijan Project*. New York: Oxford University Press.
9. Ronaghy, H.A. *et al* (1983) The middle level auxiliary health worker school: The Behdar project. *Journal of Tropical Pediatrics* 29: 260–264.
10. MOHME. (2008) The total number of Behvarzes, Behvarz training centres and distirct health centres in Iran, 1386. Tehran, Iran: Ministry of Health & Medical Education.
11. Mehryar, A. (2004) *Primary Health Care and the Rural Poor in the Islamic Republic of Iran*, Scaling Up Poverty Reduction: A Global Learning Process Conference, Shanghai, China.
12. PDSPC. (2006) *The Second Millennium Development Goals Report of the Islamic Republic of Iran*. Tehran, Iran: President's Deputy for Strategic Planning and Control, United Nations in Islamic Republic of Iran.
13. MOHME and UNICEF. (2000) *Population and Health in the Islamic Republic of Iran, DHS, October 2000*. Tehran, Iran: MOHME and UNICEF.
14. Mehryar, A.H., Aghajanian, A., Ahmad-Nia, S., Mirzae, M. and Naghavi, M. (2005) *Primary Health Care System, Narrowing of Rural-urban Gap in Health Indicators, and Rural Poverty Reduction: The Experience of Iran*, XXV General Population Conference of the International Union for the Scientific Study of Population, Tours, France.
15. Labonte, R. *et al* (2008) Implementation, effectiveness and political context of comprehensive primary health care: Preliminary findings of a global literature review. *Australian Journal of Primary Health* 14(3): 58–67.
16. Ofosu-Amaah, V. (1983) *National Experience in the Use of Community Health Workers. A Review of Current Issues and Problems*. Geneva, Switzerland: WHO Offset Publication.
17. Gray, H. and Ciroma, J. (1988) Reducing attrition among village health worker programs in rural Nigeria. *Socio-economic Planning Sciences* 22: 39–43.
18. Lewin, S. *et al* (2010) Lay health workers in primary and community health care for maternal and child health and the management of infectious diseases. *Cochrane Database of Systematic Reviews*, Issue 3, Art number CD004015.