



Research article

Investigating the factors affecting health care workers' intention to remain in villages

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ARTICLE INFO

Keywords:

Effective factors
Intention to remain
Health care worker
Village
Job satisfaction

ABSTRACT

Background: Settlement in a village and being native is one of the special conditions for choosing to be a health care worker as they must be accessible day and night and provide people with health services when needed. The aim of this study was to investigate the factors affecting health care workers' intention to remain in villages covered by Jundishapur University, Ahvaz, Iran.

Methods: This is a cross-sectional study in 2019. The total number of health workers working at Ahvaz Jundishapur University of Medical Sciences and Health Services, Iran was 1034, amongst whom 280 individuals participated in this study. The data collection tool was a questionnaire consisted of two parts, in the first part of which there were 11 questions on personal information of the participants. In the second part, a total of six measures (physical, social, educational and cultural, occupational, welfare, personal and family) were used to examine the factors affecting the health workers' intention to remain in rural areas.

Results: The results of this study showed that the current residence of 55% of the health workers was villages while 45% of them lived in urban areas. The results indicated that there was a significant relationship between physical, social, educational and cultural, occupational, welfare, personal and family factors and the health workers' intention to remain in rural areas. Besides, female HCWs were more affected by personal and family factors compared to the male participants.

Conclusion: Increasing the quality and paying more attention to physical, social, educational and cultural, occupational, welfare, personal and family factors can cause health workers to remain longer in rural areas.

1. Introduction

1.1. Background

Health systems place special emphasis on the social, economic, political, and cultural development of all human societies and are

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<https://doi.org/10.1016/j.heliyon.2023.e15542>

Received 24 December 2022; Received in revised form 11 April 2023; Accepted 13 April 2023

Available online 15 April 2023

2405-8440/© 2023 Published by Elsevier Ltd.

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crucial for the evolution of the infrastructure of the different parts of the society [1]. The ultimate goal of each nation's health care system is to promote people's levels of health so that they can engage in social and economic activities with sufficient health [2]. Based on this, Iran's health and treatment network system was implemented in 1985 and the "health home" was established as the main unit for providing basic health and treatment services to the underprivileged residents of the village [3].

In this project, following two years of training, a boy and a girl from the village who had completed at least high school were hired as male and female health care workers (HCWs), also known as "Behvarz", in their village at a location named health house [4]. In addition to the main village, which serves as the health house's administrative center, the health house covers one or more sub-villages called "Qamar Village", serving actively by HCWs [3]. In Iran, the village is the smallest residential and socio-political unit in terms of country divisions, which is defined as a tiny social unit made up of several households who share some sort of emotional connection and common interests with each another [5].

The purpose of implementing the health network system is to provide correct primary health care services to all parts of the country, particularly to remote and deprived areas [6]. Due to the remoteness of the villages, it is required the HCWs be natives and live in the village so that they can provide services to the people in times of need [7]. However, in recent years, we have witnessed the migration of HCWs from villages to the cities for a variety of reasons, resulting in a failure to meet the needs of the people living in villages. Several factors play an important role in HCW's intention to live in their homeland rather than migrate to major cities. Despite the importance of providing health care services to the population of deprived areas, less research has been conducted in this field. Earlier investigations mostly focused on the HCWs' job satisfaction [8,9]. It should be noted that job satisfaction has a great impact on the remaining of HCWs in rural areas [10,11].

Although HCWs must be local residents, according to surveys and statistics available in health education centers affiliated with Jundishapur University of Medical Sciences, more than 40% of the HCWs do not live in villages, and this lack of sustainability in rural areas has caused a disruption in the provision of health services to the deprived people living in villages. Considering the fact that in recent years a significant rise has been witnessed in the migration of HCWs from rural areas to the cities, and since less investigations have been conducted in this area, in this study we aimed to investigate the effects of the physical, social, educational and cultural, occupational, welfare, personal and family factors on a population of HCWs affiliated with Jondishapur University of Medical Sciences, Ahvaz, Iran on their intentions to remain in villages.

2. Methods

2.1. Study design and population

The goal of this cross-sectional descriptive study is to evaluate the factors effecting the HCWs to remain in the villages served by Jundishapur University of Medical Sciences in Ahvaz, Iran in September 2019. The research population consisted of 1034 HCWs, working in 552 health homes covered by the health networks in 20 cities affiliated to Jundishapur University of Medical Sciences of Ahvaz, Iran.

According to the Cochran's sample size estimation formula, a sample size of 280 HCWs was calculated for the study.

n: Sample size.

N: Size of the statistical population (1034).

z: Normal variable value of standard unit (96.1).

p: Proportion of the HCWs population who has a tendency to migrate or has migrated (0.3).

q = (1-p) (0.7).

d: Permissible error value (0.05).

Cluster random sampling method was used to select the participants. Given that the Jundishapur University of Medical Sciences of Ahvaz contains 20 total health centers, the covered cities were geographically divided into 4 regions based on their location. Then, based on the HCWs' data stored in the health networks, 70 participants were chosen randomly from each location to participate in the study. The inclusion criteria were HCWs working in health homes covered by 20 health networks which were affiliated to Jundishapur University of Medical Sciences in Ahvaz, Iran. The exclusion criterion was unwillingness to participate in the study.

After approving the study by the ethics committee of Shiraz University of Medical Sciences (Ethical code: IR.SUMS.REC.1397.164) and taking a written informed consent from the participants, the questionnaires was provided to the HCWs by trained directors of the health working education centers anonymously and in person, and its confidentiality was emphasized. It was completed in a self-fulfilling manner and returned. Totally, took 45 days for the managers to distribute and collect the questionnaires. The responsiveness of the research samples was 100%.

2.1.1. Questionnaires

The data collection tool was a researcher-made questionnaire consisted of two parts which was made with a glance to the previous similar studies [10,12]. In the first part, 11 questions were asked about demographic information of the participants. The demographic information questions were about the HCWs' age, gender, marital status, number of satellite villages, number of children, level of education, work record, place of residence at the time of employment, time of recruitment, current place of residence, and year of migration to urban areas if migrated.

In the second part, a researcher-made Persian questionnaire, containing a total of six measures (physical, social, educational and cultural, occupational, welfare, personal and family factors), used to examine the factors affecting the HCWs' intention to remain in rural areas. This part of the questionnaire consisted of 27 items on a 5-point Likert scale ranging from "very high" to "very low".

The questions in this part assessed the HCWs' living environment at health homes, having their own house in the village, being forced to choose the health working career, villagers' migration, villagers' attitude toward them, having educational facilities in villages, availability of high schools for their children, satisfaction with health working salary, having knowledge their job description and duties at the time of employment, supervision and monitoring by officials, attitude of the authorities, overall satisfaction with work tasks, overall satisfaction with the workplace, overall satisfaction with income, having basic facilities such as water and electricity, having a telephone line or a mobile phone, having access to the Internet, facilities and attractions of cities, long distances between villages and cities, welfare facilities in the health homes, having land for agriculture and animal husbandry, tendency to live in urban areas, tendency to work in urban areas, family influence on choosing the health working career, interest in the job, residing in rural areas at the time of employment, and migration of immediate family members from villages.

Each answer was classified as very high (5 scores), high (4 scores), moderate (3 scores), low (2 scores), and very low (1 score), ranging from 27 to 135. Physical and educational factors were scored between 2 and 10, for social factors the minimum score was 3 and the maximum was 15, occupational and welfare factors scores ranged from 7 to 35, and personal and family factors scored from 6 to 30.

The initial version of the questionnaire was prepared and provided to health managers, expert staff, managers, and trainers of health education centers. The opinions were collected, and the questionnaire was prepared again based on the opinions and distributed to the above group. After collecting the last opinions, the final questionnaire was prepared. This questionnaire was delivered to a sample of 30 HCW on two occasions prior to the survey and completed by them.

The content validity was measured using the Delphi technique based on the opinions of health managers, staff experts, managers, and trainers of health education centers. The reliability of the questionnaire was obtained by calculating the Cronbach's alpha value of 0.702, which indicates the acceptable reliability of it.

2.2. Statistical analysis

Mean and standard deviation were used to describe quantitative variables while frequency and percentage were used for qualitative variables. Pearson's correlation coefficient, independent *t*-test, and one-way ANOVA were used to analyze the data. Data analysis was performed using SPSS version 22 software with a significance level of lower than 0.05.

3. Results

The mean age of the HCWs in this study was 38.21 ± 7.5 years and their average work experience was 15.80 ± 8.1 years. Most of the HCWs were female (61.1%) and married (87.5%), having three children (23.6%), and a high school diploma (63.9%). 94.6% of the HCWs were working at health homes, and 77.1% had one to six satellite villages. At the beginning of their employment, 97.1% of the HCWs were residents of rural areas, while 2.9% lived in cities. Currently, 45% of HCWs live in cities, contrary to 55% who live in

Table 1
Demography of the HCWs under study.

Variable		Number	Percentage
Gender	Female	171	61.1
	Male	109	38.9
Marital Status	Single	35	12.5
	Married	245	87.5
Number of Satellite Villages	<6	255	91
	>6	25	9
Number of children	No children	55	19.6
	One	32	11.4
	Two	62	22.1
	Three	66	23.6
	Four	41	14.6
Education level	Higher than four	24	8.6
	Lower than diploma	46	16.4
	High school diploma	179	63.9
Work place	Higher than diploma	55	19.7
	Health home	265	94.5
Place of residence when employed	other	15	5.4
	Village	272	97.1
Time of recruitment (years)	City	8	2.9
	1–6	56	20.0
	7–12	61	21.8
	13–18	41	14.6
	19–24	77	27.5
Current place of residence	25–31	45	16.1
	Village	154	55
Migration status	City	126	45
	Migrated	152	54.3
	Non-migrated	128	45.7

Table 2

Results of the effect of variables on the HCWs' intention to remain in villages based on the respondents' answers.

Measure	Items	Very high		High		Moderate		Low		Very low		total		Rank from 100	Result
		N	%	N	%	N	%	N	%	N	%	N	%		
Physical factors	2	268	47.9	113	20.2	76	13.6	59	10.5	44	7.8	560	100	77.92	Much impact
Social factors	3	306	36.4	160	19.1	164	19.5	108	12.9	102	12.1	840	100	71.30	Much impact
Educational and cultural factors	2	329	58.8	99	17.7	56	10	32	5.7	44	7.8	560	100	82.75	Too Much impact
Occupational factors	7	464	23.7	363	18.5	509	25.9	274	14	350	17.9	1960	100	64.18	Much impact
Welfare factors	7	985	50.3	343	17.5	278	14.2	161	8.2	193	9.8	1960	100	79.19	Much impact
Personal and family factors	7	767	45.6	277	16.5	308	18.3	174	10.4	154	9.2	1960	100	86.93	Too Much impact

villages. Totally, 45.7% of the HCWs had emigrated from their place of residence after their employment (Table 1).

According to the Pearson correlation coefficient test, the mean effect of physical factors on the HCWs' intention to remain in villages was 77.92, which is a significant impact. The mean effect of social factors on the HCWs' intention to remain in villages was 71.30, which was also a great impact. The mean effect of educational and cultural factors on the HCWs' intention to remain in villages was 82.75, which was excessively high. Additionally, the mean effect of occupational and welfare factors on the HCWs' intention to remain in villages were 64.18 and 79.19, respectively, indicating great impacts of these factors. The mean effect of personal and family factors on the HCWs' intention to remain in villages was 86.93, which was excessively high (Table 2).

There was a significant relationship between the physical factors (physical environment factors including the small size of the work environment, the inadequacy of the living place), social factors (including compulsion in choosing their job, migration of villagers to cities, inappropriate attitudes of people), educational and cultural factors (including school, educational facilities such as language classes, etc.), occupational factors (including salary, information on job description and HCWs' duties at the time of recruitment, supervision and monitoring by officials, attitude of authorities, overall satisfaction with job tasks, overall satisfaction with the work environment, overall satisfaction with income), welfare factors (including plumbed water in the village, electricity, telephone, internet access, facilities and attractions of cities, distance from village to city, amenities of health homes, having land for agriculture and animal husbandry), and personal and family factors (tendency to settle in urban areas, inclination to work in urban areas, the impact of the family on choosing the health care working job, interest in the health care working job, residence in the village at the time of employment, impact of the immediate family from the village), and the HCWs' intention to remain in villages (p -value < 0.05), indicating a positive and strong correlation between physical, social, educational and cultural, occupational, welfare, personal and family factors and the HCWs' intention to remain in villages (Table 3).

As shown by the test values (F) and the significance level (p -value), there was no significant difference between the quantified measures and the age of the HCWs in villages. According to our results, no significant difference was seen between the effectiveness of occupational factors on the HCWs' gender ($t = 1.57$, p -value = 0.062). Similarly, there was no significant difference between the effectiveness of welfare factors on HCWs' gender ($t = 1.10$, p -value = 0.269). However, a significant difference was observed between the effectiveness of personal and family factors on the gender of HCWs ($t = 2.46$, p -value = 0.015), in the way that female HCWs were more affected by personal and family factors compared to the male participants (Tables 4 and 5).

4. Discussion

Although HCWs are in charge of villagers' health and are expected to be available at all times, surveys show that more than 40% of them do not reside in villages. After being recruited, they relocate to urban regions, and their absence from rural areas interferes with the delivery of services to those in need. As immigration to urban areas is mostly influenced by individual, family, and local community factors [13], the present study was conducted to investigate the influences of physical, social, educational and cultural, occupational, welfare, personal and family factors on the HCWs' intention to remain in the rural areas.

According to the study's findings, there is a substantial positive association between physical factors and HCWs' intentions to stay in rural areas, that is, the higher the quality of the physical factors are, the longer the HCWs stay in villages. In the Heidari et al.'s study, most of the HCWs were dissatisfied with the facilities of health homes and the physical conditions of their workplace [14]. Similarly, in the studies by Behzadfar et al. and Golafrooz et al., only a small proportion of the HCWs were satisfied with the physical facilities of their workplace [15,16].

The research's findings revealed a substantial and positive association between social factors and HCWs' intentions to stay in villages, in the way that, the better the quality of the social factors, the longer the HCWs will stay in rural areas. The improvement of social conditions leads to an increase in the quality of life, encouraging the HCWs remain in villages. The findings of Amini et al.'s study indicated that factors such as socioeconomic status, housing situation, recreation facilities, and the presence of facilities had a beneficial impact on the rural communities' quality of life; however, the quality of life of the rural population is adversely impacted by the sense of relative deprivation [17].

The results of the study revealed that the higher the educational and cultural factors are, longer HCWs tend to stay in villages. Accordingly, in a study by Rostamalzadeh et al., 21.3% of the respondents mentioned the lack of educational and cultural facilities in villages as factors of rural repulsion and urban attraction [18]. In this regard, the results of Gol Afrooz et al.'s study found that 58.8% of the HCWs were satisfied with the educational aspect [16].

According to our results, the higher the job satisfaction of HCWs, the longer they will stay in rural areas. In this regard, the results of

Table 3
Relationship between research variables in the area under study.

Component	HCW' intention to remain in villages	
	R	P-value
Physical factors	0.682	<0.05
Social factors	0.617	<0.05
Educational and cultural factors	0.564	<0.05
Occupational factors	0.662	<0.05
Welfare factors	0.758	<0.05
Personal and family factors	0.599	<0.05

Table 4
Comparison of mean scores of subjects in independent *t*-test.

	95% CI for mean difference and test value		Mean difference	T	Degree of freedom (df)	P-value
	Upper limit	Lower limit				
Occupational factors	0.06	-2.36	-1.15	-1.50	278	<0.1
Welfare factors	0.50	-1.77	-0.64	-1.10	278	>0.05
Personal and family factors	2.09	0.23	1.16	2.46	278	<0.05

Table 5
Comparison of mean values.

	Number	Mean	Standard deviation	0.95% CI		Minimum	Maximum
				Low	High		
Occupational factors	280	22.13	5.03	21.53	22.72	10	35
Welfare factors	280	27.30	4.70	26.75	27.86	9	35
Personal and family factors	280	26.34	3.88	25.88	26.80	14	35

Reisi and Kebriyaei's study showed that the majority of HCWs were satisfied with the social, psychological and educational aspects of their job, and not with the physical and welfare aspects of it. Their results showed that the main cause of the migration of a majority of HCWs was their tendency to continue their education, as well as the lack of welfare and health facilities for the villagers and themselves [8]. The higher the staff satisfaction with their working conditions, the lower the likelihood of quitting their jobs would be, and higher dissatisfaction, results in higher rates of absence, resignation and escape from the organization would be seen [19]. In the study by Ansari Pour et al., in 2013, the most common cause of job dissatisfaction among the HCWs in Isfahan was their salary [20].

The survey's findings showed that the higher the quality of welfare factors such as plumbed water in villages, electricity, telephone, Internet access, amenities and rural attractions are, the longer the HCWs would remain in villages. Seyed Ali Mousavi Raja et al.'s study found a that the higher the deprivation, the lower the physicians stayed in their workplace [21]. Hence, providing livelihood and welfare resources, such as proper facilities for HCWs residence, and eliminating the deprivation of the areas will cause them to remain longer in rural areas.

The findings of the research highlighted that the high quality of personal and family factors leads to the remaining of the HCWs in villages. Based on Kaveh Firouz and Farash's study, humans face attractive and repulsive factors in different places, and sometimes they change their place of residence by evaluating them, because they could be the main obvious and hidden factors motivating immigration [22].

Based on the results of this study, we concluded that personal and family factors had more effects on the performance of female HCWs in villages compared to the male ones. In this sense, Ahmadnia et al. found significant differences between job satisfactions among HCWs regarding demographic characteristics. According to their findings, job satisfaction was relatively higher among the male HCWs in terms of satisfaction with people, rural clients, and satisfaction with managers; however, compared to male HCWs, female HCWs expressed greater job satisfaction. The problems of male HCWs stated insufficient salary and benefits, shortage of living facilities, housing problems and lack of own vehicles, while the female HCWS mentioned the high level of workload, lack of environmental health, and transportation problems as their most important issues [19].

4.1. Strengths and limitations

One of the strengths of this study was the participation of the managers of the health education centers who contributed in increased efficiency in recruiting participants and response rates to questionnaires. Second, despite the lack of comparable studies in this area, this research is novel and has filled a research gap.

There were certain limitations that should be taken into account when assessing the outcomes, such as bias and limitations in the statistical methods used to collect the data. Besides, this study investigated the HCWs living in villages of a limited area. Further research investigating a larger sample of HCWs are required.

5. Conclusion

The findings of this study demonstrated that physical, social, educational and cultural, occupational, welfare, personal and family factors have a significant impact on HCWs' intentions to stay in rural areas. In addition, there was a significant difference between the effectiveness of personal and family factors and the gender of the HCWs. In a way that, personal and family factors affected the performance of female HCWs in rural areas more than male HCWs.

It is suggested that in order for HCWs to stay in rural areas, physical aspects including their living situation and working environment should both be improved, and their salary should be adjusted. It is also suggested that the country's macroeconomic policy-makers give priority to provide welfare and educational facilities, including plumbed water, electricity, telephone, proper education, and access to the internet in villages.

Ethical approval and consent to participate.

All the HCWs were informed about the quality of the project's implementation, confidentiality of the information, and the project's purpose. They were not enrolled in the study unless they would like. Participants indicated their informed consent by clicking the "I Agree" button before completing the questionnaire. According to the guidelines of the Iranian ethics committee, the participants were considered emancipated minors. Thus, written informed consent was received from them and the care centers' manager. The study was approved by the Shiraz University of Medical Sciences (Ethical code: IR.SUMS.REC.1397.164) and was conducted in accordance with the principles of the Declaration of Helsinki.

Consent to publish

Not applicable.

Availability of data and materials

All supporting data are available through the corresponding author.

Author contribution statement

Mohammad Fararouei: Conceived and designed the experiments. Tayebeh Rakhshani: Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data. Toubia Kianizadeh: Performed the experiments. Amirhossein Kamyab: Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper. Ali Khani Jeihooni: Conceived and designed the experiments; Wrote the paper.

Data availability statement

Data will be made available on request.

Declaration of competing interest

The authors declare that they have no competing interests.

Acknowledgments

This paper is the result of a MS thesis approved by the Vice Chancellor for Research and Technology of the Shiraz University of Medical Sciences. The authors would like to thank the experts of the health deputy, the officials of the health centers of Ahvaz city and the HCWs (Behvarz) who participated in the study.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.heliyon.2023.e15542>.

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