

Original Research



Comparing the current status with desired situation of the quality of education and improvement for rural health workers in Iran

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Abstract

Background: Rural health workers (Behvarz) are considered health-care pioneers standing at the forefront of providing services for rural areas. Those health providers need to be optimally educated throughout the country. What can serve this purpose is an integrated high quality “education”.

Methods: The current descriptive research compared two situations of education quality. To this end 300, rural health workers completed researcher-made questionnaires, including 2 dimensions, 7 components and, 80 questions obtained from the analysis of the qualitative process through the fuzzy Delphi method.

Results: The results indicated a gap between the current status and desirable situations of qualitative improvement components of rural health workers’ education. The findings also showed that the highest standardized coefficient in the area of education was related to the variable of learning and transfer of education with a coefficient of 0.971. In the area of optimization, the highest standard coefficient for the desirable situation belonged to the interpersonal and functional relationship variable, with the value of 0.978, while the lowest standardized coefficient was related to the variable of information and communication technology (ICT) development as 0.956.

Conclusion: In brief, optimal education for the health-care providers is considered an integral part of the health system; therefore, the impact of education on the general health of the people should be taken into consideration. Therefore, there is a need for theoretical and practical exploration of qualitative education towards health system improvement and promotion.

Introduction

In the past decades, globalization has coerced organizations into seeking new practices to strengthen competitive advantage. In such a situation, improving learning within the workplace parallel with human resource performance is considered a pivotal and necessary factor that could result in sustainable development.¹ Education is an important tool for human resource development through which knowledgeable and successful managers understand its necessity properly and take into account human resource development as one of the organizational requirements. However, it is worth noting that an organization cannot rely on only training or running training courses alternatives to achieve its goals. Education should be built upon scientific principles and methods to meet the existing needs, otherwise, it is futile and even in some cases, it may cause the organization’s

capital to be swerved.² The word “improvement” defines formal education, job experiences, relationships, and personality assessments as well as the abilities that help employees prepare for the future. Since improvement is inherently a prospective entity, it embraces some types of learning practices that are not necessarily related to the current job of employees. Traditionally, while education has emphasized the strengthening of employees’ performance in the current job, improvement prepares them for the enterprise of other posts in the organization. Education emphasizes the improvement of employees’ performance in their current jobs.³ Human resource improvement includes programs, systems, and activities designed to improve the performance of employees in the organization and its most important goal is to eliminate the current problems of employees and to prevent future problems. Both education and improvement programs

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are a framework that helps employees develop their knowledge, abilities, and professional skills.⁴⁻⁸

Rural health workers working in the health system of the country, count the first category of human resources at the forefront of providing health care in rural and urban regions; attending two-year theoretical and practical training courses that they are ready to start the job in their hometown.⁹ The average population covered by each rural health clinic is 1500. The main task of the rural health clinic is to provide primary health care to the under-coverage population. the constant relationship with the people, accurate recording of health information, and continuous supervision on rural health clinic activities are the main optimal responsibilities of rural health clinics.¹⁰ Since the needs of society are constantly changing, human resources education is found to be crucial. On the other hand, the resources available in the health sector, especially those related to education and improvement are limited; therefore, determining the priority for planning and implementing the required educational courses based on the officials, managers, and health-care providers' approval in Hormozgan province is necessary.

Hatami has presented a model for improving the quality of education and improvement of employees in a case study in Central Headquarter of the Ministry of Health and Medical Education. The results of data analysis indicate 18 general categories within the framework of the paradigm model includes causal conditions (learning culture, organizational commitment, motivational factors, and appropriate communication), phenomenon-centered process (the quality of education and improvement), strategies (future programs of the organization, creating a career path, group-organizational learning strategy, using existing capacities and tracking qualitative educational process), interventional conditions (organizational factors, human factors, underlying conditions (standardization of education, available resources, appropriate organizational culture and atmosphere, and organizational education management (the consequences) organizational and individual outcomes.¹¹

Bigdeli et al identified the dimensions and components of human resource improvement in education to draw on a conceptual model. The results showed that the current situation of human resource improvement programs in the dimensions of "moral" improvement, "social-cultural" and "individual" dimensions had relative satisfaction, but "organizational", "professional" and "educational" dimensions were lower than the average.¹² Javadi et al designed a model for improving the quality of assistance education to implement the health system reform plan in medical science education. The results of data analysis in the form of the obtained model include underlying conditions (treatment load), causal conditions (clinical education) and interfering conditions (process supervision), strategies (standardization of education, quality of education, professional ethics, preserving human

dignity and comprehensive review of the reform plan before implementation), the consequences of improving the quality of assistant education (reduction in the clinical workload of teacher and assistant, creating motivation in assistants, reducing medical errors, increasing the time of assistants' education, increasing supervision on both teacher and assistant); it shows that the quality and quantity of education in universities of medical sciences will have a positive effect on both the alternatives for treating patients and individuals' health.¹³

Since there has been no research conducted on comparing the current situation with the desired situation of quality of education and improvement of rural health workers in the context of Hormozgan province on one hand, and no research has so far been conducted on the quality of education and improvement of rural health workers in this province on other hand, the researchers attempt to conduct a scientific study with a prospective toward planning and allocating the available resources. Also, improving the quality of education and improvement of health workers in Hormozgan province is essential and the lack of any study in this context indicates the novelty aspect of this research. Therefore, the results of this study can significantly help the Ministry of Health in the way of education and welfare of rural health workers working in rural health clinics and even in the most remote parts of the country.

Materials and Methods

Participants

The convenience sample included 1031 rural health workers of Hormozgan province. To collect the samples, researchers used categorization sampling where the sample size for each center was determined in proportion to the number of health workers. To select health workers in each center, they were first divided into two classes of men and women, and given the gender random sampling method, 280 individuals were determined based on Cochran's formula.

Instrument

The current study used a questionnaire presented here.

Questionnaire

The current study used a researcher-made questionnaire, obtained from the qualitative analysis section with a fuzzy Delphi approach according to the analysis of experts' opinions.

To investigate participants' ideas on the effectiveness of education, the researchers utilized a self-made questionnaire designed by the authors of the current study considering the literature review and objectives of the study: The questionnaire consisted of two dimensions, 7 components, and 80 questions. The including (80) statements are rated on a 5-point Likert scale ranging from 5 (strongly agree) to 1 (strongly disagree). To design the

questionnaire, the researchers followed some steps. First, they conducted a meticulous examination of the relevant education literature. In this phase, after a comprehensive literature review, a series of semi-structured interviews were conducted with experts in the field to see whether the variables extracted from the literature could be confirmed by the interviewees, and to find out whether the interviewees could state other important variables which might relate to the newly designed questionnaire. These steps brought about the construction of half of the items by the researchers. The items were given to several domain experts to assess their redundancy, face validity, content validity, and education in general. To increase the validity and reliability of the items, they were also pilot tested with a population close to that in the study. The feedback helped the researchers to make some revisions such as modifying some questions and adding some instructions. Finally, the researchers ended up with a draft version of 80 items. Cronbach's alpha test was performed to indicate the level of reliability. The overall Cronbach's alpha was 0.89 which indicated good internal consistency of the questionnaire.

Given the sample size of the research based on the structural equation model, 320 questionnaires were distributed electronically among participants. Since some of the participants did not respond to the questions, finally only 300 accepted questionnaires were collected and data were analyzed quantitatively.

Semi-structured interview

Semi-structured interviews and open-ended questionnaires were used for qualitative data collection. The semi-structured interviews were conducted using open-ended questionnaires following the study objectives. The interviews were conducted with five experts to extract reliable data. Questionnaires and the interviews were performed in Persian to foster the validity of the collected data and to avoid participants' possible misunderstanding or failing to express their full opinions because of their limited English proficiency.

Results

To study and compare the current situation with the desired

situation of the quality of education and improvement of rural health workers in Hormozgan province, the mean comparison test has been used. Then, using the structural equation model and Amos software, the current situation was described.

Tables 1 and 2 indicate that the maximum gap between the current and favorable situation for the variables of information and communication technology (ICT) improvement is equal to 2.0833 and the lowest gap between the variables of learning and transfer of education is equal to 1.2807, given the significance level value less than 0.05, there is a significant difference between the current situation and the desired situation among all components. Since the upper and lower bounds are negative for all components, it can be said that the average of the second group (optimal status) is higher than that of the first group (current status). As mentioned, the structural equation model has been used to examine the current situation.

In theorizing the evolution and improvement of the theory and benefit from new technology needs to be emphasized. In this process, increasing complexity in experimental and observation techniques has emerged and modern advanced statistical methods have been shaped. Although in basic statistics, the causal relationship between an independent variable and a dependent variable is identified, in the field of advanced statistics, evaluation of more than one independent variable requires advanced statistical techniques.

The findings of Table 3 show that the highest standardized coefficient for the dimension of education in the current situation is related to the variable of learning and transfer of education with a coefficient of 0.953. In terms of improvement, the highest standardized coefficient in the current situation is related to the variable of systemic and ethical improvement of the workplace, which is equal to 0.966 and the lowest standardized coefficient is related to the variable of ICT improvement and equal to 0.828.

Table 4 shows the standard factor load and significance coefficients of the questions. They show that the questions have an appropriate factor load and their significance coefficients are also significant. Cronbach's alpha values are also calculated for each variable, all of which are higher than 0.7, confirming the reliability of the questionnaire.

Table 1. Comparing the mean of the current situation and desirable components of qualitative improvement of education and improvement

Variable	Mean difference	SD	Mean standard error	95% Confidence interval		T-statistic	df	P value
				Lower bound	Upper bound			
Design and implementation of education	-1.497	1.21610	0.07021	-1.63517	-1.35883	-021.321	299	0.0001
Learning and education transfer	-1.2807	1.08461	0.06262	-1.40393	-1.15747	-20.452	299	0.0001
Improving interpersonal and functional relationships	-1.36667	1.22866	0.07094	-1.50626	-1.22707	-19.266	299	0.0001
Socio-cultural and professional improvement	-1.46556	1.36374	0.7874	-1.62050	-1.31061	-18.614	299	0.0001
Systemic and ethical improvement of the workplace	-1.57521	1.34273	0.7752	-1.72777	-1.42265	-20.319	299	0.0001
International Improvement	-1.89250	1.61304	0.9313	-2.07577	-1.70923	-20.321	299	0.0001
Improving information and communication technology	-2.08833	1.75355	0.10124	-2.28757	-1.88910	-20.627	299	0.0001

Table 2. Rural health workers current and desirable situation and the components of quality improvement of education and improvement of

Variables	Current situation mean	Desirable condition mean
Design and implementation of education	4.4380	5.9350
Learning and education transfer	4.7881	6.0688
Improving interpersonal and functional relationships	4.6524	6.0191
Socio-cultural and professional improvement	4.6389	6.1044
Systemic and ethical improvement of the workplace	4.5198	6.0950
International Improvement	4.1758	6.0683
Improving information and communication technology	3.9892	6.0775

Table 3. Confirmatory factor analysis of the qualitative improvement model of rural health workers' education and improvement in the current situation

Dimension	Component	Standard factor load	t-value	Cronbach alpha
Education	Design and implementation of education	0.854		0.940
	Learning and education transfer	0.953	22.0670	0.957
Improvement	Improving interpersonal and functional relationships	0.916		0.955
	Systemic and ethical improvement of the workplace	0.966	32.664	0.951
	International Improvement	0.853	22.535	0.931
	Improving information and communication technology	0.828	21.065	0.953

The findings of Figure 1 show the existing gap between the current and favorable situation of the components of quality improvement of education and improvement of rural health workers in Hormozgan province. The highest standardized coefficient in the dimension of education in the desired situation was related to the variables of learning and transfer of education with a coefficient of 0.971. In the improvement dimension, the highest standardized coefficient in the desired situation is related to the variables of interpersonal and functional relation improvement, which is equal to 0.978 and the lowest standardized coefficient is related to the variables of ICT improvement, which is equal to 0.956.

Discussion

Drawing on the analysis of the study, the results revealed a difference between the current and the desired situation

Table 4. Confirmatory factor analysis of the qualitative improvement model of rural health workers' education and improvement in favorable condition

Dimension	Component	Standard factor load	T-value	Cronbach alpha
Education	Design and implementation of education	0.936		0.947
	Learning and education transfer	0.971	37.883	0.985
	Improving interpersonal and functional relationships	0.978		0.981
Improvement	Socio-cultural and professional improvement	0.975	55.082	0.968
	Systemic and ethical improvement of the workplace	0.972	53.572	0.979
	International Improvement	0.957	46.282	0.957
	Improving information and communication technology	0.956	46.24	0.967

between all components, it is also found that the average of the second group (optimal status) is higher than that of the first group (current status) (Tables 1 and 2) and the biggest gap between the current and the desired situation are for the variables of information and communication technology improvement. The highest standardized coefficient for the dimension of education in the current situation belongs to learning and transfer of education and in terms of improvement, the highest standardized coefficient in the current situation goes towards the systemic and ethical improvement of the workplace indicating a small gap between the variables of systemic improvement and workplace ethics (Table 3). According to the findings of Table 4, the standard factor load and significance coefficients of the questions are revealed. The results of evaluating the current status of education and improvement of health workers showed that the improvement of information and communication technology has the largest gap with the desired situation, which is in line with the results of Hatami, Javadi et al and Melo.^{11,13,14}

Conclusion

The results of this study showed that there was a difference between the current and the desired situation among all components and the existence of the highest gap between the current and desirable situation for the variables of ICT improvement. Also, the least gap belonged to the systemic and ethical improvement variables in the workplace. The results of the analysis of the current situation of education and improvement of rural health workers showed that

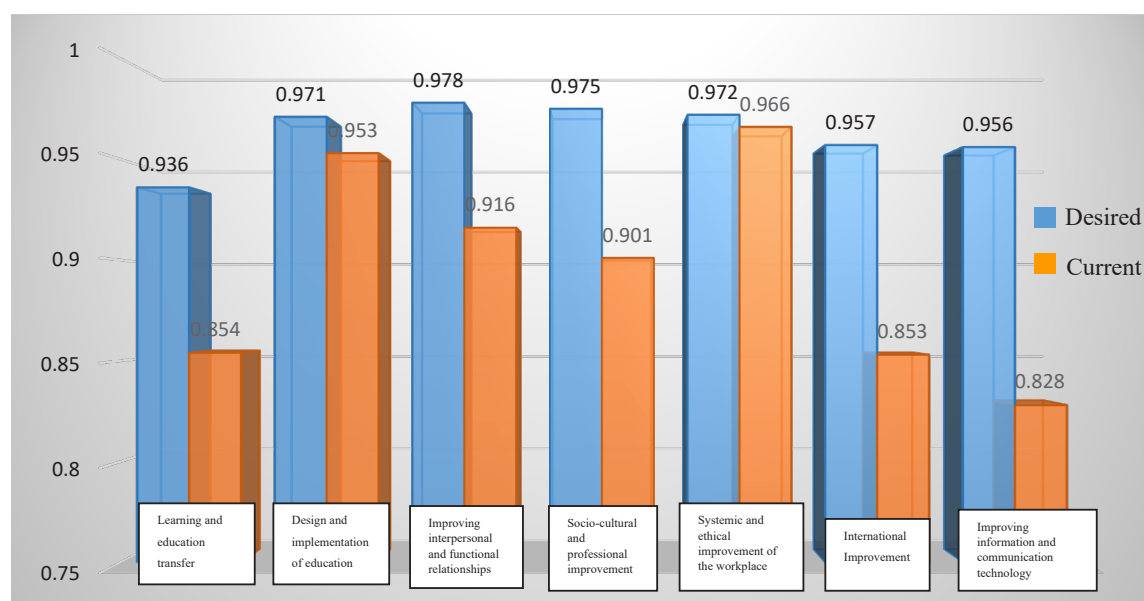


Figure 1. Bar charts of factor loads in both current and desired situations.

the ICT improvement was in the most favorable situation which is in line with the results of Hatami, Javadi et al and Melo.^{11,13,14} Those studies, show a statistically significant difference between the current and desirable level of employee improvement and the gap between the current and desired situation is evident. Also, most of the employee improvement programs are scattered and incoherent. According to the findings of this study, globalization, information, and communication technology are the necessary factors in the improvement of human resources. Globalization affects the development of human resources in the organization and results in a competition between organizations and businesses with competitors in the local, national, and international arenas. Health organizations need to achieve competitive advantages in their path of sustainability and success, and having skilled human capital, especially rural health workers is the most important factor in achieving competitive excellence.

This study revealed that there was the highest gap between the current and desirable situations for the improvement variable of ICT. However, community health administrators should develop their human resources along with the advancement of technology, keeping continuous education on track and provide the possibility of effective employment of modern technologies, especially for rural health workers. Modern ICT requires technical and specialized knowledge that can be achieved with in-service training courses for rural health workers. The results of the current situation of rural health workers' education and improvement evaluation also showed that learning and transferring education in the education dimension had the lowest gap with the desired situation. In explaining the lowest gap between learning variables and education transfer, education transfer is considered as one of the most important issues in the education and improvement context. Transfer of education is defined

as acquiring information, skills, and attitudes from the educational context and applying them to the work environment. During this process, knowledge acquired from the educational context is applied to the work context within which the accomplishment of the training programs and behavioral changes occur. Seemingly, the phenomenon of transfer of education happens more due to the fact that rural health workers should make use of what they have learned directly for treatment uses during in-service training courses. What rural health workers learned is practically used in clinical and hospital services and it is worth noting that their clinical professional activities are closely related to the application of their in-service training courses. This finding is consistent with the study of Shams and Abbasi Kesani that attempted to evaluate the transfer of education to the workplace among teachers of the human sciences desirable in Tehran high school.²

Based on the obtained results, the following points are suggested:

- Instructors of in-service training courses consider the active role of rural health workers toward learning to increase motivation and learning transfer
- Using in-service training instructors familiar with modern information and communication technologies
- Using modern educational and information technologies in in-service training programs considering the most wide gap between the current and desirable situation for the variable of ICT improvement
- Needs analysis of the rural health workers toward education and improvement
- Holding survey and polling sessions for rural health workers to find the necessary and practical courses
- Increasing the classroom- training facilities including

- computers, video projectors, etc.
- Paying close attention to resources, facilities and limitations, considering training courses appropriate with them increasing budget and credits for implementing effective training courses for rural health workers
- Using up-to-date content tailored to rural health workers' needs and expertise in training courses

Ethical approval

The current study was approved by the Ethics Committee of the Hormozgan University of Medical Sciences 1398.362. Besides, participants were assured that the collected data will be used only for research, and the name of the participants would be kept confidential.

Competing interests

The corresponding author declares that there are no competing interests to be expressed on behalf of the authors.

Authors' contributions

BS contributed to the study design, data collection, and manuscript drafting. NGG and PJ contributed to the study design data analysis, interpretation and study revision. MB has supervised and managed and edited the entire article

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References

1. Jaafarifar Z, Khorasani A, Rezaeizadeh M. Identifying and ranking teachers' barriers in a virtual human resource development environment. *Journal of Training and Development of Human Resources*. 2017;4(12):53-78. [Persian].
2. Shams GH, Abbasi Kesani H. Pathology of human resource training and improvement activities based on the three-pronged model (Case study: Fajr Electronic Industries). *Training and Development of Human Resources*. 2015;2(7):71-100. [Persian].
3. Moghadasi J, Mohammadkhani K, Mohammaddavoudi A. Compare current and desired status dimensions and components of staff development in higher educational system of Iran (case of study: Islamic Azad University). *The Journal of Modern Thoughts in Education*. 2017;12(3):63-81. [Persian].
4. Motaghed Larijani Z, Vakili MM, Gofranipour F, Mirmohammadkhani M. Effects of health education program on Behvarz's interpersonal communication skills in Semnan University of Medical Sciences. *Koomesh*. 2015;16(2):229-38. [Persian].
5. Noe RA. *Employee Training and Development*. New York: McGraw Hill; 2008.
6. McNamara C. *Employee Training and Development: Reasons and Benefits*. New York: Authenticity Consulting, LLC; 2008.
7. Buckley R, Caple J. *The Theory and Practice of Training*. 5th ed. London: Kogan Page; 2004.
8. Armstrong M. *Armstrong's Handbook of Human Resource Management Practice*. 11th ed. London: Kogan Page; 2009.
9. Asgari H, Kheirmand M. Needs assessment on management and health economics from the perspective of the health network administrators and experts: a comprehensive needs assessment study. *Management Strategies in Health System*. 2017;2(3):193-200. [Persian].
10. Asadpour M. "Network System in the Iranian Health Services System". Member of the Faculty of Social Medicine, Rafsanjan University of Medical Sciences and Health Services. Orientation workshop for medical students. 2015. Available from: http://rums.ac.ir/uploads/1_28_PHC6.ppt.
11. Hatami Z. Presenting a model for improving the quality of staff training and improvement (Case: Central Headquarters of the Ministry of Health, Treatment and Medical Education). *Education in Law Enforcement Sciences*. 2018;25(23):81-100. [Persian].
12. Bigdeli M, Davoudi R, Kamali N, Entesar Fomani G. Identifying the dimensions and components of human resource improvement in education for proposing a conceptual model. *Journal of Research in Human Resources Management*. 2018;10(2):73-100. [Persian].
13. Javadi Z, Arasteh H, Abbasian H, Abdollahi B. Designing a model to improve the quality of residents' education in implementing the Health System Transformation Plan. *Res Med Educ*. 2020;12(1):24-35. doi: 10.29252/rme.12.1.24. [Persian].
14. Melo S. The role of place on healthcare quality improvement: a qualitative case study of a teaching hospital. *Soc Sci Med*. 2018;202:136-42. doi: 10.1016/j.socscimed.2018.03.003.