

Making Questionnaire for Studying Barriers of Utilizing the Scientific Evidence in Health Care System in Islamic Republic of Iran from the View point of Decision Makers

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ABSTRACT

Introduction: Inappropriate utilization of scientific evidence in health systems has led to a motivation for designing different studies by various stakeholders to identify the dimensions of this problem and the proper solution for them. In health system of Islamic republic of Iran, among the most important stakeholders are senior and middle managers whose opinions about barriers of utilization of scientific evidence can be studied by questionnaire. This study has been done to make this questionnaire and find items and sub scales with appropriate content validity. **Methods:** Delphi method was used in three rounds among 10 experts in the fields related to health management in the universities that had the greatest research on health system, knowledge transfer and barriers to use of scientific evidence. The basic scientific content of the questioned items was WHO report table in 2004 entitled "Knowledge for better health". **Results:** 75 items were obtained in 13 sub scales of which 73 items and 11 sub scales were changed or they were new. The sub scales were Health-care system, practice, educational, social and political environments, care providers, patients and their attendants, country health system, medical council and forensic medicine, research environment, economic environment, insurance and payment system and information infrastructures. **Conclusion:** 2 items and five subscales of the main items listed in the table of the World Health Organization remained unchanged, 21 items and 5 subscales were changed and 52 items and 6 subscales were added. All subscales in BARRIER questionnaire have equivalents in the table obtained from our study except the subscale of the quality of research indicating the problems of scientific evidence.

Introduction

Several studies have shown that scientific evidence in health systems were not well used, so that even in developed countries, about 30 to 50 percent of patients do not receive the best evidence-based interventions.¹ To understand the situation and review its causes, several studies have been conducted. Although several strategies have been developed for using the best scientific evidence on the health system, the first and most important step for using these methods and choosing the best strategy is the study of barriers for using research evidence in context in which we want to change the situation.^{2,3} To identify the barriers to the use of scientific evidence, a variety of study designs have been used, such as questionnaires, qualitative studies, focus group discussions BARRIER questionnaire was used to review the barriers to the use of scientific evidence among nurses, which was used in several

countries including Iran.^{3,4} A study in Tehran University of medical sciences has reviewed the barriers to research utilization in the health system decision-making.⁵ Also, the studies of John N. Lavis et al have reviewed bridging the gap between policy, research and patient care, in ten countries including Iran.^{6,9} In a report from the World Health Organization in 2004 entitled "Knowledge for Better Health" the potential barriers to uptake of evidence by health professionals has been summarize.¹⁰ However, none of the studies have asked the opinions of the middle and senior managers about the barriers to utilization of scientific evidence in the health system in Iran. The study at Tehran University of medical sciences only dealt with conducted studies in the country.⁵ The other studies have been carried out in other countries or they have studied the specific domains of the health system. Adaptation of few studies examining the different aspects of the health system to the current situation in Iran and the Iranian health

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managers, like World health report, was not specified.¹⁰ Thus, we have decided to conduct a comprehensive study on reviewing barriers to the use of scientific evidence in the Iranian health system regarding the opinions of the health system decision-makers. The results of this study could help policy maker and education planners in order to develop infrastructures and competencies to better decision making in health care.

Materials and methods

The researchers decided to design a questionnaire to review the opinions of decision makers in the health system. So, suitable content had to be prepared for questions. First, the review of literature was done and it was found that the table of World Health Organization was the most comprehensive one but its content adaptation with Iran's situation was not identified. Delphi method was used to adapt the table and obtain the proper sub scales and Items suitable for Iran. Delphi method is used in case there is the absence of previous data and research on the subject is too complex or extensive.¹¹ The researchers needed to select at least 10 experts from all over the country. The selection criteria included the faculty members in community medicine, epidemiology and management of health services in state universities of medical sciences who had at least one study on the health system of Iran. We got the resumes of faculty members through the site of the universities in most cases. Some resumes in Tehran and Isfahan medical sciences universities were incomplete which were completed by contacting with them through the telephone. Then the participants were classified in a table including their names, fields of study, universities, numbers of the studies on the health system, a number of studies on the knowledge transfer and research on the barriers to the use of scientific evidence. Those who had more researches on barriers to knowledge transfer and use of scientific evidence in each sector of health system have been in priority. The more researches they did, the more scores they got. We got in touch with the individuals. If they had not wished to participate or been accessible, they would have been replaced by the others in the ranking. Finally, fifteen faculty members were selected from Tehran, Shahid Beheshti, Tabriz, Isfahan, Mashhad, Kerman and Ahvaz medical sciences universities. Then, a checklist was prepared according to the World Health Organization proposed table (Table 1) in which, initially, the abstract of the research and its references were mentioned. We explained to the participants that the purpose of the study was to obtain the barriers to the use of scientific evidence in health systems of Islamic Republic of Iran that by using the mentioned table and adapting it to the current situation in Iran through a Delphi study, we wished to achieve this goal and it would be used for preparing a questionnaire entitled the barriers to the use of scientific evidence in health system of the Islamic Republic of Iran for the senior and middle managers. Then, the sub scales and items were written based on the table. Some closed questions, their complete confirm or lack of change, complete rejection or excluding and some semi-opened questions, some changes accompanied with the reasons, and the changed form of the items were considered for each item. In each sub scale, it was asked an open question to know that if a new item was needed. So, if the expert had felt a need

to add a new item to the sub scale, he would have been allowed to do it. Also, at the end, it was asked that if some new sub scales and items were needed or not, so that it was possible to add a complete sub scale with new items.

Original text was sent to the experts. Sending and receiving the questions were done through conventional mail, e-mail, fax or in person. The opinions of the each expert on the items, each item change, excluding any item or adding new item or sub-scale were asked through the mentioned ways. After receiving the answers, they were summarized and then were resent with necessary explanations. The items and sub-scales verified by two-thirds of the participants were considered as definite ones and were listed in the final list and were not questioned again. Only closed questions were asked in the second and third rounds. This cycle continued for three times, thus the final list of items and subscales was prepared. The criteria for the few disagreed items, was the decision of the authors. Thus, the items and the sub-scales were provided.

Results

In the first round, all the 15 participants took part in the study. 5 sub-scales and one item were confirmed definitely in the first round. 47 items changed into 23 items in the original table, and 63 new items were suggested. Also, two sub-scales were changed and 6 new ones were proposed. The total of these formed the basis of the second round of Delphi. At the end of the second round, one of the experts, in the comments section, stated that: "Overall ... I think that the mentioned items are more suitable for our situation than the version of the World Health Organization". It was suggested that we divide the study into some parts or exclude the sub-scales and use only the items which were against the framework of the study.

In the second round, 3 participants were excluded from the study and 12 were left. Like most Delphi studies, the highest agreement was obtained in this round. Remaining of eight subscales and 68 items and excluding nine other items were confirmed.

11 items were not agreed completely and have become the basis for the third round of Delphi. In the third round, 2 others were excluded and 10 were left. 4 out of 11 items were verified, but none of the items were excluded definitely. Of the 7 items, 2 were excluded and 5 were left in the final list considering the collected opinions in the three rounds and the authors of paper. Finally, the obtained parameters were shown in the table 2.

Discussion

2 items and five subscales of the main items listed in the table of the World Health Organization remained unchanged, 21 items and 5 subscales were changed and 52 items and 6 subscales were added.

Studies based on BARRIER questionnaire are related to the nurses. The questionnaire consisting of 25 items and four subscales was prepared in 1991. The four subscales include the presentation and accessibility of the research, quality of research, the nurse's research values, skills, and awareness and setting, barriers and limitations. The reliability of the questionnaire was verified but its validity is still questioned.³ A modified form of the questionnaire

Table1. Potential barriers to uptake of evidence by health professionals taken from table 4.2 of world health organization.

| Barriers may exist in the | |
|----------------------------------|--------------------------------------------------------------------------------------------------------|
| Healthcare system | |
| <input type="checkbox"/> | Lack of financial resources |
| <input type="checkbox"/> | Inappropriate financial incentives |
| <input type="checkbox"/> | Inadequate human resources (quantity and quality) |
| <input type="checkbox"/> | Lack of access to care |
| <input type="checkbox"/> | Health policies that fail to promote cost-effective interventions or advocate unproven activities |
| <input type="checkbox"/> | Failure to provide practitioners with access to appropriate information |
| Practice environment | |
| <input type="checkbox"/> | Limitations of time |
| <input type="checkbox"/> | Poor practice organization, for example, there may be a lack of |
| <input type="checkbox"/> | disease registers or mechanisms to monitor repeat prescribing |
| Educational environment | |
| <input type="checkbox"/> | Failure of curricula to reflect research evidence |
| <input type="checkbox"/> | Inappropriate continuing education and failure to link up with |
| <input type="checkbox"/> | programmes to promote quality of care |
| <input type="checkbox"/> | Lack of incentives to participate in effective educational activities |
| <input type="checkbox"/> | Influence of commercial interests may bias educational activities |
| Social environment | |
| <input type="checkbox"/> | Influence of media may create inappropriate demands/beliefs |
| <input type="checkbox"/> | Influence of social fads and trends |
| <input type="checkbox"/> | Impact of disadvantage on patients' access to care, literacy and health behavior |
| Political environment | |
| <input type="checkbox"/> | Ideological beliefs may be inconsistent with research evidence |
| <input type="checkbox"/> | Political corruption |
| <input type="checkbox"/> | Short-term thinking may dominate |
| Practitioner | |
| <input type="checkbox"/> | Obsolete knowledge |
| <input type="checkbox"/> | Influence of opinion leaders may go against research evidence |
| <input type="checkbox"/> | Beliefs and attitudes (for example, these may be related to previous adverse experience of innovation) |

is used in Iran.^{12,4}All subscales in BARRIER questionnaire have equivalents in the table obtained from our study except the subscale of the quality of research indicating the problems of scientific evidence which was not found in our study. This subscale includes items such as the irrelevancy of study with practical work, and inability to generalize the results to the working environment and the sense of having slight beneficial effect of the study on changing and revising. This questionnaire does not have the universality of the other parts of the present study questionnaire and its target group is completely different from the target group of the present questionnaire who are the top and middle managers.

The other related questionnaire was taken from John N. Lavis et al study. These studies have been conducted in 10 countries with a low to moderate capita income about fourth Millennium goal. Using the designed questionnaire, it examines the barriers and facilitators of the activities of the three fields of policy, research, health care in two groups of health care providers and researchers. The barriers and facilitators have been defined in terms of knowledge translation theory. As it is noted, this study is different from other studies in terms of the field of study, target group and objectives.^{6,9}

In the study on determining the level of utilizing from the results of research projects in deputy of management development and resources of the Ministry of Health in Iran, the total of utilizing from the projects was low in the reviewed projects despite the fact that the projects had the high level of utilizing. More than 70 percent of

the projects face with the management problems in any way. Of these, 53 percent of the projects have faced with barriers due to the changes in management or approaches and management priorities.¹⁵

A qualitative study was conducted on utilizing the researches for decision making in health system through 10 deep personal interview, and 6 focus group discussions with managers in two groups of researchers and service providers. Equivalent items can be seen in the mentioned study and the present study, such as poor quality of some researches, wrong promotion criteria of faculty members, lack of research needs and priorities, less comprehensive scope of health policy makers, frequent change of managers and etc. But the aim of this study was not to make the contents of the questionnaire, it only examined the barriers in the theoretical framework for knowledge transfer and focused only on the domestic studies and its objectives were different from the present study.⁵

If we had allocated much longer time to our study, we would have conducted it only with primary open question without using the original text, i.e., the World Health Organization table. This table was the most comprehensive scientific evidence to begin the research. It was also possible that if there had been sufficient time and funds, more people would have participated in the study and the number of rounds would have been infinite. However, considering the limited time, at least 10 people and 3 rounds were theoretically acceptable. The number of the participants was higher after the second round and a few of the options were given to the authors. Another problem was that there

Table 2. Barriers to the utilization of scientific evidence in Islamic Republic of Iran

| Healthcare system | |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> | Lack of financial resources |
| <input type="checkbox"/> | Inappropriate financial provision |
| <input type="checkbox"/> | Inadequate human resources (quantity and quality) |
| <input type="checkbox"/> | Lack of access to appropriate care |
| <input type="checkbox"/> | Poor stewardship |
| <input type="checkbox"/> | Failure to provide access to appropriate information for physicians working in health care system |
| <input type="checkbox"/> | Unfamiliarity of the professionals with the use of scientific evidence |
| <input type="checkbox"/> | Routines and lack of a clear policy |
| <input type="checkbox"/> | Poor management , lack of managerial perspective |
| <input type="checkbox"/> | Giving priority to doctors and specialists instead of meritocratic |
| <input type="checkbox"/> | Lack of specific scientific principles and frameworks for health policy based on scientific insights |
| <input type="checkbox"/> | Imbalance in the distribution of resources within the health sector |
| <input type="checkbox"/> | Weaknesses in regulatory control mechanisms of the health system such as licensing accreditation inspection |
| <input type="checkbox"/> | Not reflecting the results of the evaluation and control to the people to decide on the appropriate use of health services |
| <input type="checkbox"/> | Weak referral system |
| <input type="checkbox"/> | Fear of change |
| Practice environment | |
| <input type="checkbox"/> | Limitations of time |
| <input type="checkbox"/> | Lack of evidence- based practicing using culture |
| <input type="checkbox"/> | Lack of suitable data registry system |
| <input type="checkbox"/> | Lack of adequate and effective surveillance |
| <input type="checkbox"/> | The traditional practice structure |
| Educational environment | |
| <input type="checkbox"/> | Failure of curricula to reflect research evidence |
| <input type="checkbox"/> | Inappropriate continuing education and failure to link up with programs to promote quality of care |
| <input type="checkbox"/> | Lack of incentives to participate in effective educational activities |
| <input type="checkbox"/> | Influence of commercial interests may bias educational activities |
| <input type="checkbox"/> | Inadequate training of evidence-based medicine |
| <input type="checkbox"/> | Failure of curriculum to provide the skill of using evidence in graduates |
| <input type="checkbox"/> | Lack of CP Guidelines approved by the Ministry of Health |
| <input type="checkbox"/> | Problems related to teachers (out dated, lack of motivation, ...) |
| <input type="checkbox"/> | The traditional learning environment |
| <input type="checkbox"/> | Lack of using the new and active methods of teaching and learning |
| <input type="checkbox"/> | Incompatibility of the course content with the needs and requirements of the country |
| <input type="checkbox"/> | The high volume of texts and course content (very broad topics that prevent the use of student-centered methods) |
| Social environment | |
| <input type="checkbox"/> | Influence of media may create inappropriate demands/beliefs |
| <input type="checkbox"/> | Influence of social fads and trends and custom |
| <input type="checkbox"/> | Impact of disadvantage on patients' access to care, literacy and health behaviors |
| <input type="checkbox"/> | Fostering inappropriate patterns of life, such as poor nutrition (fast food) and poor interpersonal behavior in some media programs |
| <input type="checkbox"/> | Weakness of the media in providing evidence presented in the appropriate time and form to the public |
| Political environment | |
| <input type="checkbox"/> | Health misuse for political purposes. |
| <input type="checkbox"/> | Lack of strategic and prospective perspectives |
| <input type="checkbox"/> | Lack of evidence-based decision making in organizations |
| <input type="checkbox"/> | Lack of supervision and governance system in terms of decision-making processes |
| <input type="checkbox"/> | Confirming and emphasizing the temporary and quick- output programs |
| Practitioner | |
| <input type="checkbox"/> | Obsolete knowledge |
| <input type="checkbox"/> | The Influence of the opinion of leaders may go against research evidence |
| <input type="checkbox"/> | Beliefs and attitudes |
| <input type="checkbox"/> | The lack of skill in the use of evidence-based medicine |
| <input type="checkbox"/> | The lack of using clinical practice guidelines |
| <input type="checkbox"/> | Personal interests conflict with evidence-based decision making |
| <input type="checkbox"/> | Demands induced by the attendants and patients |
| <input type="checkbox"/> | Inadequate skills |

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Table 2. Barriers to the utilization of scientific evidence in Islamic Republic of Iran

| Patient and attendants | |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> | Demands for ineffective care |
| <input type="checkbox"/> | Perceptions or cultural beliefs about appropriate care |
| <input type="checkbox"/> | The lack of health literacy among low socioeconomic classes |
| <input type="checkbox"/> | Induced demand for services by physicians and other providers |
| <input type="checkbox"/> | The lack of trust to service providers |
| Health system in the country | |
| <input type="checkbox"/> | The lack of proper infrastructure |
| <input type="checkbox"/> | The lack of clear policy on health |
| <input type="checkbox"/> | The Influence of the social and political environment |
| <input type="checkbox"/> | Wide and the length of the ministry, and inefficiencies at the same time |
| <input type="checkbox"/> | Frequent changes in the structure of the Ministry |
| <input type="checkbox"/> | Changes in senior university administrators (almost every 4 years) |
| The medical council and legal medicine | |
| <input type="checkbox"/> | No rules about the use of the latest and best evidence for the use of evidence-based medicine in the treatment of patients |
| <input type="checkbox"/> | No legal protection of the physicians in case of using evidence-based medicine in the treatment of patients |
| Research environment | |
| <input type="checkbox"/> | Poor research management |
| <input type="checkbox"/> | Lack of proper research priorities |
| <input type="checkbox"/> | Lack of institutions whose duty must be converting research results into efficient and proper evidence in policy-making processes and providing care, such as HPSR-health policy and system research |
| Economic environment | |
| <input type="checkbox"/> | Small contribution of the government in providing medical expenses |
| <input type="checkbox"/> | Financial competition of physicians |
| Insurance and payment system | |
| <input type="checkbox"/> | Tariffs not based on the needs |
| <input type="checkbox"/> | inefficient insurance system |
| <input type="checkbox"/> | the flawed method of payment |
| <input type="checkbox"/> | inefficiency of health insurance that imposed catastrophic health expenditure |
| Information infrastructure | |
| <input type="checkbox"/> | The lack of electronic file of patient |
| <input type="checkbox"/> | insufficient or problematic access to resources of scientific evidence (online or print) |

were some subscales in the questionnaire whose concepts were close, like healthcare system and health system in the country but looking at the items, one can find out that the health system in the country is broader and refers to macro management. Also, in making questionnaire, you can use appropriate statistical methods in a pilot test to decide about it. All the items in the obtained subscales in this study could be found as barriers to the use of scientific evidence in the health system in several studies. However, our study has shown the barriers for the specific field, namely the health system of the Islamic Republic of Iran and the target group, middle and senior managers, in other words, decision makers in the health system. The next step is to set up the obtained item from a primary questionnaire and then a test and retest must be done. Also, each obtained item represents a major problem in the health system of Iran and it is worth studying different aspects of it through various methods to solve the problem.

Conclusion

2 items and five subscales of the main items listed in the table of the World Health Organization remained unchanged, 21 items and 5 subscales were changed and 52 items and 6 subscales were added. All subscales in BARRIER questionnaire have equivalents in the table obtained from our study except the subscale of the quality of research indicating the problems of scientific evidence

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Ethical issues

Participants' information was kept confidential.

Conflict of interest

The authors declare that there is not any conflict of interest.

References

1. Haines A, Kuruville S, Borchert M. Policy and Practice Bridging the implementation gap between knowledge and action for health. *Bulletin of the World Health Organization* 2004;82(10):724–32.
2. Wensing M, Bosch M, Grol R. Developing and selecting interventions for translating knowledge to action. *CMAJ* 2010;182(2):E85-8
3. Kajermo KN, Bostrom AM, Thompson DS, Hutchinson AM, Estabrooks CA, Wallin L. The BARRIERS scale -- the barriers to research utilization scale: A systematic review. *Implement Sci* 2010; 5: 32.

4. Lai NM, Teng CL, Lee ML. The place and barriers of evidence based practice: knowledge and perceptions of medical, nursing and allied health practitioners in malaysia. *BMC Res Notes* 2010; 3: 279.
5. Yazdizadeh NS, Gholami J, Changizi N ,Yarahmadi Sh, Nasehi MR. [Utilization of Research in Health System Decision Making]. *Hakim Research Journal* 2009;12(2):1- 10.
6. Guindon GE, Lavis JN, Becerra-Posada F, Malek-Afzali H, Shi G, Yesudian CA, et al. Bridging the gaps between research, policy and practice in low- and middle-income countries: a survey of researchers. *CMAJ* 2010;182(9): E350–E361.
7. Guindon GE, Lavis JN, Boupha B, Shi G, Sidibe M, Turdalieva B, et al. Bridging the gaps among research, policy and practice in ten low- and middle-income countries: Development and testing of a questionnaire for health-care providers *Health Res Policy Syst* 2010; 8: 3.
8. Lavis JN, Guindon GE, Cameron D, Boupha B, Dejman M, Osei EJ, et al. Bridging the gaps between research, policy and practice in low- and middle-income countries: a survey of researchers. *CMAJ* 2010;182(9):E350-61.
9. Lavis JN, Lomas J, Hamid M, Sewankambo NK. Assessing country-level efforts to link research to action. *Bull World Health Organ* 2006;84(8):620-8.
10. Organization WHO. *World Report on Knowledge for Better Health: Strengthening Health Systems*.USA: World Health Organization; 2004.
11. Jones J, Hunter D. Consensus methods for medical and health services research. *BMJ* 1995;311(7001):376-80.
12. The BARRIERS to Research Utilization Scale[Internet]. [cited 2013 Jan. 23]. Available from: <http://www.unc.edu/depts/rsc/funk/manuals/overview.pdf>
13. Kermanshahi S, Parvinian AM. [Barriers to Implementation of Evidence-Based Care: Viewpoints of Nursing Staff]. *Iranian Journal of Medical Education* 2012;12(2):84-92.
14. Latifi S, Khalilpour A, Rabiee OL, Amani N. [Barriers to Research Utilization among Clinical Nurses]. *Mazandaran University of Medical Sciences* 2012;22(89):88-95.
15. Ferdosi M, Dehnavi R, Faraji F, Yarmohamadian M, Vatankhah S. [Utilization of Research Results at Office of Deputy Minister for Management and Resources Development and Identification of Obstacles]. *Health Information Management* 2009;6(2):161.