Obstacles to Research in Medical Sciences in Iran

Mahnaz Yadollahi [1,*]; Narges Shamsedini [2]; Ali Poostforooshfard [3]; Sareh Roosta [4]

[1]Trauma Research Center, Shiraz University of Medical Sciences, Shiraz, IR Iran
[2]Student Research Committee, Shiraz University of Medical Sciences, Shiraz, IR Iran
[3]Executive Secretary of Medical Ethics Committee, Vice-Chancellery of Research and Technology, Shiraz University of Medical Sciences, Shiraz, IR Iran
[4]Shiraz University Of medical Sciences, Shiraz, IR Iran

Corresponding Author: Mahnaz Yadollahi, Trauma Research Center, Shiraz University of Medical Sciences, Shiraz, IR Iran. Tel: +98-9173096745, Fax: +98-7112122430, E-mail: yadol-lahim@sums.ac.ir

Background: Investigating the obstacles to research in developing countries can yield valuable outcomes. Thus, the universities that seek global competition and progress should identify and remove the barriers to research to provide the researchers with the opportunity for performing more studies.

Objectives: The purpose of this study was to investigate the obstacles to research and the viewpoints of faculty and nonfaculty members of Shiraz University of Medical Sciences.

Materials and Methods: This study was conducted using two consecutive methods among the researchers of Shiraz University of Medical Sciences. First, a qualitative phase was conducted and followed by a cross-sectional phase using convenience sampling. At the end, 105 questionnaires were filled out in academic year 2011-12. The questions were classified into three areas of management-organizational, financial-equipment, and personal-professional and were ranked from very unimportant to very important by Likert scale. SPSS 17 was used for statistical analysis.

Results: Three areas of management-organizational, financial-equipment, and personal-professional were the main core variables. The findings showed that the problems for performing research were high workload and different expectations of the university from the faculty members and researchers (Mean, 4.63), lack of time due to educational tasks (Mean, 4.31), and lack of funding support (Mean, 4.13). Considering the barriers, the highest and lowest means belonged to financial-equipment (Mean, 3.75 ± 0.65) and personal-professional (Mean, 3.35 ± 0.82) obstacles, respectively.

Conclusions: There were significant problems in different phases of performing a research, which must be identified and solved. Moreover, all the motivations for conducting a useful research should be prepared.

Keywords: Internal Barriers; Research Activities; University; Qualitative Study

1. Background

Research is a necessity for all countries. One of the criteria for evaluating a country's progress is its scientific capacity. Therefore, appropriate conditions should be provided for researchers; however, there are numerous barriers to performing medical research (1-3). Research works are considered as luxury jobs in many low-income countries and researchers have other parallel jobs because of economic problems (4). In developing countries, due to limited access to international journals, lack of funds and facilities, inadequate training, and lack of sufficient proficiency in English language, little attention is drawn to publishing articles and science production (5). The problems of performing research studies are not limited to developing countries and researchers face a lot of problems in developed countries as well (6-9). Evidence suggest that lack of funding and the difficult and protracted steps of receiving funds, even in developed countries, is a major obstacle to research (1). Studies have shown that barriers to scientific research are different in various professions and fields. For example, intensive care unit (ICU) nurses cannot perform research due to different problems (10, 11). Moreover, studies conducted in Shahr-e-kord University of Medical Sciences and Qom University of Medical Sciences in Iran have shown that administrative obligations, lack of research funding, and lack of motivation and skills are the main obstacles to research (12, 13).

2. Objectives

The universities that intend to participate in international competition should identify and resolve the barriers to research and provide the necessary attractions for conducting sound research. This study aimed to identify the barriers to research in Shiraz University of Medical Sciences to promote future researches.

3. Materials and Methods

This study was done using two consecutive methods on the researchers of Shiraz University of Medical Sciences. First, a qualitative study was conducted using face-to-face interview with 22 researchers with professor academic rank who had at least 50 research projects and had performed the largest number of research projects in various fields. This interview was semistructured with open-ended questions. At the beginning of each interview, participants were informed that this study was to find their experiences regarding the research problems. They were also assured about the confidentiality and nondisclosure of the personal information. In addition, verbal consent for recording the interview content was obtained from the participants. Each interview was done in the Office of Research and Technology of Shiraz University of Medical Sciences and lasted for 30 to 50 minutes. Selection of new participants was continued until data saturation, ie, no new or relevant information emerges. The interviews were arranged according to the participants' interests in field and ranged from a day to a month. If the participants felt tired or did not provide further information, the interview was ended and its continuation depended on the participants' interest. Each interview was tape-recorded and field notes were written and reviewed several times after each interview. After the interview, the important segmentation of the data that were related to the participants' experience was specified, the themes were identified and clustered, and the core variables of the most frequent themes were obtained. Using these themes and core variables, we designed a questionnaire containing 37 questions. The first part of the questionnaire contained the demographic information, including age, sex, level of education, faculty position, workplace, field of study, and the number of projects and papers. The second part of the questionnaire included questions, problems, and barriers to research that were classified as very important (score, 5), important (score, 4), modest (score, 3), unimportant (score, 2), and very unimportant (score, 1). The questions were categorized into three areas of management-organizational, financial-equipment, and personal-professional. Management-organizational area included administrative and management barriers. Financial-equipment area involved equipment and economic barriers. Finally, personal-professional area included individual, social, and professional barriers. According to Cronbach's alpha test, the reliability of this questionnaire was 96%. In addition, its face validity was approved by the specialists in this field and the Deputy of Research Affairs. In the second phase of the study, the questionnaire was completed by 105 official and contractual faculty members. Samples were collected from School of Medicine, School of Allied Health, Faculty of Nursing, School of Management, School of Dentistry, Department of Rehabilitation, Faculty of Pharmacy, School of Public Health and Nutrition, Gerash School of Allied Health, and Hazrat-e-Zainab Faculty of Nursing and Midwifery, nonfaculty members, researchers of the research centers with master's degrees, PhD candidates, and residents. According to the previous studies (7), considering the significance level of 0.05, and relative accuracy of 0.012, sample size was calculated at 100 for this cross-sectional study. Furthermore, SPSS (v.17, SPSS Inc., Chicago, IL, USA) was employed for statistical analysis, using descriptive statistics to calculate the frequencies and means of the individual barriers. One-way analysis of variance (ANOVA) and Kruskal-Wallis test were conducted to compare the barriers to research within and between the three main factors. P values below 0.05 were considered as statistically significant.

4. Results

Characteristics of the study population are summarized in Table 1. The study findings showed that the problems for performing research works were high workload and different expectations of the university from the faculty members and researchers (Mean, 4.63), lack of time due to the educational tasks (Mean, 4.31), and lack of funds (Mean, 4.13). Lack of familiarity with writing a research survey (Mean, 2.84) and not having a good research idea (Mean, 2.84) were among the least important problems (Table 2). The most important problems in management-organizational area were high workload as well as different expectations of the university authorities from the faculty members and researchers (mean, 4.62), lack of time due to the educational tasks (Mean, 4.31), and lack of research funds (Mean, 4.01). In addition, the major personal-professional barriers included poor procedural skills (Mean, 4.05), inadequacy of research skills (Mean, 3.67), and lack of familiarity with statistical analysis (Mean, 3.58) (Table 2). Finally, the most important financial-equipment problems were lack of research funds (Mean, 4.13), lack of timely financial support (Mean, 0.05), and lack of the necessary equipment for conducting the research project because of the economic sanctions (Mean, 3.81) (Table 2). According to Table 3, the highest and lowest means were related to financial-equipment (Mean, 3.75) and personal-professional (Mean, 3.35) obstacles, respectively. In this study, 37.1% of the subjects were in the basic sciences group while 41.9% were in the department of clinical sciences. The study results revealed no statistically significant difference between the basic and clinical sciences groups regarding their total mean of problems; however, a significant difference was found between the two groups concerning the financial-equipment problems (P = 0.018). In comparison with clinical faculty members, the basic sciences faculty members had more financial problems; however, no significant difference was observed between the two groups regarding the management-organizational and personal-professional areas. Furthermore, the mean of equipment problems in the basic sciences group and the mean of manage-

ment-organizational problems in the clinical sciences group were higher than the means of two other areas. The study findings showed no significant difference between two groups in terms of the number of published papers and approved projects. Finally, 96.2% of the subjects were educational faculty members and 3.8% were research faculty members; no significant difference was observed between the two groups regarding the mean of problems in any of the areas. In comparison with the means of management-organizational and personal-professional problems, the mean of financial-equipment problems were higher in both groups. Moreover, no significant difference was found between the two groups in terms of the number of published papers and approved projects (Table 3). In this study, no significant difference was detected between male and female participants; furthermore, financial-equipment problems were reported more than the other two areas in both genders. In addition, no significant difference was found between the two groups in terms of the number of published papers and approved projects (Table 3).

As Table 3 shows, a significant correlation was found between the total mean of problems and personal-professional problems and being a faculty member (P < 0.001 and P = 0.007, respectively). The means of the whole problems and the personal problems among the faculty members was higher than those of the nonfaculty ones; however, no significant difference was found between the faculty and nonfaculty members regarding the means of financial-equipment and management-organizational problems. Moreover, no significant association was observed between the problems and academic rank of the faculty members Although no significant association was found between the mean of the whole problems, management-organizational problems, and financial-equipment problems and the participants' education level, the mean of personal-professional problems showed a significant association with the level of education (P = 0.034). In addition, the mean of personal problems was higher among the masters, medical doctors, and residents (Table 3). The findings of the current study revealed no significant differences between the mean scores of those who were and those were not the employees of the research institutes (Table 3). In addition, a significant correlation was observed between the number of the approved projects and the barriers to research in general or in any of the three areas (Table 3). Overall, the number of the approved projects was higher among those with a PhD degree and medical specialist (P < 0.001)

In this study, no direct correlation was observed between the number of the published papers and approved projects and being a faculty member, level of education, academic rank, and being a member of the research centers. According to Table 3, a significant correlation was found between the personal-professional problems and the number of published papers (P = 0.035). Least-square difference (LSD) post-hoc test showed that there were

differences between the participants who had published zero to ten papers compared to those who had published 11 to 20 papers with regard to a larger number of solitary problems. Furthermore, no significant correlation was observed between the number of published papers and the mean of the whole problems, financial-equipment problems, and management-organizational problems.

Table 1. Characteristics of the Study Population (N = 105)

Characteristics	Number of Respondents
Sex, No. (%)	
Female	56 (53.3)
Male	49 (46.7)
Educational Status, No. (%)	
Master	22 (21)
Medical doctor	9 (8.6)
Residency	1 (1)
PhD	22 (21)
Specialty in Medicine, No. (%)	
Fellowship	3 (2.9)
Subspecialty Physician	9 (8.6)
Professional Status, No. (%)	
Faculty	78 (74.3)
Non Faculty	27 (25.7)
Academic Rank, No. (%)	
Instructor	13 (16.7) [a]
Assistant Professor	38 (48.7)
Associate Professor	21 (26.9)
Full Professor	6 (7.7)
Occupational Status, No. (%)	
Full-Time	101 (96.2)
Part-Time	1 (1)
Faculty Member, No. (%)	
Educational	75 (96.2) [b]
Research	3 (3.8)
Educational Group, No. (%)	
Basic Sciences	39 (37.1)
Clinical Sciences	44 (49.1)
Research Setting, No. (%)	
Research Center	19 (18.1)
Others	83 (79)
Published Papers, Median (range)	8 (0-100)
Number of Subjects, No. (%)	
0-10	59 (56.2)
11-20	13 (12.4)
> 20	28 (26.7)
Approved Design, Median (Range)	9 (0-50)
Number of subjects, No. (%)	
0-10	59 (56.2)
11-30	32 (30.5)
> 30	6 (5.7)

[a] Because of missing data, all totals were not 100%.
[b] The percentage is calculated with respect to the entire faculty.

Table 2. The Severity of Problems in Conducting Research From the Perspective of the Study Subjects

Area [a]	Research Problems	Very Unimportant	Unimportant	Moderate	Important	Very Important	Mean
2	Different Expectations of University From Faculty Researchers, and Excessive Hours of Non-Research and Therapeutic Work	**0**	**0**	**6**	**27**	**71**	**4.63**
2	Lack of Time Due to Educational Tasks	0	3	15	33	53	4.31
1	Lack of Funding Support	1	6	15	38	43	4.13
1	Inconformity of The Research Priorities to The Research Ideas	1	7	20	33	42	4.05
3	Poor Spirit and Group Work Skills	3	2	22	37	40	4.05
2	Lack of Managers' Understanding of Research Problems	0	3	23	48	30	4.01
2	Lack Of Collaboration Between Research Centers	3	3	24	35	37	3.98
2	Dissatisfaction with the Process of Evaluation and Promotion Criteria in Research	2	5	21	45	27	3.90
2	Little Attention to the Creative Faculty and Researchers	4	8	20	37	33	3.85
2	Priority on Research Training at The University	4	8	23	32	36	3.85
1	Lack of Access to The Facilities Needed For Research project Due to Economic Sanctions	2	15	21	23	38	3.81
1	Lack of Suitable Space for Reading	2	13	20	35	32	3.80
2	Inappropriate Encourage Researchers	4	7	29	29	34	3.80
1	Insufficient Data Recorded in Medical Research Centers	1	12	25	32	30	3.78
2	Insufficient Competitive Space For Research Projects	2	13	23	33	30	3.75
1	Lack of Access to Equipment Needed For The Research Project Because of logistical Problems	3	9	32	31	28	3.70
3	Insufficient Research Skills	5	9	26	39	25	3.67
3	Lack of familiarity With Statistical Analysis	3	15	29	33	24	3.58
2	Not Coordination of Research Priorities with Research Ideas	3	9	34	41	16	3.56
1	Personal Financial Difficulties and Economic Concerns	4	14	32	28	26	3.56
1	Lack of Access to Studies Done in Country	2	17	29	32	23	3.55
1	Discontent With the Paid Fees	4	10	28	37	16	3.54
2	Lack of Research Needs and Priorities For Health Systems at The College Level	4	14	33	28	25	3.54
1	Lack of Access to Laboratory Equipment	7	11	28	32	23	3.52
3	Lack of skills in writing	7	11	32	30	25	3.52
3	Lack of Adequate and Stable Incentives for Research	6	20	22	31	23	3.44
2	Lack of Collaboration Between Educational and Research Centers	3	21	23	42	14	3.42
2	Problems in Working with Research Assistant Software	4	20	28	31	18	3.39
2	Improper or Inadequate Advice for Writing Manuscript	9	15	27	33	20	3.38
2	Difficulty in published Articles After Completion of the Project	12	12	27	30	22	3.37
3	Lack of Familiarity With Research Studies	7	12	36	34	15	3.37
2	Improper or Inadequate Advice of a Research Proposal	9	19	27	30	19	3.30
2	Scattering Administrative or Consulting Relating to Research	2	25	38	30	8	3.17
3	Lake of Skills in Submitting the Papers	18	15	31	23	18	3.08
3	Getting Bored Because of Personal and Skill Problem	9	30	24	26	13	3.04
3	Lack of Research Ideas	21	22	25	20	14	2.84
3	Lack of Familiarity With the Survey Writing	16	26	30	21	10	2.84

[a] 1) finance equipment; 2) management organizational; 3, personal professional.

Table 3. The Association Between the Barriers to Research and the Respondents' Characteristics

	Total Mean [a]	Personal-Professional[a]	Management-Organizational[a]	Finance-Equipmen[a]	Frequency of Published Articles[b]	Frequency of Approved Project[b]
	3.63 ± 0.52	3.35 ± 0.82	3.72 ± 0.50	3.75 ± 0.65		
Educational Group						
Science Faculty Members	3.62 ± 0.48	3.03 ± 0.85	3.68 ± 0.48	4.09 ± 0.42	12.2 (11.9)	17.4 (19.8)
Clinical Faculty Members	3.58 ± 0.45	3.36 ± 0.64	3.67 ± 0.41	3.63 ± 0.66	12.8 (12.0)	18.3 (21.3)
T Test, P Value	0.780	0.186	0.959	0.018	0.824	0.695
Kind Of Faculty						
Science faculty Members	3.53 ± 0.51	3.12 ± 0.78	3.66 ± 0.50	3.73 ± 0.69	12.5 (11.0)	19.0 (19.3)
Clinical Faculty Members	3.94 ± 0.40	3.87 ± 0.60	3.88 ± 0.33	4.13 ± 0.47	21.7 (2.9)	48.7 (44.5)
Sex						
Females	3.63 ± 0.57	3.30 ± 0.86	3.73 ± 0.53	3.77 ± 0.75	9.9 (9.6)	11.9 (14.6)
Males	3.62 ± 0.45	3.40 ± 0.77	3.69 ± 0.45	3.72 ± 0.52	14.5 (12.4)	21.0 (23.7)
T Test, P Value	0.946	0.516	0.657	0.651	0.049	0.076
Professional Status						
Nonfaculty Members	3.86 ± 0.47	3.92 ± 0.64	3.86 ± 0.47	3.78 ± 0.56	9.2 (11.6)	4.5 (6.9)
Faculty Members	3.55 ± 0.51	3.15 ± 0.78	3.67 ± 0.50	3.74 ± 0.69	12.9 (10.9)	20.2 21.2)
T Test, P Value	0.007	< 0.001	0.079	0.797	0.054	< 0.001
Rank						
Full professor	3.62 ± 0.76	3.20 ± 1.17	3.76 ± 0.49	3.80 ± 0.90		
Associate professor	3.46 ± 0.41	3.14 ± 0.62	3.51 ± 0.44	3.68 ± 0.59	26.4 (10.3)	44.0 (19.9)
Assistant professor	3.55 ± 0.50	3.07 ± 0.76	3.67 ± 0.49	3.83 ± 0.67	17.4 (9.3)	31.9 (18.0)
Teacher of Faculty	3.64 ± 0.61	3.37 ± 0.95	3.86 ± 0.58	3.56 ± 0.80	11.0 (10.1)	14.8 (20.1)
Kruskal-Wallis, P Value	0.647	0.646	0.271	0.511	6.3 (9.3)	6.8 (10.7)
Educational Status						
Master, Professional Doctorate, Residency	3.73 ± 0.47	3.61 ± 0.80	3.86 ± 0.43	3.63 ± 0.66	4.3 (7.4)	5.6 (6.9)
Specialty In medicine and PhD	3.55 ± 0.49	3.21 ± 0.75	3.63 ± 0.50	3.77 ± 0.63	20.0 (20.2)	22.9 (14.6)
Fellowship and subspecialty in medicine	3.51 ± 0.57	3.06 ± 0.89	3.58 ± 0.44	3.86 ± 0.76	32.0 (24.6)	13.7 (10.5)
ANOVA, P value	0.23	0.034	0.072	0.50	< 0.001	< 0.001
Research Setting						
Research Center	3.63 ± 0.54	3.36 ± 0.85	3.74 ± 0.52	3.74 ± 0.67	12.8 (16.40)	10.3 (10.8)
Others	3.55 ± 0.44	3.20 ± 0.61	3.61 ± 0.40	3.80 ± 0.61	33.0 (25.4)	20.1 (9.9)
T Test, P value	0.523	0.355	0.317	0.713	< 0.001	< 0.001
Frequency of published articles						
0-10	3.70 ± 0.52	3.50 ± 0.79	3.77 ± 0.51	3.78 ± 0.72	-	-
11-20	3.48 ± 0.26	2.93 ± 0.54	3.67 ± 0.33	3.76 ± 0.43	-	-
> 20	3.57 ± 0.56	3.19 ± 0.88	3.63 ± 0.5	3.73 ± 0.62	-	-
ANOVA, P value	0.214	0.035	0.356	0.975	-	-
Frequency of approved projects						
0-10	3.60 ± 0.53	3.37 ± 0.83	3.68 ± 0.52	3.71 ± 0.09	-	-
11-30	3.62 ± 0.49	3.26 ± 0.80	3.75 ± 0.44	3.77 ± 0.10	-	-
> 30	3.66 ± 0.55	3.38 ± 1.03	3.69 ± 0.52	3.91 ± 0.16	-	-
Kruskal-wallis, P value	0.971	0.892	0.871	0.934	-	-

[a] Data are presented as mean standard deviation.
[b] Data are presented as No. (%).

5. Discussion

According to the findings of the current study, most of the problems in this university were high workload, different expectations of the university from the faculty members, excessive clinical working, and lack of full-time or part-time researcher, lack of timely financial support, lack of time due to the educational tasks, and lack of funds. These problems were identified in management-organizational and financial-equipment areas. Considering the number of the faculty members, Shiraz University of Medical Sciences with 701 faculty members has been ranked the fifth among the Iranian medical sciences universities (14). Among these faculty members, only 28 were involved in research works along with teaching and most of their time was devoted to instruction and treatment; in this regard, lack of time for research can be justified (15). Although lack of motivation was revealed to be important in other research studies (16, 17), it was not that important in our study.

Equipment problems and lack of resources and research facilities have been mentioned as barriers to research in several studies (5, 6, 18). In this study, in comparison to the clinical faculty members, the basic sciences academic staff mentioned financial-equipment problems more prominently as they require more expensive primary materials to perform laboratory researches. These results can be justified by the economic sanctions and financial barriers in developing countries (6-19). According to a study in Tehran in 2007, the basic problems in research were insufficient funds, data and equipment preparation, being time-consuming and lengthy administrative procedures (3). Another study in Qom University of Medical Sciences in 2004-2008 showed the basic obstacles to research to be administrative commitments and lack of motivation, funds, and interpersonal skills (12). Different studies have shown that the quality and quantity of research activities are different in various levels and different fields of work. For example, ICU nurses had performed fewer studies in a report from east Turkey (11). Moreover, lack of enough time to process the idea of research has been stated as the most important problem of research (20). In this study, no significant difference was observed between the educational and research faculty members regarding their mean of problems in each area. Furthermore, the mean of financial-equipment problems was higher than that of management-organizational in both groups.

The results of this study showed that in comparison to the other areas, the mean of management-organizational problems was higher in the clinical sciences group. Given the dependence of medical research on the universities for getting their search grant and recording the ideas, management, institutional, and administrative barriers can be justified. Lack of adequate administrators' support of the researchers and institutional barriers are among the issues addressed in the previous studies (18, 21). In some studies, the management-organizational

problems were more important than the devoted time for research (22). Lack of personal skills, such as familiarity with statistical analysis and ideas of research and familiarity with the studies and research questionnaires were the least important barrier in this study; however, these problems were highlighted among the nonacademic staff and those who had fewer papers, which was in agreement with other studies conducted on the issue (2, 23). Although lack of motivation was among the least important problems of this research, it played a key role in Saudi students for not performing any research (15). Although previous studies reported that females faced more problems in academic promotion (18, 24), the present study's findings revealed no significant difference between females and males in that regard; furthermore, no differences were found between the two groups concerning their research level. Yet academic rank had no effect on the extent of the problems. Moreover, in this study, just the obstacles inside the university were considered while most of the problems may result from the external barriers, political management, and economic sanctions. These results indicated that a spectrum of factors including facilities, management, and individual factors might affect the course of research activities. As doing research is the best indicator of academic excellence, the obstacles on the path to academic research should be removed and special attention should be paid to managing demand-driven academic and research activities. According to the results, the followings are recommended: increasing the financial support, reducing working and clinical hours of the educational faculty members who are interested in research, cooperation between the research centers, further encouragement of the researchers, facilitation of statistical counseling.

Acknowledgements

Funding/Support

References

1. Haynes B, Haines A. Barriers and bridges to evidence based clinical practice. *BMJ.* 1998;**317**(7153):273–6.
2. Alamdari A, Venkatesh S, Roozbehi A, Kannan A. Health research barriers in the faculties of two medical institutions in India. *J Multidiscip Healthc.* 2012;**5**:187–94.
3. Sohrabi Z, Farajollahi M. Study existing research problems from the perspective of faculty members of Schools of Iran university Medical of Sciences. *Journal of Medical Council of Islamic Republic of Iran.* 2009(2):175–8.
4. Harris E. Building scientific capacity in developing countries. *EMBO Rep.* 2004;**5**(1):7–11.
5. Sumathipala A, Siribaddana S, Patel V. Under-representation of developing countries in the research literature: ethical issues

arising from a survey of five leading medical journals. *BMC Med Ethics.* 2004;**5**:E5.

6. Majumder MA. Issues and priorities of medical education research in Asia. *Ann Acad Med Singapore.* 2004;**33**(2):257–63.

7. Hemsley-Brown J, Oplatka I. Bridging the research-practice gap: barriers and facilitators to research use among school principals from England and Israel. *International Journal of Public Sector Management.* 2005;**18**(5):424–46.

8. Bostrom AM, Kajermo KN, Nordstrom G, Wallin L. Barriers to research utilization and research use among registered nurses working in the care of older people: does the BARRIERS scale discriminate between research users and non-research users on perceptions of barriers? *Implement Sci.* 2008;**3**:24.

9. Hemsley- Brown JV. Facilitating research utilization: across sector review of research evidence. *International Journal Public sector management .* 2004;**176**:534–53.

10. Bryar RM, Closs SJ, Baum G, Cooke J, Griffiths J, Hostick T, et al. The Yorkshire BARRIERS project: diagnostic analysis of barriers to research utilisation. *International Journal of Nursing Studies.* 2003;**40**(1):73–84.

11. Oh EG. Research activities and perceptions of barriers to research utilization among critical care nurses in Korea. *Intensive Crit Care Nurs .* 2008;**24**(5):314–22.

12. Darabi S, Kohpaee A, Yosefi M, Komaili T, Ahmari H, Rahmani M. Evaluate the severity of problems before and after the management intervention from the perspective of faculty members and researchers at the Qom University of Medical Sciences in 2004-2008. *Journal of Qom university of medical science.* 2009:37–43.

13. Sereshti M, Kazemian A, Daris F. Research barriers from the viewpoint of faculty members and employees of Shahrekord University of Medical Science. *iranian Journal of Educational Strat-egies.*;**3**(2):51–7.

14. Medical research center . *Medical research data management portal. Iran. Medical research center.* 2012. Available from: http://login.research.ac.ir/forms/TC/TC.

15. Amin TT, Kaliyadan F, Al Qattan E, Al Majad M, Al Khajaf H, Mirza M. Knowledge attitudes and barriers related to participation of medical students in research in three Arab universities. *Education in medicine journal.* 2012;**4**(1):43–50.

16. Kraemer KL, Perry JL. Institutional Requirements for Academic Research in Public Administration. *Public Administration Review.* 1989;**49**(1):9.

17. Alamdar iAK, Afsoon E. The viewpoint of faculty members on research barriers at Yasuj universities. *ArmaghanDanesh.* 2003;**8**:27–35.

18. Parahoo K. Barriers to, and facilitators of, research utilization among nurses in Northern Ireland. *J Adv Nurs.* 2000;**31**(1):89–98.

19. Karamian Z, Sabbaghian Z, Saleh-Sadghpoor B, Lotfi F. internal obstacles in research activities: faculty members view point in Shiraz University of Medical Sciences. *IJME .* 2012;**11**(7):750–62.

20. Tan M, Akgun Sahin Z, Kardas Ozdemir F. Barriers of research utilization from the perspective of nurses in Eastern Turkey. *Nurs Outlook.* 2012;**60**(1):44–50.

21. Dunn V, Crichton N, Roe B, Seers K, Williams K. Using research for practice: a UK experience of the BARRIERS Scale. *J Adv Nurs.* 1997;**26**(6):1203–10.

22. Smeby J, Try S. Departmental Contexts and Faculty Research Activity in Norway. *Research in Higher Education.* 2005;**46**(6):593–619.

23. Okeh U. statistical problems in medical research. *African journal of biotechnology.* 2008;**7**(25):4819–26.

24. Adler NE. Women mentors needed in academic medicine. *West J Med.* 1991;**154**(4):468–9.