

Identifying Opportunities and Barriers to Enhance Research among Family Physicians in Iraq; A Cross-sectional Survey 2021

Malath Majeed Hamood^{1*}, Abdul-Munem Y. Al-Dabbagh²

¹M.B.Ch.B, FICMS (FM), Ministry of Health/Iraq

²Professor, FICMS (FAMCO)

DOI: <https://doi.org/10.36348/sjm.2025.v10i01.005>

| Received: 22.12.2024 | Accepted: 15.01.2025 | Published: 24.01.2025

*Corresponding Author: Malath Majeed Hamood
M.B.Ch.B, FICMS (FM), Ministry of Health/Iraq

Abstract

Background: Family Medicine research is any study that addresses questions of importance to physicians with the intent to improve the care of patients. Research is essential to enhance the role of family physicians in health care systems, to improve the optimal functioning of health care systems, and to improve the health of populations in general, also serve as the basis to aid in policy-making. **Aim:** This study aimed to highlight the willingness of family physicians towards conducting research. **Subjects and Method:** Descriptive cross-sectional study with an analytic element conducted for a period from the 1st of March through the 31st of May 2021. The target population included all family physicians in Iraq. A total of 297 participants were recruited for this study. Participants were asked to fill out an electronically distributed questionnaire specially constructed for the sake of the study. **Results:** Females constituted 79% of the sample and 82% of the participants were less than or equal to 40 years of age. The specialists in family medicine constituted 70% of the participants; 81.5% had medical experience less than or equal to 15 years, and 52.9% worked for more than 30 hours per week. The mean of the participant response regarding the attitude questionnaire was 45.03 (± 9.21). The participants with a positive attitude were 167 (56.2%). Applying multivariate binary logistic regression, the only significant association was between attitude and frequency of reading medical articles. Lack of time was the main stated barrier that obstacles to research conduction among family physicians. **Conclusion:** More than half of the participants had a positive attitude towards research conduction. Lack of time and health care support were the main barriers to research conduction. Increasing the frequency of research reading was the main predictor of research conduction.

Keywords: Family Medicine, Health Care Researchs.

Copyright © 2025 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

Family Medicine speciality began to be recognized in 1969 with the Alma Ata Declaration. It was issued by the World Health Organization (WHO) General Assembly when the United States realized improving primary health care (PHC) is one of the significant systems for delivering high-quality health services [1]. Family medicine is a unique specialty, with a high emphasis on family, health promotion, and disease prevention [2]. Although family medicine is still an evolving specialty that is struggling to find its niche in the medical profession worldwide, it is considered one of the most vital fields of medicine. This can be referred to the wide range of health services that it provides to all people regardless of age, gender, and affected organ or system [3]. This explains why the research areas in this field are broad enough to cover all the important points in the health continuum of family medicine practice [4].

Research is an essential building block that ensures the advancement of the discipline of family medicine [5]. Family medicine research is any study that addresses questions of importance to family physicians with the intent to improve the care of patients [6], it should not be viewed simply as a branch of the family medicine discipline, and every physician should be able to apply evidence appropriately in clinical practice. In many ways, research is the root of family medicine [7, 8]. The development of family medicine research will allow standardization of terminology and diagnostic and therapeutic procedures, which in turn can enhance cooperation nationally and internationally [6-9]. Research is essential to enhance the role of family physicians in health care systems, to improve the optimal functioning of health care systems, and to improve the health of populations in general [6], also serves as the basis to aid in decision-making or even policy-making in

coming up with evidence-based guidelines about the soundest approaches to certain health problems [10-12]. Moreover, for the discipline of family medicine, research can increase the visibility of the benefits of family medicine for health care and lead to improved professional standards by increasing professional confidence, the morale of the profession, enhancing intellectual growth, and building the reputation of the discipline [6-9]. Scientific research plays a significant role in the country's financial growth along with long-term viable development, so it is vital for advancement and affluence. There is an obvious association between the research and the progress of individual nations [13]. This is all the more important as many family doctors are now directly involved in pre- and postgraduate education [14]. Research funders will be rewarded by improvement in the health status of their communities and strengthening family medicine, but healthcare funders, planners, publishers, and others often have a poor understanding of the current contribution of family medicine research and its potential to improve health [6], so the amount of research conducted by family physicians is meager when compared to that carried out in other specialties [5].

To identify and compute the research progress of a country in any subject, bibliometric indicators are crucial tools to understand the growth and global extent of research. These indicators are mainly based on the amount of scientific research published and its visibility in global science [13]. In Iraq, and up to the knowledge of the researcher, no research was conducted to identify opportunities and barriers to enhance research among family physicians.

Aim of the Study

This study aimed to highlight the willingness of family physicians towards conducting research.

Study Objectives

1. To assess the attitudes of family physicians towards clinical research
2. To investigate the barriers that impede engagement in research.
3. To find out positive attributes for the opportunities to conduct research.

SUBJECTS AND METHOD

Study Design and Setting: A descriptive cross-sectional study was conducted over three months, starting from the 1st of March through the 31st of May 2021.

Target population and Sampling Method: All the family physicians in Iraq. The sample size was calculated according to the Cochran formula:

$$n = \frac{Z^2 P(1 - P)}{d^2}$$

According to the results of the Cochran formula, at least 288 family physicians should be included in the study, but we received 297 responses, so an ultimate sample size of 297 was recruited in the study.

Data Collection Tools: A specially prepared questionnaire was sent online by Google form to family physicians at different levels. A well-structured questionnaire was adapted depending on previous international research [5-15].

To assess the opportunities and problems that impede engagement in research, respondents to the questionnaire were asked to indicate the degree they agreed with each of the 12 items according to a 5-point Likert scale. Items were categorized into two sections; The first section contained nine items that represented positive attitude (items #1-9), including the importance of conducting research, the contribution of research by family physicians to the health care system, and the importance of research for career development. According to a 5point Likert scale, the responses were categorized to have 1-5 points (strongly agree=5, agree=4, neutral=3, disagree=2, strongly disagree=1); The second section contained three items representing negative attitude (items #10-12) to assess the factors that discouraged the respondents from being involved in research. According to a 5-point Likert scale, the responses were categorized to have 1-5 points (strongly agree=1, agree=2, neutral=3, disagree=4, strongly disagree=5).

Assessment of the training and research experience of the participants included five items; (1) Previously involved in clinical research, (2) Previously presented research in a scientific conference, (3) Previously published an article in a scientific journal, (4) Previously received clinical research training since finishing medical school, (5) Frequency of reading medical articles. In addition, the questionnaire included the main barriers that obstacle the conduction of the research.

Ethical Issues: Approval to conduct the study was obtained from the scientific committee of the Department of Community and Family Medicine the Iraqi Board of Medical Specializations.

Statistical Analysis: The data was collected through Google Forms. After the end of data collection, the Google form was converted to Google Sheets and then to Microsoft Excel software, version 2016 and Statistical Package for Social Science (version 26. The tables were used to represent descriptive data, cross-tabulation of

factors was conducted, and a chi-square test was calculated. Variables that are statistically significant in the chi-square test were subjected to univariate analysis performed to compare positive vs. negative attitudes regarding differences in sociodemographic status and work profile. Variables that are statistically significant in the univariate analysis were subjected to multivariate logistic regression analysis.

A p-value of less than 0.05 was considered statistically significant.

RESULTS

A total of 297 participants were enrolled in the current study. Females constituted 79% of the sample and 82% of the participants were less than or equal to 40 years of age, 81.5% had medical experience less than or equal to 15 years, 52.9% worked for more than 30 hours per week, 51.2% worked in primary healthcare centers (PHCCs), and 70% of them were specialists (Table 1).

Table 1: Sociodemographic and work characteristics of the participants (N=297)

| Characteristics | | N | % |
|---|---------------------|-----|------|
| Gender | Female | 236 | 79.5 |
| | Male | 61 | 20.5 |
| Age group | ≤ 40 | 244 | 82.2 |
| | >40 | 53 | 17.8 |
| Marital state | Married | 228 | 76.8 |
| | Single | 60 | 20.2 |
| | Divorced or widowed | 9 | 3.0 |
| Medical experience after graduation (years) | ≤ 15 | 242 | 81.5 |
| | >15 | 55 | 18.5 |
| Weekly Work (hours) | ≤ 30 | 140 | 47.1 |
| | >30 | 157 | 52.9 |
| Workplace | PHCCs | 152 | 51.2 |
| | Hospital | 118 | 39.7 |
| | Others | 27 | 9.1 |
| Grade in the medical hierarchy | Specialist | 208 | 70.0 |
| | Non-specialist | 89 | 30.0 |

Regarding research experience, 72.4% of the participants were previously involved in clinical research, and 59.6% of them previously received clinical

research training since finishing medical school (Table 2).

Table 2: Research experience of the participants

| Characteristics | | N | % |
|---|-----------------------|-----|------|
| Previously involved in clinical research | Yes | 215 | 72.4 |
| | No | 82 | 27.6 |
| Previously presented research in a scientific conference | Six times or more | 11 | 3.7 |
| | 2-5 times | 43 | 14.5 |
| | Once | 88 | 29.6 |
| | No | 155 | 52.2 |
| Previously published an article in a scientific journal | Six times or more | 11 | 3.7 |
| | 2-5 times | 31 | 10.4 |
| | Once | 82 | 27.6 |
| | No | 173 | 58.2 |
| Previously received clinical research training since finishing medical school | Yes | 177 | 59.6 |
| | No | 120 | 40.4 |
| Frequency of reading medical articles. | At least once a month | 119 | 40.1 |
| | Once every six months | 106 | 35.7 |
| | Once a year | 33 | 11.1 |
| | Less than once a year | 39 | 13.1 |

The highest attitude was toward question 1 (family physicians need to conduct research) with a mean of 4.02 (±1.107), while the lowest attitude was regarding

question 3 (research is an enjoyable task) with a mean of 3.30 (±1.068) (Table 3)

Table 3: Participants' attitudes according to the questions

| Questions | | Strongly agree | Agree | Neutral | Disagree | Strongly disagree | Mean | SD |
|--|---|----------------|-------|---------|----------|-------------------|------|------|
| | | N | | | | | | |
| 1. Family physicians need to conduct research | N | 111 | 131 | 26 | 7 | 22 | 4.02 | 1.10 |
| | % | 37.4 | 44.1 | 8.8 | 2.4 | 7.4 | | |
| 2. Research in primary healthcare can improve healthcare services | N | 113 | 133 | 15 | 12 | 24 | 4.01 | 1.15 |
| | % | 38.0 | 44.8 | 5.1 | 4.0 | 8.1 | | |
| 3. Research is an enjoyable task | N | 37 | 99 | 92 | 53 | 16 | 3.30 | 1.06 |
| | % | 12.5 | 33.3 | 31.0 | 17.8 | 5.4 | | |
| 4. Research is part of the Family physician's job | N | 59 | 120 | 66 | 31 | 21 | 3.56 | 1.13 |
| | % | 19.9 | 40.4 | 22.2 | 10.4 | 7.1 | | |
| 5. Research findings can improve the management of medical conditions | N | 117 | 125 | 17 | 11 | 27 | 3.99 | 1.19 |
| | % | 39.4 | 42.1 | 5.7 | 3.7 | 9.1 | | |
| 6. Medical research provides professional prestige | N | 79 | 139 | 39 | 18 | 22 | 3.79 | 1.12 |
| | % | 26.6 | 46.8 | 13.1 | 6.1 | 7.4 | | |
| 7. Research is important for academic and professional promotion | N | 121 | 105 | 39 | 10 | 22 | 3.99 | 1.15 |
| | % | 40.7 | 35.4 | 13.1 | 3.4 | 7.4 | | |
| 8. Research is important for developing my career | N | 74 | 141 | 42 | 21 | 19 | 3.77 | 1.08 |
| | % | 24.9 | 47.5 | 14.1 | 7.1 | 6.4 | | |
| 9. Research can improve the reputation of the family medicine care field | N | 69 | 133 | 58 | 18 | 19 | 3.72 | 1.08 |
| | % | 23.2 | 44.8 | 19.5 | 6.1 | 6.4 | | |
| | % | 10.4 | 12.8 | 20.2 | 34.3 | 22.2 | | |
| 10. There is no benefit of research for the patients | N | 13 | 28 | 74 | 132 | 50 | 3.63 | 1.01 |
| | % | 4.4 | 9.4 | 24.9 | 44.4 | 16.8 | | |
| 11. The physician-patient relationship will be impaired if I suggest that the patient participate in a study | N | 2 | 40 | 75 | 125 | 55 | 3.64 | 0.95 |
| | % | 0.7 | 13.5 | 25.3 | 42.1 | 18.5 | | |
| 12. There is a low correlation between research conduction and medical practice | N | 12 | 46 | 50 | 116 | 73 | 3.65 | 1.13 |
| | % | 4.0 | 15.5 | 16.8 | 39.1 | 24.6 | | |

The mean of the participant response regarding the attitude questionnaire was 45.0303 (± 9.21381). The participants with a positive attitude (equal to or more

than the mean) were 167 (56.2%). There were significant associations between attitude and age and medical experience after graduation (P-value <0.05) (Table 4).

Table 4: Association between the participant's attitude and other variables

| Characteristics | | Total | Positive attitude | | Negative attitude | | Pvalue |
|-------------------------------------|---------------------|-------|-------------------|------|-------------------|------|--------------|
| | | | N | % | N | % | |
| Gender | Female | 236 | 126 | 53.4 | 110 | 46.6 | 0.052 |
| | Male | 61 | 41 | 67.2 | 20 | 32.8 | |
| Age group (years) | ≤ 40 | 244 | 130 | 53.3 | 114 | 46.7 | 0.028 |
| | >40 | 53 | 37 | 69.8 | 16 | 30.2 | |
| Marital state | Married | 228 | 132 | 57.9 | 96 | 42.1 | 0.337 |
| | Single | 60 | 29 | 48.3 | 31 | 51.7 | |
| | Divorced or widowed | 9 | 6 | 66.7 | 3 | 33.3 | |
| Grade in the medical hierarchy | Specialist | 208 | 117 | 56.3 | 91 | 43.7 | 0.991 |
| | Non-specialist | 89 | 50 | 56.2 | 39 | 43.8 | |
| Medical experience after graduation | ≤ 15 years | 242 | 128 | 52.9 | 114 | 47.1 | 0.015 |
| | >15 years | 55 | 39 | 70.9 | 16 | 29.1 | |
| Weekly Work (hours) | ≤ 30 | 140 | 84 | 60.0 | 56 | 40.0 | 0.216 |
| | >30 | 157 | 83 | 52.9 | 74 | 47.1 | |
| Workplace | PHCC | 152 | 78 | 51.3 | 74 | 48.7 | 0.221 |
| | Hospital | 118 | 73 | 61.9 | 45 | 38.1 | |
| | Others | 27 | 16 | 59.3 | 11 | 40.7 | |

There was a significant association between the attitude and whether the participant previously presented research in a scientific conference, previously published

an article in a scientific journal, and frequency of reading medical articles (Table 5).

Table 5: Association between the research experience of the participants and the participant's attitude

| Characteristics | | N | Positive attitude | | Negative attitude | | P-value |
|---|-----------------------|-----|-------------------|------|-------------------|------|--------------|
| | | | N | % | N | % | |
| Previously involved in clinical research | Yes | 215 | 124 | 57.7 | 91 | 42.3 | 0.416 |
| | No | 82 | 43 | 52.4 | 39 | 47.6 | |
| Previously presented research in a scientific conference | 6 times or more | 11 | 9 | 81.8 | 2 | 18.2 | 0.013 |
| | 2-5 times | 43 | 32 | 74.4 | 11 | 25.6 | |
| | Once | 88 | 44 | 50.0 | 44 | 50.0 | |
| | No | 155 | 82 | 52.9 | 73 | 47.1 | |
| Previously published an article in a scientific journal | Six times or more | 11 | 10 | 90.9 | 1 | 9.1 | 0.009 |
| | 2-5 times | 31 | 23 | 74.2 | 8 | 25.8 | |
| | Once | 82 | 46 | 56.1 | 36 | 43.9 | |
| | No | 173 | 88 | 50.9 | 85 | 49.1 | |
| Previously received clinical research training since finishing medical school | Yes | 177 | 101 | 57.1 | 76 | 42.9 | 0.725 |
| | No | 120 | 66 | 55.0 | 54 | 45.0 | |
| Frequency of reading medical articles. | At least once a month | 119 | 76 | 63.9 | 43 | 36.1 | 0.004 |
| | Once every 6 months | 106 | 63 | 59.4 | 43 | 40.6 | |
| | Once a year | 33 | 15 | 45.5 | 18 | 54.5 | |
| | Less than once a year | 39 | 13 | 33.3 | 26 | 66.7 | |

According to multivariate binary logistic regression, there was a significant association between

attitude and frequency of reading medical articles (Table 6).

Table 6: Multivariate binary logistic regression

| Characteristics | B | S.E. | Wald | df | Sig. | Exp(B) |
|---|---------|-------|-------|----|--------------|--------|
| Age group (≤ 40 years) | -.598- | .585 | 1.047 | 1 | 0.306 | .550 |
| Experience (≤ 15 years) | .559 | .519 | 1.160 | 1 | 0.282 | 1.750 |
| Previously presented research in a scientific conference: | | | 3.807 | 3 | 0.283 | |
| Six times | -.046- | .961 | .002 | 1 | 0.961 | .955 |
| 2-5 time | -.532- | .430 | 1.532 | 1 | 0.216 | .587 |
| Once | .312 | .288 | 1.170 | 1 | 0.279 | 1.366 |
| Previously published an article in a scientific journal: | | | 3.252 | 3 | 0.354 | |
| 6 times | -1.918- | 1.262 | 2.310 | 1 | 0.129 | .147 |
| 2-5 time | -.742- | .561 | 1.748 | 1 | 0.186 | .476 |
| Once | -.231- | .298 | .598 | 1 | 0.439 | .794 |
| Frequency of reading medical articles | | | 7.913 | 3 | 0.048 | |
| At least once a month | -1.055- | .406 | 6.744 | 1 | 0.009 | .348 |
| Once every 6 months | -.992- | .410 | 5.871 | 1 | 0.015 | .371 |
| Once a year | -.554- | .497 | 1.240 | 1 | 0.266 | .575 |

Most participants postulated that they didn't have time for conducting research (67.3%), lack of

support was the second barrier (21.9%), while 4.3% didn't know the barrier (Table 8).

Table 8: The main barriers that prevent conducting medical research

| Barriers | N | % |
|---|-----|------|
| I don't have time | 200 | 67.3 |
| I don't have support (health care system supporting research) | 65 | 21.9 |
| I don't have knowledge or experience | 20 | 6.7 |
| I'm not interesting | 20 | 6.7 |
| Insufficient financial resources | 51 | 17.2 |
| I don't know | 13 | 4.3 |

DISCUSSION

Research within the family practice is progressively seen as a major scientific medical priority, needed to effectively provide health care for everyday conditions within the setting of PHC [16]. Best to our knowledge, this is the first study in Iraq to assess the attitude of the family physicians regarding research conduction and the barriers that obstacles it.

The current study revealed that most participants were previously involved in clinical research and received clinical research training after finishing medical school. At the same time, less than half of them previously presented research at a scientific conference or published an article in a scientific journal. This might be explained by the fact that research project conduction is part of the pre and postgraduate curriculum in Iraq, and they are required to conduct at least one research during their study period. According to a study done in India and included postgraduate medical students, 61.2 of the participants had experience in writing research papers, 48.3% previously presented research at a scientific conference, and 31.1% published an article in a scientific journal. As per the Medical Council of India requirements, postgraduate students have to carry out a dissertation project as a part of their curriculum [17].

The main finding of the current study was that more than half of the participants had a good attitude regarding research conduction. This result was less than the result obtained by another study that was conducted in Bahrain in 2019, which concluded that PHC physicians had a positive attitude towards researching with a total mean score (\pm SD) of 4.47(\pm 0.65) (on a scale from 1 to 5 with higher scores indicating more positive attitudes) [18]. In Germany, the majority (85.6 %) of the GPs working within PHCCs had positive attitudes regarding research in their field [19]. Regarding the attitude questions, most of the participants strongly agree or agree with the positive question and strongly disagree or disagree with the negative question. Another study that was done by Adler *et al.*, revealed nearly the same results [15]. Nearly all respondents agreed that critical appraisal skills are essential to the practice of modern family medicine. Moreover, most agreed that it is essential that the evidence base for PHC be developed by family physicians, while only one-third agreed that research skills have to receive more emphasis during residency training, and fewer than one-quarter agreed that practicing family physicians should have strong research skills [20]. This might be related to the experience and involvement of the participants in research conduction during their postgraduate study, as most of them were specialists.

The current study revealed that males had an insignificant higher percentage of positive attitudes compared to females. Another study reported that men are more involved in research than women [21]. This

might be related to the effect of other factors like time and their interest in doing research.

Participants older than 48 years old and those who had medical experiences of more than or equal to 15 years significantly had a higher percentage of positive attitudes than others. The same result was obtained by another study that revealed that the older age group and those with more clinical experience contrasted with studies showing more enthusiastic involvement in research conduction [15]. Longer duration of work and the need for more information about the diseases, investigations, management, and new approaches to deal with the patients may magnify the importance of research.

Previously presented research in a scientific conference, publishing an article in a scientific journal, and a higher frequency of reading medical articles were significantly associated with a positive attitude. While applying multivariate analysis revealed that increased frequency of reading medical articles was the only predictor as it was significantly associated with a positive attitude. Another study conducted in Pakistan stated that physicians with prior research experience, publications, and presentations were more likely to have ongoing research projects with statistically significant differences between faculty actively involved in research, who had a more positive outlook towards research both in patient care and personal professional level as compared to faculty not involved in ongoing projects [22]. This may be explained by an increased experience and approaches in performing literature searches, data collection, analyses, and interpretation.

Regarding the barriers that obstacle research conduction stated by the participants; lack of time came on the top, followed by lack of support including support from the healthcare system, while insufficient financial resources came at the bottom. This agrees with another study in Saudi Arabia in 2012 that concluded that insufficient time was the most frequently cited barrier to participating in research (83.5%). In Pakistan, a study revealed that lack of research training was the only barrier to having a statistically significant difference between those involved in research versus those not. The majority of study participants also pointed out that lack of time was one of the barriers to not doing research [22]. Another study revealed that lack of training in research, the unavailability of a healthcare system supportive of research, insufficient financial resources, and the unavailability of electronic health records were perceived as major barriers to conducting family medicine research [23]. While in Greece, the main barriers were limited national funds to support research activities and educational opportunities [16]. According to Kekki, this issue requires governmental-level strategic planning to incorporate research as an indispensable part of the healthcare system and to secure the resources needed [24]. There was a discrepancy in the order of the

barriers between different studies as many studies (including the current study) revealed that lack of time was the first barrier, while other studies considered the lack of research training as the first barrier. This discrepancy might be explained by the fact that the availability of free time out of work, clinical research training, and availability of financial support were different according to healthcare systems in different countries.

CONCLUSION

More than half of the participants did not present research in a scientific conference or publish an article in a scientific journal previously. More than half of the participants received clinical research training after finishing medical school, and the largest percentage of them read at least one medical article monthly. Lack of time and health care system support were the main stated barriers that obstacles research conduction among the study groups. Increasing the frequency of research reading was the main predictor of the positive attitude toward research conduction.

REFERENCES

1. Al-Ahmadi, H., & Roland, M. (2005). Quality of primary health care in Saudi Arabia: a comprehensive review. *International Journal for Quality in Health Care*, 17(4), 331-346.
2. Al-Khalidi, Y. M., Al-Ghamdi, E. A., Al-Mogbil, T. I., & Al-Khashan, H. I. (2017). Family medicine practice in Saudi Arabia: The current situation and proposed strategic directions plan 2020. *Journal of Family and Community Medicine*, 24(3), 156-163.
3. Flinkenflögel, M., Sethlare, V., Cubaka, V. K., Makasa, M., Guyse, A., & De Maeseneer, J. (2020). A scoping review on family medicine in sub-Saharan Africa: Practice, positioning and impact in African health care systems. *Human resources for health*, 18, 1-18.
4. Alharbi, A. A., Alharbi, O. A., Alkhatat, Z. A., Arafsha, L. M., & Arafsha, Y. M. (2019). Family medicine research productivity in Saudi Arabia for 15 years: An urgent call for action. *Cureus*, 11(10).
5. Romani, M. H., Hamadeh, G. N., Mahmassani, D. M., AlBerri, A. A., AlDabbagh, A. M. Y., Farahat, T. M., ... & Lakkis, N. A. (2016). Opportunities and barriers to enhance research capacity and outputs among academic family physicians in the Arab world. *Primary Health Care Research & Development*, 17(1), 98-104.
6. van Weel, C., & Rosser, W. W. (2004). Improving health care globally: a critical review of the necessity of family medicine research and recommendations to build research capacity. *The Annals of Family Medicine*, 2(suppl 2), S5-S16.
7. Bailey, T. (2007). Research in family medicine. *Canadian Family Physician*, 53(7), 1249-1249.
8. Sparks, B. L., & Gupta, S. K. (2004). Research in family medicine in developing countries. *The Annals of Family Medicine*, 2(suppl 2), S55-S59.
9. Verbeke, M., Schrans, D., Deroose, S., & De Maeseneer, J. (2006). The International Classification of Primary Care (ICPC-2): an essential tool in the EPR of the GP. *Studies in health technology and informatics*, 124, 809.
10. Al-Bishri, J. (2013). Evaluation of biomedical research in Saudi Arabia. *Saudi medical journal*, 34(9), 954-959.
11. Mantzoukas, S. (2009). The research evidence published in high impact nursing journals between 2000 and 2006: A quantitative content analysis. *International journal of nursing studies*, 46(4), 479-489.
12. Dracup, K. (2007). Increasing research in primary care: Critical for consolidating nurses' position in the primary health care team?. *Contemporary Nurse*, 26(1), 3-4.
13. Meo, S. A., Mahesar, A. L., Sheikh, S. A., Sattar, K., & Bukhari, I. A. (2016). Research productivity of Gulf Cooperation Council (GCC) countries in science and social sciences. *J Pak Med Assoc*, 66(10), 1307-1313.
14. Haller, D. M., Jotterand, S., Durrer, D., Sebo, P., Birchmeier, A., Lefebvre, D., ... & Herzig, L. (2011). Scientific research in family medicine: practitioners' experience, barriers and needs. *Revue Medicale Suisse*, 7(295), 1089-92.
15. Adler, L., Gabay, L., & Yehoshua, I. (2020). Primary care physicians' attitudes toward research: a cross-sectional descriptive study. *Family Practice*, 37(3), 306-313.
16. Lionis, C., Symvoulakis, E. K., & Vardavas, C. I. (2010). Implementing family practice research in countries with limited resources: a stepwise model experienced in Crete, Greece. *Family Practice*, 27(1), 48-54.
17. Giri, P. A., Bangal, V. B., & Phalke, D. B. (2014). Knowledge, attitude and practices towards medical research amongst the postgraduate students of Pravara Institute of Medical Sciences University of Central India. *Journal of family medicine and primary care*, 3(1), 22-24.
18. Khalaf, A. J., Aljowder, A. I., Buhamaid, M. J., Alansari, M. F., & Jassim, G. A. (2019). Attitudes and barriers towards conducting research amongst primary care physicians in Bahrain: a cross-sectional study. *BMC family practice*, 20, 1-5.
19. Rosemann, T., & Szecsenyi, J. (2004). General practitioners' attitudes towards research in primary care: qualitative results of a cross sectional study. *BMC Family Practice*, 5, 1-5.
20. Leahy, N., Sheps, J., Tracy, C. S., Nie, J. X., Moineddin, R., & Upshur, R. E. (2008). Family physicians' attitudes toward education in research skills during residency: findings from a national mailed survey. *Canadian Family Physician*, 54(3), 413-414.

21. Lloyd, T., Phillips, B. R., & Aber, R. C. (2004). Factors that influence doctors' participation in clinical research. *Medical education*, 38(8), 848-851.
22. Sabzwari, S., Kauser, S., & Khuwaja, A. K. (2009). Experiences, attitudes and barriers towards research amongst junior faculty of Pakistani medical universities. *BMC medical education*, 9, 1-7.
23. Romani, M. H., Hamadeh, G. N., Mahmassani, D. M., AlBeri, A. A., AlDabbagh, A. M. Y., Farahat, T. M., ... & Lakkis, N. A. (2016). Opportunities and barriers to enhance research capacity and outputs among academic family physicians in the Arab world. *Primary Health Care Research & Development*, 17(1), 98-104.
24. Kekki, P. (2005). Promoting clinical research in general practice. *Education for Health*, 18(2), 283-289.