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Alhelo A

Institution

Ministry of Health, Pr. Hamzah St., Amman, Jordan

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Abstract

Aims: To evaluate awareness and the use of evidence-based medicine resources among physicians in Jordan.

Methods: A cross-sectional study of the internet was performed among 517 responsive doctors from a total of 717 doctors; a total of 72.1% response rate. Doctors from all specialties were contacted via a Facebook group called "Doctors Café in Jordan". A questionnaire was given to each individual to measure their awareness and use of evidence-based databases.

Results: Of the 517 physicians who participated, 377 stated that they were using evidenced-based resources frequently, 91 were using resources but not frequently, and 49 were not using evidence-based resources. The resource that was most frequently used by the physicians was PubMed, followed by other resources such as UpToDate, National Guideline Clearinghouse, Medscape, BMJ Best Practice, e-Books, and other online journals for published papers. The physicians were surprisingly unfamiliar with the Cochrane Library.

Conclusions: There is a good awareness of EBM amongst physicians in Jordan, which subsequently benefits healthcare.

Key Words

Evidence-Based Medicine; EBM Resources; Physicians

Corresponding Author:

Mr Amjad Alhelo; E-mail: amjadrrrr@hotmail.com

Introduction

Evidence-based medicine (EBM) can be defined as the use of evidence from well-established research to enhance proper decision-making by medical care practitioners. Avicenna, a famous ancient physician who was also known as Ibn Sina, was one of the first physicians to conduct clinical and basic research, which has since provided the basis for EBM in medical history[1]. The proper use of EBM in medical practice involves turning a medical problem into a question, then searching for an answer to that question within the available resources. This evidence-based answer should then be critically appraised before being used to solve the medical problem in clinical practice[2].

With the emergence of new research that could dramatically affect guidelines and hence the decision-making process, the use of EBM is critical to worldwide healthcare improvement. All physicians and clinical practitioners should, therefore, be able to identify the best clinically-applicable and valid research evidence. They should also be able to translate such information into clinical practice wherever applicable. Unfortunately, this goal is far from reachable at this current time[3].

Evidence can be divided into two types: primary and secondary. Secondary evidence is most common amongst physicians and clinical practitioners due to their busy lifestyles. Secondary evidence, such as systematic reviews, allow the reader to reach several pieces of literature containing primary evidence that have undergone critical appraisal by clinical experts at once[4]. The Cochrane Library produces such systematic reviews with the highest level of evidence[5].

The following are some of the most important evidence-based resources mentioned in the questionnaire:

- **UpToDate**: A trusted system that provides evidence-based online clinical data to many physicians around the world[6]. Clinical data is reviewed by authorised personnel who summarise the conclusions into recommendations that can be easily applied to clinical practice.
- **MD Consult:** A resource for full-text medical journal articles and thousands of patient's handouts and drug-related information.

7

Evidence-Based Medicine
DAUIN 20190157

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- **PubMed/MEDLINE**: A database of abstracts for millions of medical research articles as well as links to full article resources.
- **BMJ Best Practice**: A very quick and reliable resource for point-of-care delivered information. It combines the latest guidelines and evidence with opinions from experts regarding all aspects of health from diagnosis-reaching treatment to prognosis.
- **Other Known EBM Resources**: BMJ Case Report, Medscape Reference, ACP Journal Club, National Guideline Clearinghouse, DynaMed, Database of Abstracts of Reviews of Effect (DARE).

Jordan, or the Kingdom of Jordan to be more specific, is an Arab country, with a population of at least 10 million citizens located in western Asia[7]. For every 10,000 citizens in Jordan, there are 28.6 physicians and 17.8 pharmacists according to the latest statistics done by the Private Hospitals Association in Jordan[8].

Methodology

A direct message was sent on Facebook to 717 Jordanian doctors from different specialties who were randomly chosen as a sample from Doctors Café Facebook group. The group contained more than 5000 health care workers. Only 517 doctors responded to the message and agreed to participate in the survey. Two online questionnaires were sent to the participants to complete, one of which regarded general information about participants' characteristics, as shown in **Table 1** and **Table 2**. Data from all filled questionnaires were collected, revised, and analysed manually. The study started in January 2018 and ended in August 2019.

Table 1: Questionnaire for awareness about EBM

1. Are you using EBM resources?	YES		NO	
2. How frequently are you using EBM resources?	DAILY	2-3 TIMES WEEKLY		LESS OFTEN
3. Which of these EBM resources are you using?				
a. UpToDate				
b. MD Consult				
c. Cochrane Library				
d. PubMed/MEDLINE				
e. BMJ Best Practice				
f. Medscape Reference				
g. Annals of Internal Medicine: ACP Journal Club				
h. Database of Abstracts of Reviews of Effect (DARE)				
i. National Guideline Clearinghouse				
j. DynaMed				
k. Scopus				
l. OvidSP				
m. CINHAL Plus with Full Text				
n. J-Gate Plus				
o. Online journals of various publishers (Elsevier Science, Lippincott, Wiley-Blackwell, Springer Link, Informa Healthcare, Karger, Thieme, BMJ, Oxford University Press, Sage, Nature, etc.)				
p. e-Books of various publishers (Elsevier Science, Lippincott, etc.)				

Table 2: Respondent physicians' characteristics

Sex	Male	
	Female	
Age Group	<30	
	30-39	
	40-49	
	50-59	
	>60	
Education Degree	Bachelor's Degree (General Physician)	
	Master's Degree	
	Doctorate	
Average No. of Daily Visiting Patients	<20	
	20-39	
	40-59	
	60-79	
	>80	

Results

The results of the questionnaire revealed that 90.5% of physicians in the tested sample used evidence-based resources. It was found that online evidence-based resources were more popular among physicians. Although most physicians were familiar with EBM, most of them didn't use it daily. Of the study group, 197 physicians (42%) used it between two and three days a week, while 182 others used it daily (39%). The other 89 (19%) participant doctors used it less often. There were no big differences identified between the evidence-based resources used. The most popular among them were PubMed, which was used by 16% of participants. Other popular resources included UpToDate and the National Guideline Clearinghouse, both of which were used by 52 (11.1%) participants.

9

Evidence-Based Medicine
DAUIN 20190157

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Table 3: Respondent physicians' characteristics

1. Are you using EBM resources?	YES		NO	
	468 (90.5%)		49 (9.5%)	
2. How frequently are you using EBM resources?	DAILY	2-3 TIMES WEEKLY		LESS OFTEN
	182 (39%)	197 (42%)		89 (19%)
3. Which of these EBM resources are you using?				
a. UpToDate				52 (11.1%)
b. MD Consult				12 (2.6%)
c. Cochrane Library				17 (3.6%)
d. PubMed/MEDLINE				75 (16%)
e. BMJ Best Practice				46 (9.8%)
f. Medscape Reference				40 (8.5%)
g. Annals of Internal Medicine: ACP Journal Club				27 (5.8%)
h. Database of Abstracts of Reviews of Effect (DARE)				3 (0.6%)
i. National Guideline Clearinghouse				52 (11.1%)
j. DynaMed				32 (6.8%)
k. Scopus				5 (1.1%)
l. OvidSP				3 (0.6%)
m. CINHAL Plus with Full Text				10 (2.1%)
n. J-Gate Plus				1 (0.2%)
o. Online journals of various publishers (Elsevier Science, Lippincott, Wiley-Blackwell, Springer Link, Informa Healthcare, Karger, Thieme, BMJ, Oxford University Press, Sage, Nature, etc.)				43 (9.2%)
p. e-Books of various publishers (Elsevier Science, Lippincott, etc.)				50 (10.7%)

A greater proportion of participants were male physicians (76%) than female physicians (24%). Most of the participants were aged between 30 and 49, with 42% of the participants aged between 30-39, and 32% aged between 40 and 49. The remaining participants were scattered between younger (<30) and older (>50) age groups. Only 59 of the participants were general physicians; the remaining were specialised physicians. Of the total participants, 55.3% held master's degrees while 33.3% held a doctorate. The most common number of daily patient visitors among the participating physicians was between 40 and 60 patients.

Table 4: Respondent physicians' characteristics

Sex	Male	395 (76%)
	Female	122 (24%)
Age Group	<30	45 (8.7%)
	30-39	217 (42%)
	40-49	165 (31.9%)
	50-59	76 (14.7%)
	>60	14 (2.7%)
Education Degree	Bachelor Degree (General Physician)	59 (11.4%)
	Master's Degree	286 (55.3%)
	Doctorate	172 (33.3%)
Average No. of Daily Visiting Patients	<20	47 (9.1%)
	20-40	120 (23.2%)
	40-60	254 (49.1%)
	60-80	31 (6%)
	>80	65 (12.6%)

Conclusion

The participating group of physicians was a good sample that represented most Jordanian physicians. The awareness of EBM resources among Jordanian physicians was very acceptable, with a percentage exceeding 90% in the study sample. Such awareness has helped to improve physician knowledge, which in turn has had a positive impact on their decision-making, subsequently improving healthcare in Jordan. It was found that Jordanian physicians were more familiar with online EBM resources; this may be due to a lack of time as a result of seeing an average of 50 patients per day. The most popular EBM resources among physicians in Jordan included PubMed, UpToDate, and the National Guidelines Clearinghouse.

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11

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