

What is the impact of evidence-based medicine (EBM) on family planning providers' knowledge, attitudes, and practice behaviors?

A randomized experiment in Jordan

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1. Introduction

Biases and misconceptions held by health care providers can adversely affect the delivery of reproductive health services. To reduce misconceptions and increase awareness and knowledge of hormonal family planning (FP) methods among providers, some have suggested providing training in “Evidence-Based Medicine” (EBM). The EBM methodology uses “critically appraised topics” (CATs) as the primary tool to convey evidence from rigorous research studies to clinicians. Implementers of EBM disseminate the evidence summarized in the CATs through an educational program consisting of physician roundtable seminars and visits to providers to reinforce the seminar messages. While many practitioners feel that the EBM methodology is effective, to our knowledge, it has not yet been rigorously evaluated. To evaluate the effects of this program, we conducted a randomized evaluation of an EBM program specifically aimed at teaching providers evidence about depot medroxy progesterone (DMPA), the three-month injectable contraceptive. This study took place in Jordan among 267 FP providers from the private sector.

In Jordan, although knowledge of FP is almost universal, many providers have misconceptions towards FP methods, especially hormone-based methods including injectables. In addition, previous studies suggest misguided patient knowledge and low rates of hormonal methods. Jordan's fertility rate has been relatively high and stable over the past ten years at 3.8 while the Contraceptive Prevalence Rate is at 59% (Jordan Population and Family Health Survey, 2009). Modern FP methods constitute only 42% of all methods in Jordan.

To measure the impact of an EBM program on providers' knowledge, attitudes, and reported behaviors we use a randomized control study design. The study includes a total of 267 private providers that were randomly assigned to a treatment and a control group. A baseline and a follow-up survey are administered to both. This paper explores several research questions. First we ask whether participation in the DMPA EBM program (seminar and visits) leads to improved knowledge or attitudes related to DMPA, such as side effects and efficacy. Second, we ask whether participation in the DMPA EBM program leads to changes in reported practices such as the reported number of times DMPA is discussed or provided to clients.

Our results are an important contribution to the literature on fertility and FP use. First, addressing supply side constraints, such as the lack of knowledge or unfounded misconceptions among private providers, is important to know how to improve the quality of service delivery and reduce unmet need. EBM programs may provide a powerful approach to affecting provider knowledge and behavior and may represent a valuable investment for improving delivery of reproductive health services. Second, there are relatively few studies conducted in the Middle East and ours adds to this literature.

2. Background

Practicing health with EBM has been defined as the “judicious use of the best evidence in making decisions about the care of the individual patient” (Sackett et al 2000). The process involves using current

scientific research and evidence to make decisions about the care of individual patients. The practice of EBM includes a process called “Critical Appraisal Exercise” or preparation of CATs. During the exercise, providers define a patient problem or issue, conduct an efficient literature search, critically appraise the evidence for validity and clinical usefulness, and apply the results to the specific patient problem or issue they face (Sanchaya Selvaraj et al, 2010).

A few studies have examined the impact of EBM in general (and not specific to FP practice) on physicians' knowledge, attitude, and clinical practice, with mixed results. Using a randomized controlled trial design, Markey (2001) found that academic detailing led to a significant improvement in knowledge scores and self-perceived understanding of EBM among a network of general practitioners in Australia, but had little influence on general practitioners' attitudes toward EBM. In a pre-post study, Lucas et al. (2004) found that literature search results convinced experienced attending physicians to change their treatment among 18% of a sample of their hospital patients, leading the authors to conclude that searching the literature could improve the treatment of many medical inpatients. A qualitative study by Shuval et al (2007) examined the impact of an EBM intervention conducted at a health maintenance organization in Israel on doctors' attitudes towards EBM and knowledge and implementation of EBM at the point of care. The authors found that the intervention positively influenced doctors' attitudes and knowledge; however, no statistically significant impact was found on doctors' use of EBM resources during patient consultations. In contrast, Straus et al (2005) used a before-after study to evaluate whether an EBM intervention consisting of teaching EBM skills and provision of electronic evidence resources in a general hospital in the United Kingdom changed clinical practice, and found that after the intervention more physicians prescribed evidence-based therapies to patients admitted to the hospital.

3. Research Design

This study involves the partnership of the USAID funded PSP-Jordan and SHOPS projects, which over time collected a list of private practicing doctors providing FP services in Jordan. This list consisted of 268 private health providers in two regions of Jordan, Amman and Zarqa. We randomly assigned the providers into treatment and control groups, stratifying by geographic area, sex, and whether these doctors were in the network of doctors working with SHOPS. One provider was excluded because she had participated in the development of the evidence material. Our final sample consists of 267 private doctors, 135 in the treatment group and 132 in the control group (Table 1).

Table 1: Treatment Assignment

	Treatment	Control	Total
Amman	109	108	217
Zarqa	26	24	50
Total	135	132	267

The study team collected a short baseline data in November 2011. Overall, response rates were 73.0 percent (72.6 percent in the treatment and 73.5 percent in the control). Using baseline data, the treatment and control groups were quite similar with regard to knowledge, attitudes, and reported practices related to DMPA (Table 2). Around 20 percent of doctors in the treatment group had DMPA stock at their clinic at the time of the survey, compared to 23.6 percent of doctors in the control group. The average number of times doctors prescribed DMPA is comparable across both groups (2.0 in the treatment and 2.4 in the control). Doctors also had similar overall scores on a series of questions testing their knowledge of and attitudes towards DMPA (7.5 out of 12 in the treatment and 7.2 in the control).

Table 2: Survey Baseline Results

	Treatment	Control
Availability of DMPA stock at clinic	20.2%	23.6%
Average # times discussed DMPA with clients in past month	5.1	5.7
Average # times prescribed DMPA in past month	2.0	2.4
Knowledge and attitudes on DMPA and FP, % correct answers		
a) Women are at a higher risk of ectopic pregnancy if they use DMPA long term.	71.9%	77.1%
b) DMPA use is associated with an increased incidence of breast cancer.	79.2%	84.5%
c) Women who use DMPA are less likely to suffer from anemia.	70.8%	58.8%
d) From time to time, a woman using DMPA should give her body a rest*.	44.8%	28.1%
e) Use of DMPA is positively associated with weight gain.	38.5%	41.7%
f) I have enough information to confidently discuss use of DMPA with my clients.	79.5%	88.4%
g) I should not prescribe DMPA to nulliparous women who wish to delay childbirth.	26.6%	22.7%
h) DMPA use is safe for most healthy women.	86.3%	89.6%
i) For some women, amenorrhea can be a benefit.	74.7%	64.6%
j) I know what is best for women who wish to use a modern method of contraception.	20.4%	11.0%
k) If women in Jordan had more information about DMPA, more women might accept its use	70.5%	76.6%
l) I would have no hesitations to recommend DMPA to a healthy woman who wanted to use this method	79.2%	82.3%
Average score (out of 12)	7.5	7.2
Discussed medical evidence with clients in past month		
Never	5.4%	2.1%
Rarely	13.0%	3.2%
Sometimes	26.1%	30.9%
Often	30.4%	38.3%
Always	25.0%	25.5%
Would like to obtain more DMPA info	93.7%	91.6%

**Difference between treatment and control significant at the 95% confidence level.*

The intervention given to the treatment group consists of two elements: EBM seminars and detailing visits related to DMPA. The EBM seminars are roundtable sessions led by trained personnel who present clinical research findings to Jordanian doctors who provide FP services. There were a total of six repeat seminars conducted over the course of the six months. These sessions allow doctors to discuss these findings within the local context, with the overall goal of correcting misconceptions and biases against FP methods particularly hormonal methods and improving knowledge of evidence-based health benefits of method use, as well. The EBM detailing visits involve a trained detailer making visits to individual doctors' offices to review the information (CATs) to which doctors were or will be exposed to during the

seminars. These sessions seek to reinforce the availability of evidence to support the doctor in counseling about FP methods that would include addressing side effect concerns and perceived harm or conveying information about evidence-based benefits (e.g., protective effects against cancer).

Approximately 44.5 percent of the treatment group doctors invited to the EBM seminar participated in the seminar from January through June 2012 (Table 3). In addition, all 135 treatment group doctors received two detailing visits related to DMPA. Two control group doctors attended the seminar uninvited. Since it was important for project implementation to continue to engage control group doctors during those six months, control group doctors received two detailing visits related to combined oral contraceptives (COC) during this same time period. It is not anticipated that these detailing visits will bias the results of the evaluation because COCs are different from DMPA. However, this may possibly dampen the effect of the intervention we are evaluating.

Table 3: EBM Program Intervention Results, January – June 2012

	Treatment	Control
Total evaluation sample	135	132
Number of doctors invited to attend the EBM seminar	135	0
Number of doctors who attended the EBM seminar	60	2
Number of doctors who received 2 detailing visits on DMPA	135	0
Number of doctors who received 2 detailing visits on COC	0	132

Endline data will be available in February 2013. These surveys are face-to-face interviews with trained interviewers. The SHOPS Jordan project conducted outreach to sensitize doctors to the upcoming survey in order to increase the response rate.

One limitation of this study is that we will be unable to measure actual practices through the use of mystery client surveys, vignette surveys, or client exit interviews. The study team had pursued this option when initiating this study, but given the Jordanian context, private doctors in Jordan were unlikely to agree to have their work assessed in this manner.

4. Expected Findings

Measuring the effects of the EBM program on the subsequent knowledge, attitudes, or reported behavior with a randomized design allows for a relatively straightforward analysis. We will analyze the effects of the program on a number of outcome variables such as willingness to prescribe, number of times prescribed in last month, number of times discussed in last month, or correct knowledge about DMPA.

We will estimate the intention-to-treat effect of the seminar as follows:

$$Y_i = \alpha + \beta * T_i + \delta X_i + \varepsilon_i$$

where Y_i indicates individual i 's knowledge or attitudes, T indicates if the respondent was assigned to the treatment or the control group, and X is a vector of observed covariates for the provider, such as gender, geographic location, baseline beliefs, among others. Because assignment to the treatment group was random, we expect the error term and T to be linearly independent. This specification could be modeled separately for each different region.

For some of the outcome variables of interest, we will have both baseline data and endline data, which will also allow for using the change in reported behavior as a dependent variable.