Introductory remarks for Jordan EBM and Ghana zinc papers
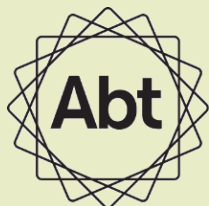
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July 6, 2013

Why we care about changing private provider behavior?

- Large percentage of consumers in developing countries go to the private sector

- Consumers often do what providers tell them to do

- Thus, provider biases and misperceptions can adversely affect quality of care

Jordan EBM and Ghana zinc studies

- Do not compare quality or health outcomes in the private versus public sector

- Rigorously evaluate interventions designed to change private provider behavior

- Conducted in different environments with different types of providers
    - Doctors providing family planning in Jordan
    - Licensed chemical sellers (LCS) in Ghana – childhood diarrhea management

- Address the issue that we may need to use different methods to improve knowledge, attitudes and practices of private versus public providers

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Contribution of Jordan EBM and Ghana zinc studies

- Help us think about options to influence the behavior of private providers
  - Evidence based medicine (Jordan)
  - Mobile phone text messages (Ghana)

- Lessons may have application to public sector

How Evidence Based Medicine Affects Private Sector Doctors: A Randomized Experiment in Jordan

Presenter: Minki Chatterji

Authors: Marianne El-Khoury (Abt Associates), Rebecca Thornton (University of Michigan), Minki Chatterji (Abt Associates), and Soonie Choi (Abt Associates)

Private Sector in Health Symposium, pre-iHEA

July 6, 2013
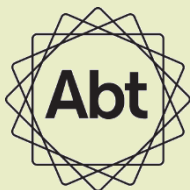
Substantial provider bias against hormonal contraceptives in Jordan

- Use of injectables is discouraged

- Side effects such as spotting or fertility delays are main barriers to use of injectables

- In response, USAID-funded SHOPS project in Jordan is using EBM to address deep-seated provider biases

Evidence Based Medicine (EBM) as an approach to improve the quality of care

- Encourage providers to use scientific evidence in making clinical decisions

- Disseminate scientific evidence through professional courses, workshops, and educational outreach visits

- Existing studies find mixed results; focus on high-income settings

Objectives of study

- Study the impact of the EBM intervention in Jordan aimed to dispel misconceptions related to Depot Medroxyprogesterone Acetate (DMPA), a 3-month hormonal injectable contraceptive on:

  - Doctors' **knowledge** of DMPA and its side effects

  - **Attitudes** toward and **confidence** to prescribe DMPA

  - **Reported clinical practices**, such as discussion and prescription of DMPA

Study design and data collection

- Sample: 267 private doctors in two urban areas of Jordan, Amman and Zarqa
- Random assignment into Treatment (135) and Control (132), stratified by area and sex of provider
- Baseline and endline surveys
- Overall response rates: 73% (baseline) and 85% (endline).

Dec 2011
Baseline survey

Jan 2013
Endline survey

Jan 2012
DMPA EBM intervention begins

June 2012
DMPA EBM intervention ends

Comparison of Treatment and Control Groups

In the year prior to the EBM DMPA study both treatment and control groups received EBM intervention related to Combined Oral Contraceptives (COC)

Treatment

- **Invited** to DMPA seminar

- Receive two educational visits on DMPA

Control

- Not invited to seminar

- Receive two repeat educational visits on Combined Oral Contraceptives (COC)

Outcome measures

1. Knowledge Score
2. Attitude Score
3. Confidence Score
4. Reported Practice Score

- For all scores, the control group mean is 0 and the standard deviation is 1.

Treatment and control groups are similar

	Treatment	Control	Diff	[S.E.]
Female [1]	0.68	0.69	-0.01	[0.06]
Average years of clinical experience	24.60	24.80	-0.20	[1.07]
Average years of clinical experience in FP	17.10	17.60	-0.50	[1.19]
Doctors with dual practice	0.14	0.09	0.05	[0.04]
Baseline Knowledge Score (standardized)	0.18	0.00	0.18	[0.15]
Baseline Attitude Score (standardized)	0.15	0.00	0.15	[0.15]
Baseline Practice Score (standardized)	-0.15	0.00	-0.15	[0.12]
Baseline Availability of DMPA stock at clinic	0.20	0.24	-0.03	[0.06]
# times discussed DMPA in past month	5.1	5.7	-0.64	[1.10]
# times prescribed DMPA in past month	2.0	2.4	-0.38	[0.53]

Weak compliance to EBM intervention within the treatment group

	Treatment N=135	Control N=132
Attended EBM DMPA seminar	0.452	0.015
Received both educational visits on DMPA	0.763	0.000
Received at least one educational visit on DMPA	0.852	0.000
Attended seminar AND received both educational visits on DMPA	0.385	0.000
Received at least one educational visit on COC	0.000	0.848

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Estimation Strategy

- Intent to treat (ITT) estimates using OLS:
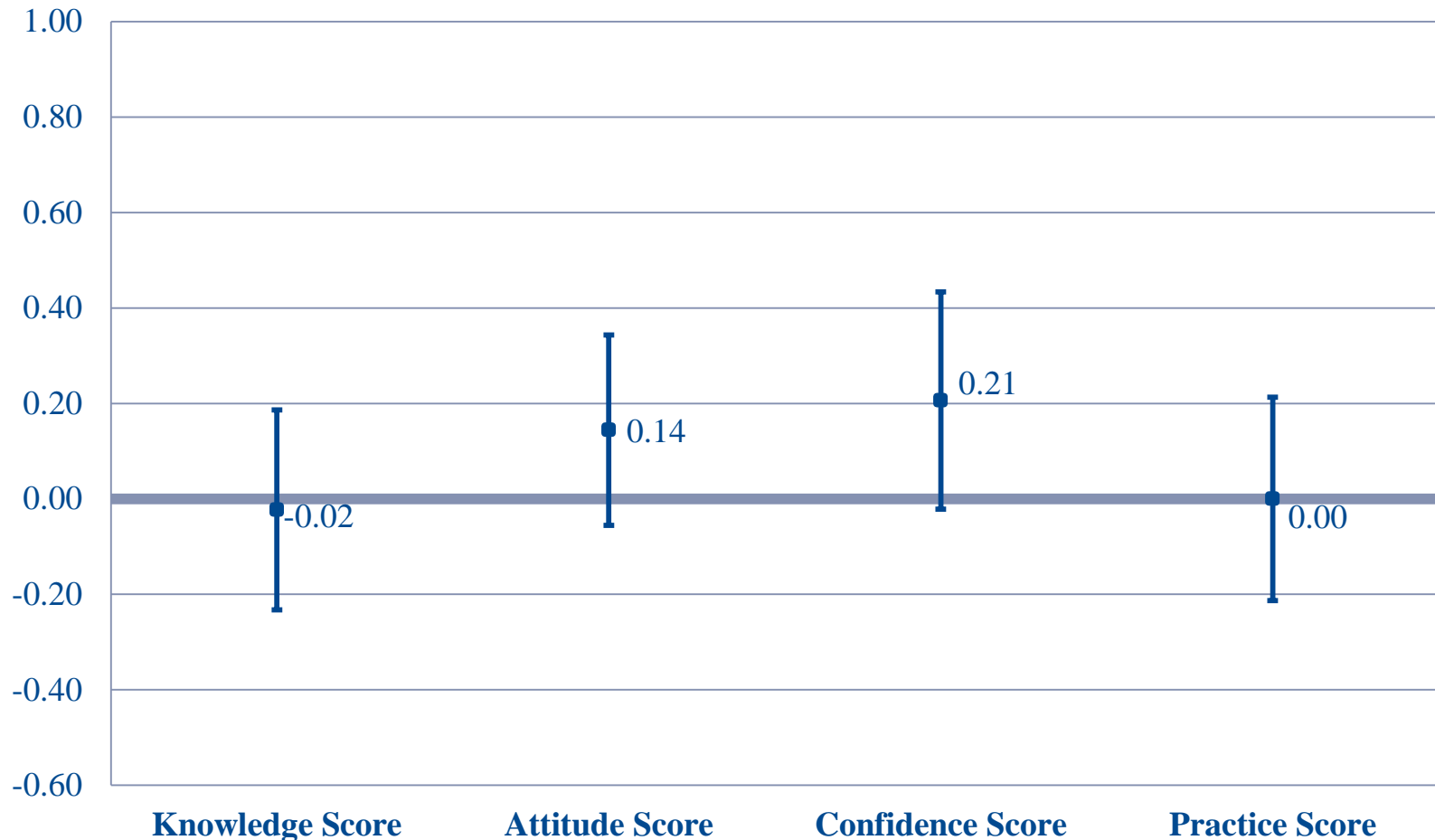
$$Y_i = \alpha_1 + \beta_1 T_i + \varepsilon_{1i} \qquad \text{Eq (1)}$$

- Treatment on the treated (TOT) estimates using IV (2SLS):

$$Y_i = \alpha_2 + \beta_2 \widehat{ACTUAL\_T}_i + \varepsilon_{2i} \qquad \text{Eq (2)}$$
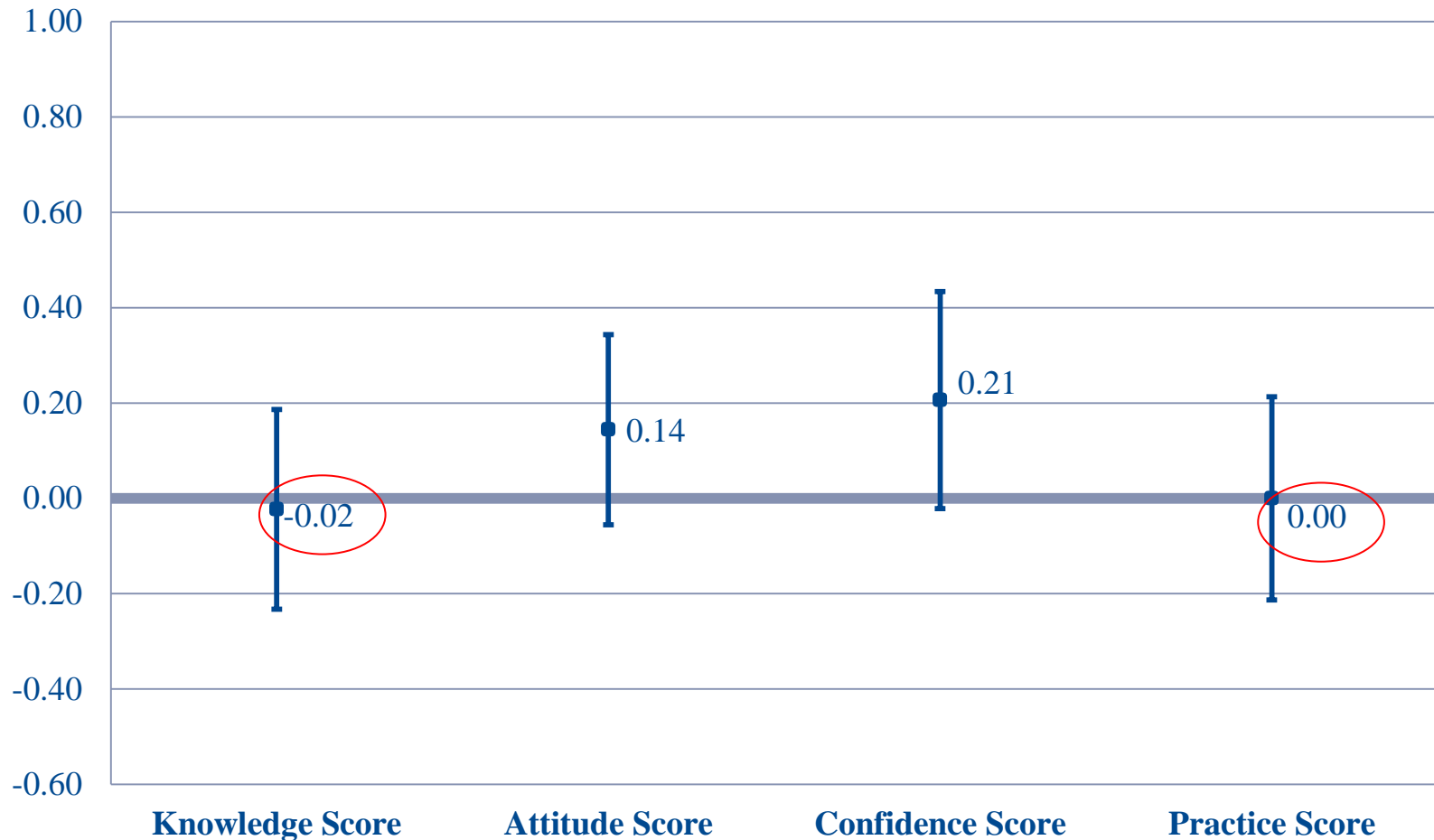
Where first stage is:

$$ACTUAL\_T_i = \alpha_3 + \beta_3 T_i + \varepsilon_{3i} \qquad \text{Eq (3)}$$

Fail to detect impact on knowledge & practices, but suggestive evidence related to attitude & confidence

■ **Intention to Treat (ITT)**
Lines represents 90% confidence intervals

Fail to detect impact on knowledge & practices, but suggestive evidence related to attitude & confidence
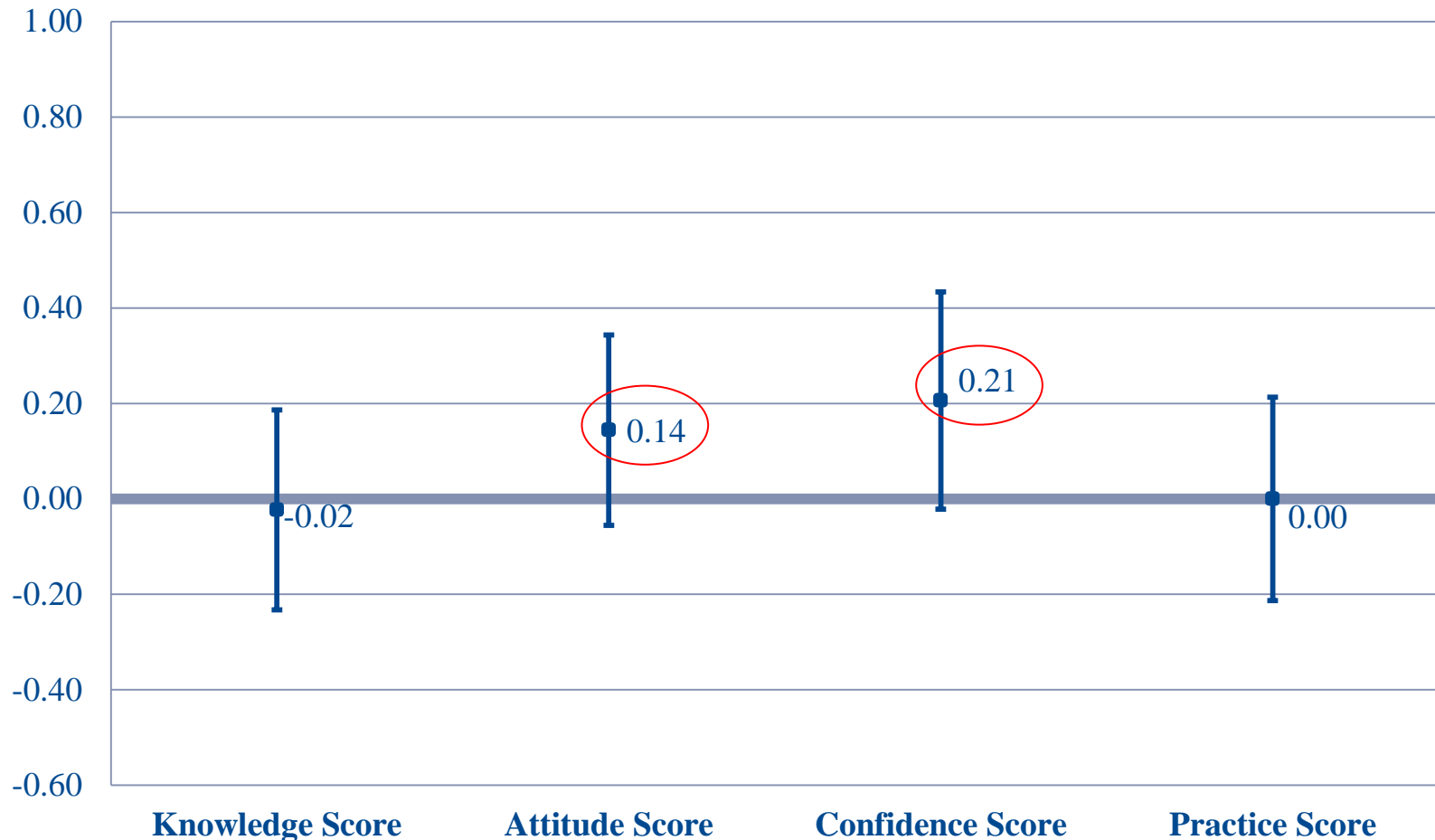

■ Intention to Treat (ITT)
Lines represents 90% confidence intervals

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Fail to detect impact on knowledge & practices, but suggestive evidence related to attitude & confidence

■ Intention to Treat (ITT)
Lines represents 90% confidence intervals

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Fail to detect impact on knowledge & practices, but suggestive evidence related to attitude & confidence
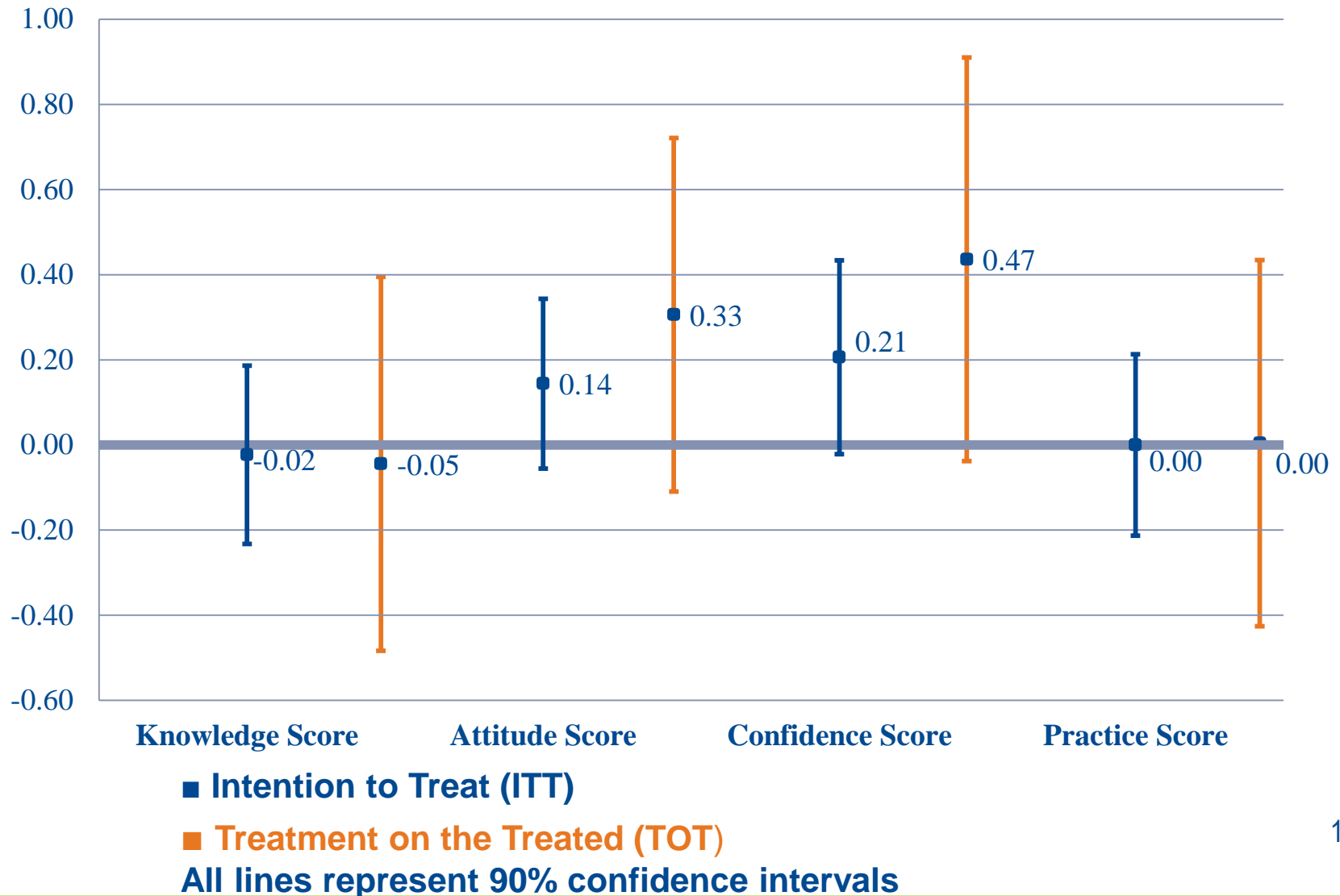

Knowledge Score — ITT: -0.02, TOT: -0.05
Attitude Score — ITT: 0.14, TOT: 0.33
Confidence Score — ITT: 0.21, TOT: 0.47
Practice Score — ITT: 0.00, TOT: 0.00

■ **Intention to Treat (ITT)**

■ **Treatment on the Treated (TOT)**
All lines represent 90% confidence intervals

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Fail to detect impact on knowledge & practices, but suggestive evidence related to attitude & confidence
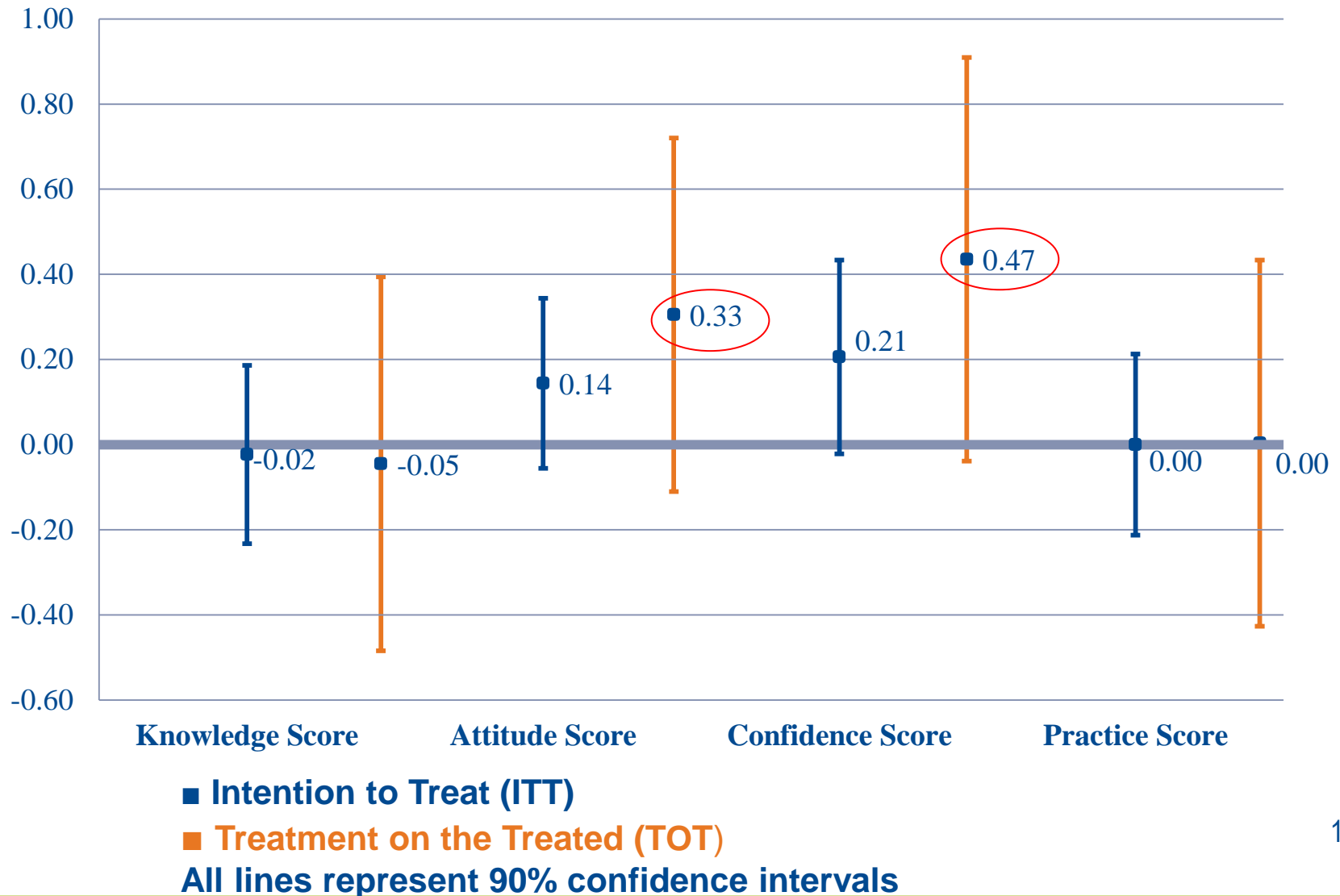

Chart showing 90% confidence intervals for Knowledge Score, Attitude Score, Confidence Score, and Practice Score.

Values shown: Knowledge Score: -0.02 (ITT), -0.05 (TOT); Attitude Score: 0.14 (ITT), 0.33 (TOT, circled); Confidence Score: 0.21 (ITT), 0.47 (TOT, circled); Practice Score: 0.00 (ITT), 0.00 (TOT).

■ **Intention to Treat (ITT)**
■ **Treatment on the Treated (TOT)**
All lines represent 90% confidence intervals

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Summary

- Fail to detect an impact on provider knowledge and practice

- Suggestive evidence of positive impact on confidence and attitude toward DMPA

Programmatic Implications

- Provider behavior difficult to change

- EBM Jordan program intensity may be too low

- Complementary approaches may be needed on demand side

- May need to explore different approaches in implementing EBM in Jordan or different approaches altogether

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Providers who attended the seminar were more knowledgeable

	Attended seminar (A)	Did not attend seminar (B)	Difference (A) - (B) Mean	SE
Baseline Knowledge Score [1]	0.449	-0.027	0.476**	0.169
Baseline Attitude Score [1]	0.285	0.002	0.283	0.175
Baseline Practice Score [1]	-0.113	-0.064	-0.049	0.145
Female	0.770	0.608	0.162**	0.079
Amman	0.836	0.784	0.052	0.068
Years of FP experience	17.0	17.3	-0.288	1.574
Sample range	46 -61	50-74		

Significant at 90% (*), 95% (**), 99% (***) confidence.

(1) For all scores, the group of providers who did not attend the seminar has a mean of zero and a standard deviation of one.

Baseline Knowledge

Kernel density estimate