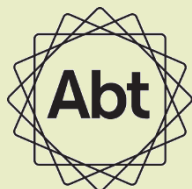# Is Medical Evidence Enough?

# How Evidence Based Medicine Affects Family Planning Providers: A Randomized Experiment in Jordan

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# Background

- Biases and misconceptions held by health providers can adversely affect the delivery of quality health services.

- In Jordan, misconceptions toward family planning methods, especially hormone-based are common.

- Some studies find that using Evidence Based Medicine (EBM) approach helps reduce biases among providers.

- Research evidence disseminated through professional courses, workshops, educational outreach visits, or similar interventions

# Objectives

- Study the impact of an EBM intervention in Jordan aimed to dispel misconceptions related to depot medroxy progesterone (DMPA), a 3-month hormonal injectable contraceptive on:

  - Providers' knowledge of DMPA and its side effects

  - Attitudes and perceived confidence towards DMPA

  - Clinical behaviors, such as discussion and prescription of DMPA

# Methods

- Sample: 267 private health providers in two urban areas of Jordan, Amman and Zarqa
- Random assignment into Treatment (135) and Control (132), stratified by area and gender
- 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**

# EBM DMPA Intervention

## Treatment

- Providers invited to attend a roundtable seminar discussing research evidence on DMPA

- Providers participate in two educational visits to reinforce seminar messages on DMPA

## Control

- Providers participate in two repeat educational visits to reinforce prior seminar messages on Combined Oral Contraceptives (COC)

# Provider Characteristics and Baseline Equivalence

|  | Treatment | Control | Diff | (S.E.) |
|---|---|---|---|---|
| **Provider Characteristics** | | | | |
| Female | 0.68 | 0.69 | -0.01 | (0.06) |
| Yrs clinical experience | 24.60 | 24.80 | -0.20 | (1.07) |
| Yrs clinical experience in FP | 17.10 | 17.60 | -0.50 | (1.19) |
| Num patients per week | 83.40 | 90.20 | -6.80 | (9.48) |
| Num FP patients per week | 16.30 | 20.41 | -4.11 | (3.16) |
| | | | | |
| **Baseline Knowledge/Attitudes/Practices** | | | | |
| DMPA Knowledge Score (standardized) | 0.08 | 0.03 | 0.05 | (0.16) |
| Positive Attitude Score (standardized) | 0.00 | 0.01 | 0.00 | (0.15) |
| Availability of DMPA stock at clinic | 0.20 | 0.23 | -0.03 | (0.06) |
| Times discussed DMPA with clients in past month | 4.91 | 5.84 | -0.93 | (1.18) |
| Times prescribed DMPA in past month | 1.85 | 2.43 | -0.58 | (0.55) |

# 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):

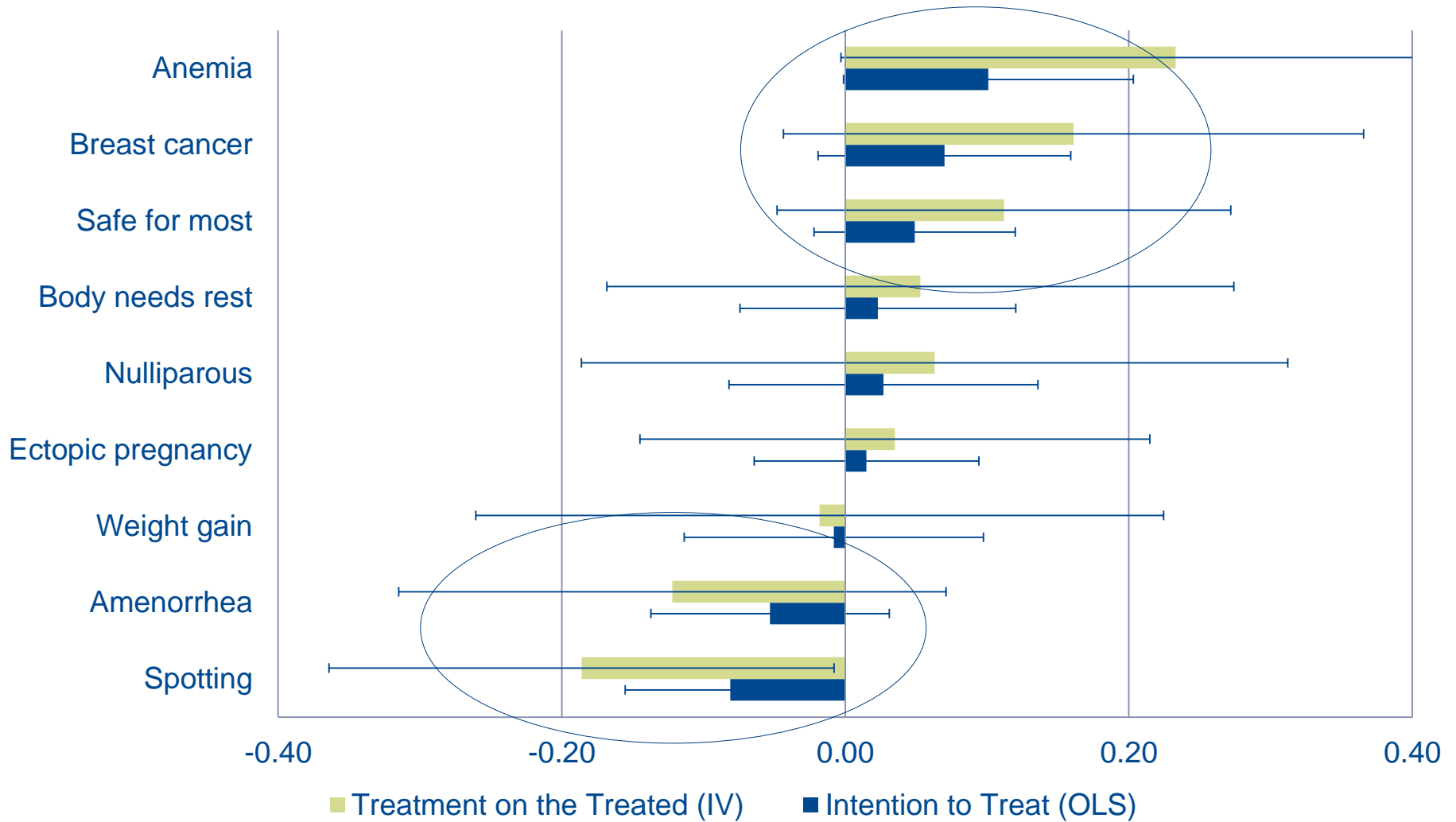$$Y_i = \alpha_2 + \beta_2 \widehat{ACTUAL\_T}_i + \varepsilon_{2i} \qquad \text{Eq (2)}$$

*Where first stage is:*

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

# Adherence to Intervention

| | Treatment N=135 | Control N=132 |
| --- | --- | --- |
| Attended EBM 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 |

# Impact on Knowledge



**Legend:** Treatment on the Treated (IV) · Intention to Treat (OLS)

Categories (top to bottom): Anemia, Breast cancer, Safe for most, Body needs rest, Nulliparous, Ectopic pregnancy, Weight gain, Amenorrhea, Spotting

X-axis: -0.40, -0.20, 0.00, 0.20, 0.40

# Impact on Attitudes



Chart showing impact on attitudes comparing Treatment on the Treated (IV) and Intention to Treat (OLS), with x-axis ranging from -0.4 to 0.4.

Categories (top to bottom):
- No hesitations to prescribe DMPA
- More info might increase DMPA use
- Amenorrhea could benefit some
- Want more info on DMPA

Legend: ■ Treatment on the Treated (IV)  ■ Intention to Treat (OLS)

# Impact on Perceived Confidence
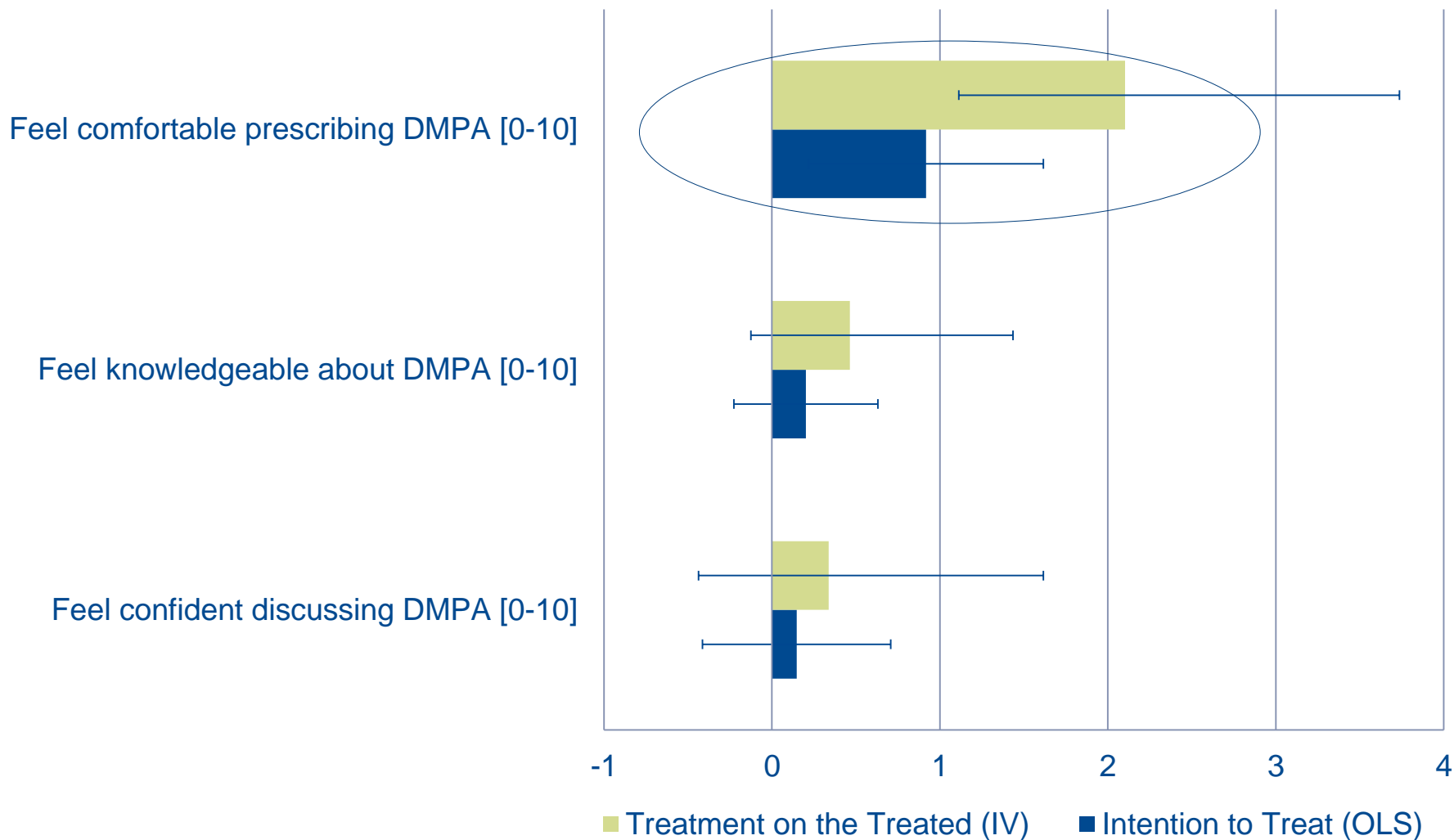
# Impact on Clinical Practices

Number of times discussed DMPA with clients in past month

Number of times prescribed DMPA in past month

-40.00    -30.00    -20.00    -10.00    0.00    10.00    20.00

■ Treatment on Treated (IV)    ■ Intention to Treat (OLS)
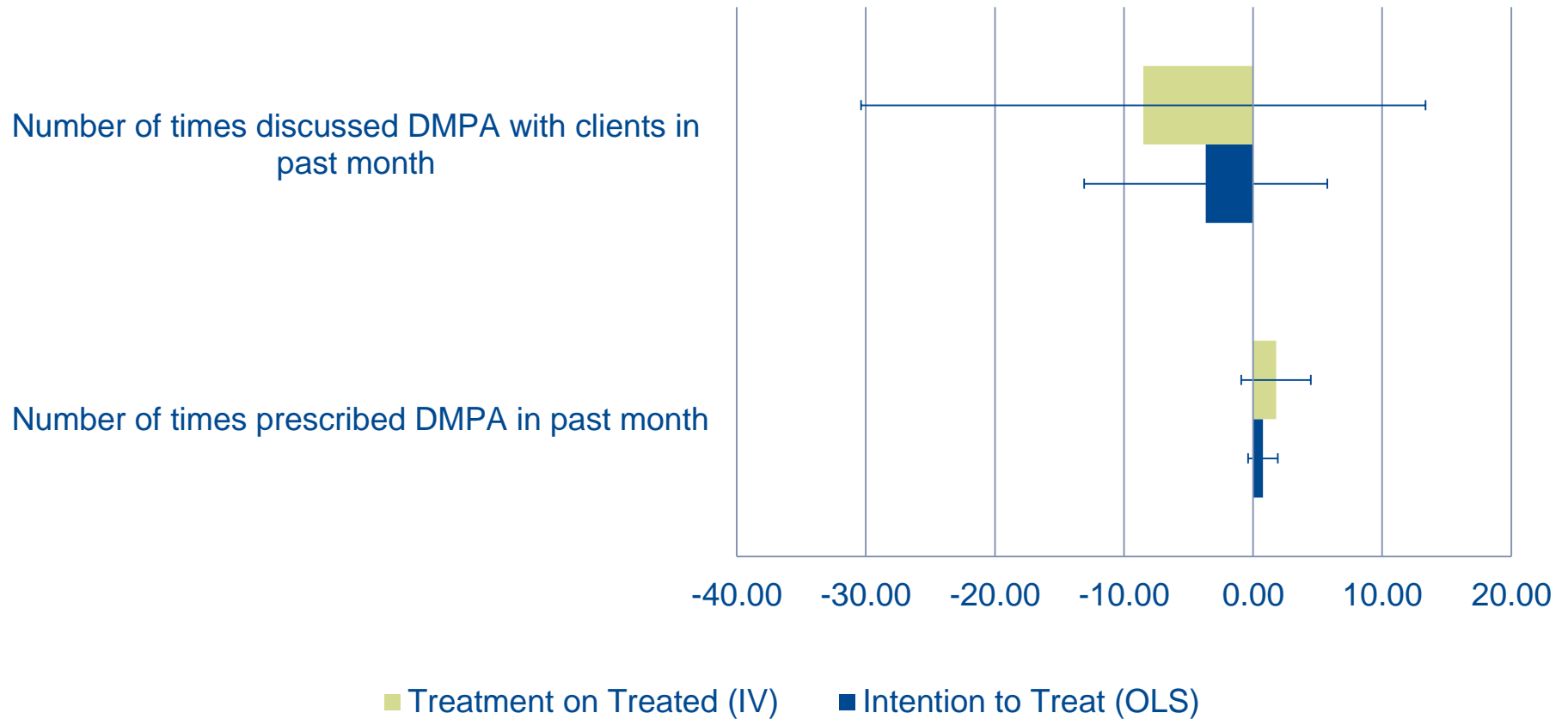
# Summary / Discussion

- Overall, absence of large and significant impacts
  - Some evidence of positive impact on willingness and comfort prescribing DMPA
- Providers less likely to identify two common and important side effects of DMPA
- Possible reasons:
  - High rate of no-shows to seminar; evidence of positive selection
  - Significant demand-side bias regarding DMPA
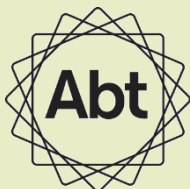  - 'Light' intervention?
- Study limitations

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# Table A: Impact on Knowledge of DMPA

| | Control group variable mean | | Coefficient estimate on treatment (OLS) | | Coefficient estimate on actual intervention (IV-2SLS) | |
|---|---|---|---|---|---|---|
| | Mean | S.D. | Mean | S.E. | Mean | S.E. |
| **Dependent variable: Agree with -** | | | | | | |
| "Women who use DMPA less likely to suffer from anemia" | 0.625 | 0.486 | 0.101 | [0.062] | 0.233 | [0.143] |
| "Use of DMPA associated with weight gain" | 0.384 | 0.489 | -0.008 | [0.064] | -0.018 | [0.147] |
| "Women who use DMPA more likely to experience amenorrhea" | 0.848 | 0.360 | -0.053 | [0.051] | -0.122 | [0.117] |
| "Women who use DMPA more likely to experience spotting" | 0.902 | 0.299 | **-0.081\*** | **[0.045]** | **-0.186\*** | **[0.108]** |
| "I should not prescribe DMPA to nulliparous women who wish to delay childbirth" | 0.563 | 0.498 | 0.027 | [0.066] | 0.063 | [0.151] |
| "DMPA use is safe for most healthy women" | 0.857 | 0.351 | 0.049 | [0.043] | 0.112 | [0.097] |
| | | | | | | |
| **Dependent variable: Disagree with -** | | | | | | |
| "Women are at a higher risk of ectopic pregnancy if they use DMPA long term" | 0.839 | 0.369 | 0.015 | [0.048] | 0.035 | [0.109] |
| "DMPA use is associated with an increased incidence of breast cancer" | 0.759 | 0.430 | 0.070 | [0.054] | 0.161 | [0.124] |
| "After two years of continuous use of DMPA, women should give their body a rest" | 0.259 | 0.440 | 0.023 | [0.059] | 0.053 | [0.134] |
| | | | | | | |
| **Knowledge score effect (standardized)** | 0.000 | 1.000 | 0.061 | 0.129 | 0.141 | 0.294 |

# Table B: Impact on Attitudes and Perceived Confidence in DMPA

| Dependent variable | Control group variable mean | | Coefficient estimate on treatment (OLS) | | Coefficient estimate on actual intervention (IV-2SLS) | |
|---|---|---|---|---|---|---|
| | Mean | S.D. | Mean | S.E. | Mean | S.E. |
| Agree with: "For some women, amenorrhea can be beneficial or desired" | 0.670 | 0.472 | -0.029 | [0.063] | -0.066 | [0.145] |
| Agree with: "I would like to obtain more DMPA info" | 0.839 | 0.369 | -0.044 | [0.051] | -0.102 | [0.118] |
| Agree with: "If women in Jordan had more information about DMPA, more women might accept its use" | 0.759 | 0.430 | 0.044 | [0.055] | 0.102 | [0.125] |
| Agree with: "I would have no hesitations to recommend DMPA to a healthy woman who wanted to use this method" | 0.830 | 0.377 | **0.076*** | **[0.045]** | **0.173*** | **[0.103]** |
| Attitude score effect (standardized) | 0.000 | 1.000 | 0.046 | 0.131 | 0.106 | 0.297 |
| | | | | | | |
| Feel knowledgeable about DMPA [0-10] | 7.866 | 1.882 | 0.202 | [0.260] | 0.464 | [0.589] |
| Feel confident discussing DMPA [0-10] | 7.793 | 2.534 | 0.147 | [0.340] | 0.338 | [0.775] |
| Feel comfortable prescribing DMPA [0-10] | 5.955 | 3.198 | **0.917**** | **[0.424]** | **2.103**** | **[0.990]** |
| Perceived Confidence Score effect (standardized) | 0.000 | 1.000 | 0.188 | 0.137 | 0.464 | 0.589 |

# Table C: Impact on Reported Practices

| Dependent variable | Control group variable mean | | Coefficient estimate on treatment (OLS) | | Coefficient estimate on actual intervention (IV-2SLS) | |
|---|---|---|---|---|---|---|
| | Mean | S.D. | Mean | S.E. | Mean | S.E. |
| Availability of DMPA stock at clinic | 0.268 | 0.445 | -0.088 | [0.055] | -0.203 | [0.131] |
| Number of times discussed DMPA with clients in past month | 12.28 | 57.53 | -3.67 | [5.71] | -8.51 | [13.25] |
| Number of times prescribed DMPA in past month | 2.80 | 5.29 | 0.77 | [0.70] | 1.78 | [1.63] |

# Table D: Baseline Statistics, by Seminar Attendance

| | Seminar = 1 | Seminar =0 | Difference (1) - (2) | |
|---|---|---|---|---|
| | | | Mean | SE |
| | (1) | (2) | (3) | |
| **Baseline Knowledge on DMPA** | | | | |
| **Disagree: Higher risk of ectopic pregnancy** | 0.729 | 0.750 | -0.021 | 0.073 |
| **Disagree: Higher risk of breast cancer** | 0.875 | 0.800 | 0.075 | 0.064 |
| **Agree: Anemia less likely** | 0.771 | 0.607 | **0.164** | **0.079**\*\* |
| **Disagree: After two years DMPA, should give body rest** | 0.521 | 0.312 | **0.209** | **0.079**\*\*\* |
| **Agree: Weight gain more likely** | 0.437 | 0.389 | 0.048 | 0.082 |
| **Agree: Should not prescribe if nulliparous and wants to delay** | 0.255 | 0.243 | 0.012 | 0.073 |
| **Agree: Safe for most healthy women** | 0.937 | 0.860 | 0.077 | 0.054 |
| **Average Knowledge Score (normalized)** | 0.289 | -0.032 | **0.321** | **0.167**\* |
| | | | | |
| **Baseline Attitudes** | | | | |
| **Agree: for some, amenorrhea can be beneficial** | 0.812 | 0.657 | **0.155** | **0.076**\*\* |
| **Agree: If more had info, more might use DMPA** | 0.704 | 0.746 | -0.042 | 0.077 |
| **Agree: No hesitations to prescribe DMPA** | 0.854 | 0.792 | 0.063 | 0.066 |
| **Agree: I would like more info on DMPA** | 0.959 | 0.914 | 0.045 | 0.043 |
| **Average Positive Attitude Score (normalized)** | 0.162 | -0.040 | 0.202 | 0.169 |
| | | | | |
| **Baseline Practices** | | | | |
| **Availability of DMPA stock at clinic** | 0.239 | 0.212 | 0.028 | 0.071 |
| **Average # times discussed DMPA with clients in past month** | 5.200 | 5.482 | -0.282 | 1.270 |
| **Average # times prescribed DMPA in past month** | 1.950 | 2.270 | -0.320 | 0.612 |
| **Sample (N)** | 63 | 204 | | |