

ARE WE TELLING PATIENTS EVERYTHING THEY NEED TO KNOW ABOUT PCOS?

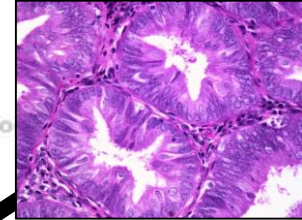
Infertility



Hirsutism



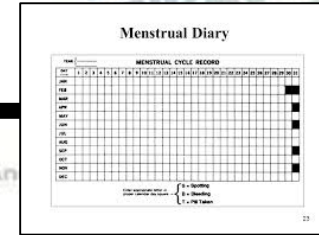
Endometrial hyperplasia



Preeclampsia



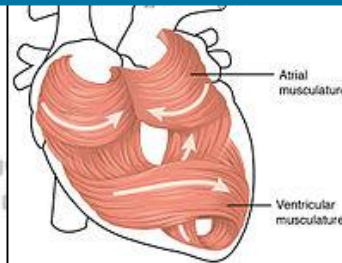
OBESITY



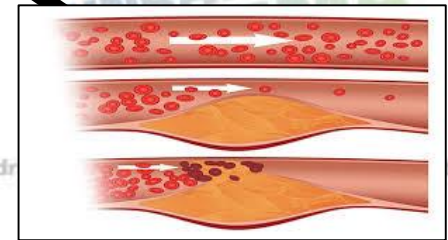
Oligomenorrhea



Glucose intolerance



Cardiovascular disease risk



Hyperlipidemia

PCOS is an Under-Recognised Condition

| Country | Prevalence NIH | Prevalence Rotterdam |
|-----------------|----------------|----------------------|
| Australia | 8.6-15.3% | 9-21.3% |
| Brazil | NA | 8.5% |
| China | 2.2-7.1% | 5.6-11.2% |
| Denmark | NA | 16.6% |
| Greece | 6.8% | NA |
| Iran | 4.8-7.1% | 14.1-15.2% |
| Italy and Spain | 5.4% | NA |
| Mexico | 6% | NA |
| Sri Lanka | NA | 6.3% |
| Turkey | 6.1% | 19.9% |
| UK | 8% | NA |
| USA | 4-13% | NA |

Research article

Diagnostic and treatment characteristics of polycystic ovary syndrome: descriptive measurements of patient perception and awareness from 657 confidential self-reports

E Scott Sills*¹, Mark Perloe¹, Michael J Tucker¹, Carolyn R Kaplan¹, Marc Georges Genton² and Glenn L Schattman³

Most significant concerns regarding PCOS

- Difficulty conceiving 62%
- Weight problems 16.5%
- Sexual dysfunction 9.8%

Patient emotions attributed to their diagnosis

- Frustrations 66.5%
- Anxiety 16.3%
- Sadness 10.2%

PCOS Experience - Australia

(n=210)

Satisfaction with manner of diagnosis

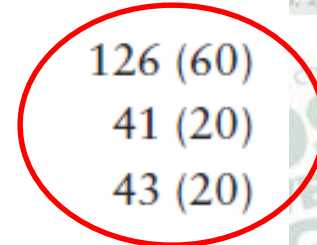
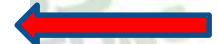
| | |
|------------------------------------|----------|
| Dissatisfied | 68 (33) |
| Neither satisfied nor dissatisfied | 38 (18) |
| Satisfied | 103 (49) |

Given or referred to information at PCOS diagnosis

| | |
|----------------------------|----------|
| No | 126 (60) |
| Yes | 41 (20) |
| Yes, but it was inadequate | 43 (20) |

Satisfaction with information given about PCOS (n = 84)

| | |
|-----------------------------|---------|
| Dissatisfied or indifferent | 52 (62) |
| Satisfied | 32 (38) |



Women's experiences of polycystic ovary syndrome

Satisfaction with information given about lifestyle management (n = 84)

Dissatisfied or indifferent

39 (46)

Satisfied

27 (32)

This information was not mentioned

18 (21)

Satisfaction with information given about medical therapy (n = 84)

Dissatisfied or indifferent

45 (53)

Satisfied

30 (36)

This information was not mentioned

9 (11)

Satisfaction with information given about long-term complications (n = 84)

Dissatisfied or indifferent

45 (53)

Satisfied

25 (30)

This information was not mentioned

14 (17)

Satisfaction with information given about potential infertility (n = 84)

Dissatisfied or indifferent

48 (57)

Satisfied

32 (38)

This information was not mentioned

4 (4.8)

THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Delayed Diagnosis and Lack of Information is associated with Dissatisfaction in Women with Polycystic ovary Syndrome Worldwide: Opportunities for Improving Patient Experience

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Melanie Gibson-Helm, Helena Teede, Andrea Dunaif,
Anuja Dokras.

THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

JCEM, 2017

THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

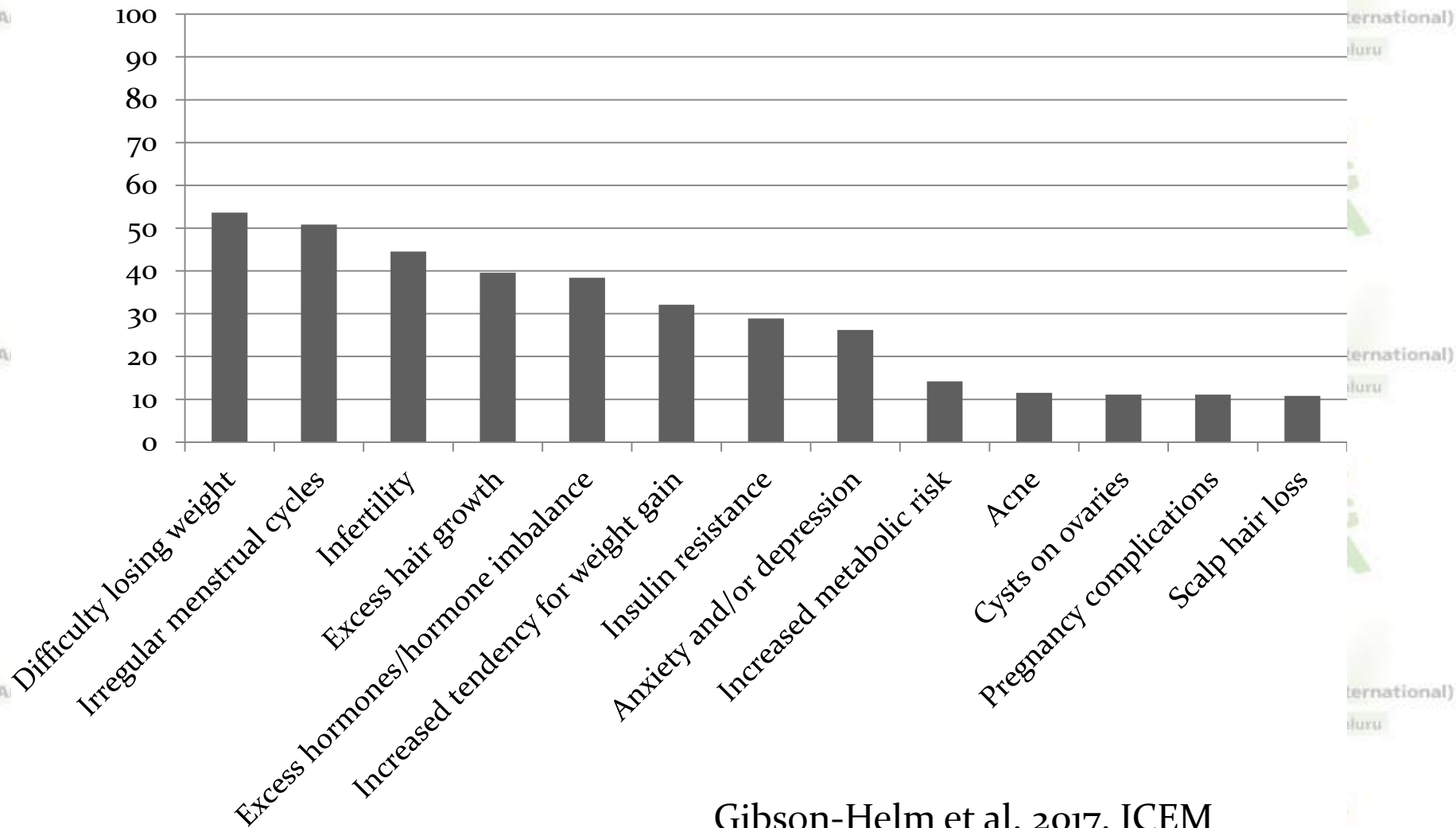
THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

Patient Perceptions of PCOS

| PCOS diagnosis experience: | North America | Europe |
|---|----------------------|-------------------|
| Time since diagnosis | n (%) | n (%) |
| ≤ 1.0 year | 103 (14.2) | 47 (8.1) |
| 1.1-5.0 years | 183 (25.2) | 133 (23.0) |
| 5.1-10.0 years | 181 (25.0) | 152 (26.3) |
| > 10.0 years | 258 (35.6) | 246 (42.6) |
| Time until diagnosis | | |
| Within 6 months | 294 (40.5) | 266 (45.9) |
| Within 6- 12 months | 86 (11.9) | 88 (15.2) |
| Within 1-2 years | 74 (10.2) | 55 (9.4) |
| More than 2 years | 271 (37.4) | 171 (29.5) |
| Number of health professionals seen before diagnosis | | |
| 1 – 2 | 364 (50.0) | 327 (56.8) |
| 3 – 4 | 272 (37.4) | 178 (30.9) |
| 5 or more | 92 (12.6) | 71 (12.3) |

Perceived Key Features of Most Concern to Patients



Gibson-Helm et al, 2017, JCEM

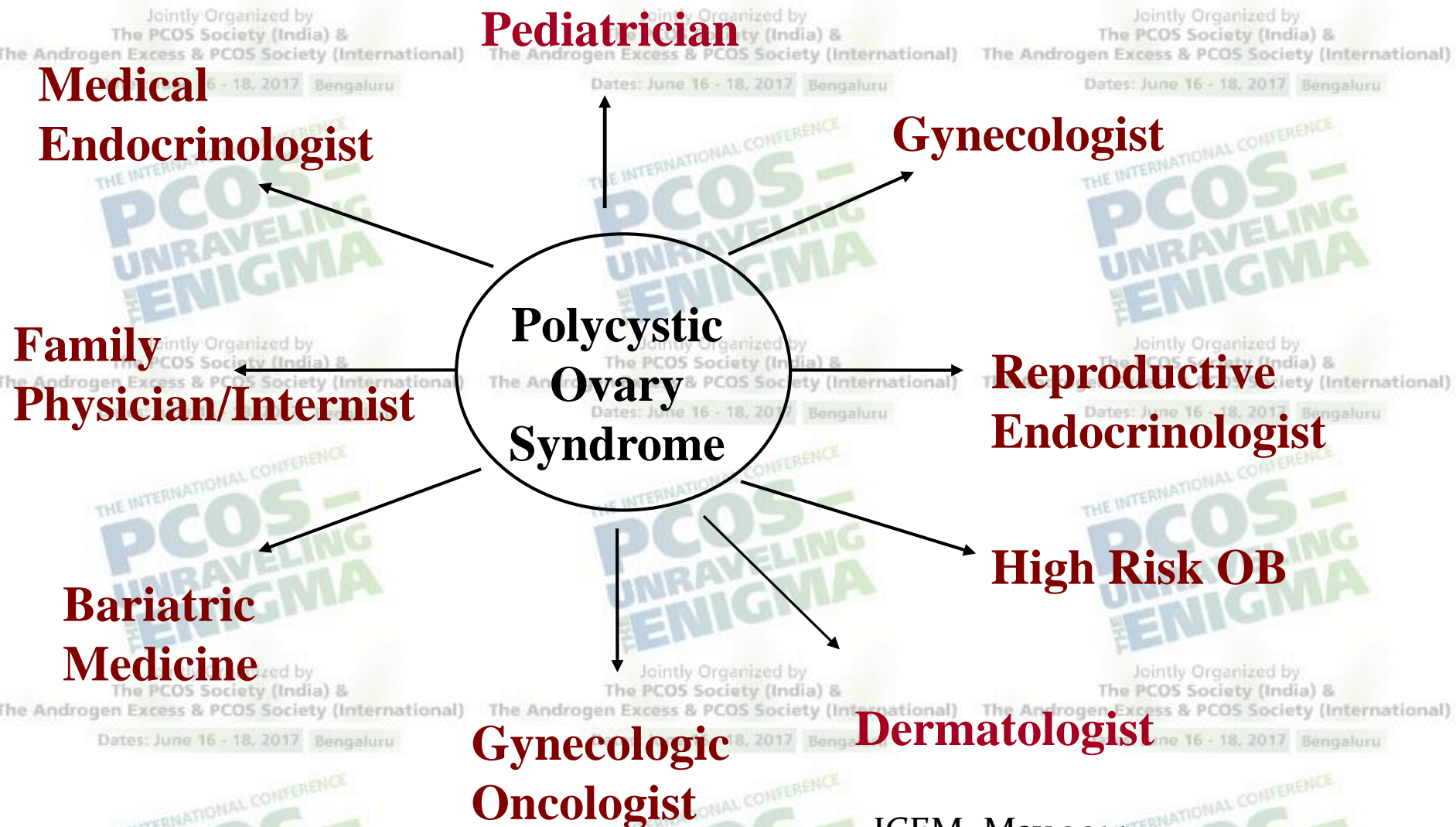
| Key concerns of PCOS | Age: 18-25yrs | Age: 36-45yrs | Age: >45yrs | Region: Europe |
|--------------------------|----------------------|----------------------|----------------------|----------------------|
| Reference category | | 26-35 years | | North America |
| Difficulty losing weight | 1.0 (0.8 to 1.4) | 1.1 (0.9 to 1.4) | 1.3 (0.8 to 2.0) | 0.7* (0.6 to 0.9) |
| Irregular cycles | 1.5* (1.1 to 2.0) | 0.6* (0.5 to 0.8) | 0.2* (0.1 to 0.3) | 0.9 (0.7 to 1.1) |
| Infertility | 0.8 (0.6 to 1.1) | 0.6* (0.4 to 0.7) | 0.3* (0.2 to 0.4) | 0.9 (0.7 to 1.2) |
| Excess hair growth | 0.9 (0.6 to 1.3) | 1.4* (1.1 to 1.8) | 1.5 (1.0 to 2.3) | 1.7* (1.3 to 2.1) |
| Insulin resistance | 0.6* (0.4 to 0.9) | 1.4* (1.1 to 1.8) | 1.7* (1.1 to 2.6) | 0.4* (0.3 to 0.5) |
| Increased metabolic risk | 1.0 (0.6 to 1.7) | 1.6* (1.1 to 2.2) | 3.6* (2.2 to 5.8) | 1.0 (0.7 to 1.3) |
| Anxiety/depression | 1.3 (0.9 to 1.8) | 0.8 (0.6 to 1.1) | 1.2 (0.7 to 1.8) | 1.6* (1.2 to 2.0) |

Information Regarding PCOS

| | North America | Europe |
|--|-------------------|-------------------|
| Satisfaction with information about PCOS | | |
| Dissatisfied or indifferent | 606 (83.0) | 505 (86.9) |
| Satisfied | 124 (17.0) | 76 (13.1) |
| Information about lifestyle management | | |
| Dissatisfied or indifferent | 316 (43.2) | 250 (43.1) |
| Satisfied | 95 (13.0) | 55 (9.5) |
| This information was not mentioned | 320 (43.8) | 275 (47.4) |
| Information about medical therapy | | |
| Dissatisfied or indifferent | 406 (55.7) | 302 (52.2) |
| Satisfied | 141 (19.3) | 74 (12.8) |
| This information was not mentioned | 182 (25.0) | 203 (35.0) |
| Information on long term complications | | |
| Dissatisfied or indifferent | 299 (41.0) | 225 (38.9) |
| Satisfied | 68 (9.3) | 30 (5.2) |
| This information was not mentioned | 363 (49.7) | 323 (55.9) |
| Emotional support and counselling after diagnosis | | |
| Dissatisfied or indifferent | 275 (37.6) | 184 (31.8) |
| Satisfied | 30 (4.1) | 10 (1.7) |
| This information was not mentioned | 426 (58.3) | 384 (66.4) |

Are Young Adult Women with Polycystic Ovary Syndrome Slipping through the Healthcare Cracks?

Anuja Dokras¹,MD, PhD, Selma Feldman Witchel²,MD



Gaps in knowledge among physicians regarding diagnostic criteria and management of polycystic ovary syndrome

Anuja Dokras, M.D., Ph.D.,^a Shailly Saini, M.D.,^a Melanie Gibson-Helm, Ph.D.,^b Jay Schulkin, Ph.D.,^c Laura Cooney, M.D.,^a and Helena Teede, Ph.D.^b

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

| Demographic characteristics | Number of women (%) |
|-----------------------------|---------------------|
| Age years (%) n=698 | |
| 18-25 | 8(1.1) |
| 26-35 | 118(16.9) |
| 36-45 | 159(22.7) |
| 46-55 | 169(24.1) |
| >56 years | 244(34.9) |
| Gender n=692 | |
| Males | 231(33) |
| Females | 461(65.9) |
| Country of Practice | |
| Canada | 20(2.9) |
| USA | 680(97.1) |
| Profession | |
| REI physicians | 188(26.9) |
| Endocrinologist | 7(1) |
| Gynecologist | 442(63.1) |
| Internist | 6 (0.9) |
| Other | 57(8.1) |

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA
Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)
Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA
Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)
Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA

Co-morbidities Associated with PCOS

| | REI physicians | Gynecologists |
|------------------------------------|----------------|---------------|
| Insulin resistance | 182 (97 %) | 419 (95 %) |
| Increased tendency for weight gain | 170 (90 %) | 357 (81 %) |
| Difficulty losing weight | 171 (91 %) | 355 (80 %) |
| Increased risk of type 2 diabetes | 183 (97 %) | 411 (93 %) |
| Increased risk of CVD | 177 (94 %) | 364 (82 %) |
| Sleep apnea and snoring | 144 (77 %) | 232 (52 %)** |
| Fatty liver | 127 (68 %) | 129 (29 %)** |
| Endometrial cancer | 172 (91 %) | 303 (69 %)** |

**p<0.01 adjusted for age/gender

Dokras et al, F&S, 2017

Screening Practices in PCOS

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA
Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)
Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA
Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)
Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA
Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)
Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA
Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)
Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA
Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)
Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA
Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)
Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA
Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)
Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA
Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)
Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA
Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)
Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA

Metabolic screening in patients with polycystic ovary syndrome is largely underutilized among obstetrician-gynecologists

Amy S. Dhesi, MD; Katie L. Murtough, BS; Jonathan K. Lim, BS; Jay Schulkin, PhD; Peter G. McGovern, MD; Michael L. Power, PhD; Sara S. Morelli, MD

Organized by
Society (India) &
PCOS Society (International)
18, 2017 Bengaluru

TABLE 3
Clinical guidelines for metabolic screening in patients with polycystic ovary syndrome

| Variables | ACOG ¹³ | Endocrine Society ¹⁴ | AE-PCOS Society ¹⁵ |
|------------------------------------|---|---|---|
| Recommended testing | 2 h OGTT (including fasting glucose) Fasting lipid profile | 2 h OGTT (including fasting glucose) Fasting lipid profile | 2 h OGTT (including fasting glucose) Fasting lipid profile |
| Which patients with PCOS to screen | All | All | 2 h OGTT for BMI >30 kg/m ² or in lean PCOS women with age ≥40 y, personal history of gestational diabetes, or family history of type 2 diabetes Lipid profile for all patients with PCOS |

TABLE 1

The frequency of respondents who reported ordering particular tests when seeing a patient with polycystic ovary syndrome during an initial office visit

| Responses | Lipid profile | Hemoglobin A1c | Fasting glucose | Fasting insulin | Two hour OGTT |
|---|----------------------|-----------------------|------------------------|------------------------|----------------------|
| Would never order | 12 (7.6%) | 14 (8.9%) | 26 (16.6%) | 83 (52.9%) | 87 (55.4%) |
| Would order in <50% of patients with PCOS | 58 (36.9%) | 63 (40.1%) | 63 (40.1%) | 30 (19.1%) | 57 (36.3%) |
| Would order in \geq 50% of patients with PCOS | 59 (37.6%) | 60 (38.2%) | 42 (26.8%) | 28 (17.8%) | 7 (4.5%) |
| Would always order | 26 (16.6%) | 20 (12.7%) | 25 (15.9%) | 16 (10.2%) | 4 (2.5%) |
| Did not answer | 2 (1.3%) | 0 (0.0%) | 1 (0.6%) | 0 (0.0%) | 2 (1.3%) |

Numbers are reported as n (percentage).

OGTT, oral glucose tolerance test; PCOS, polycystic ovary syndrome.

Dhesi. Routine metabolic screening in patients with PCOS. Am J Obstet Gynecol 2016.

Screening by Reproductive Endocrinologists

| | |
|--------------------------------|------------|
| 2h oGTT | 62 (45.3%) |
| Fasting insulin and/or glucose | 30 (21.9%) |
| Fasting glucose/insulin ratio | 18 (13.1%) |
| 3h oGTT | 5 (3.6%) |
| QUICKI/HOMA | 3(2.2%) |
| Acanthosis | 3(2.2%) |
| Others | 15 (10.9%) |

Asante et al, JRM, 2015

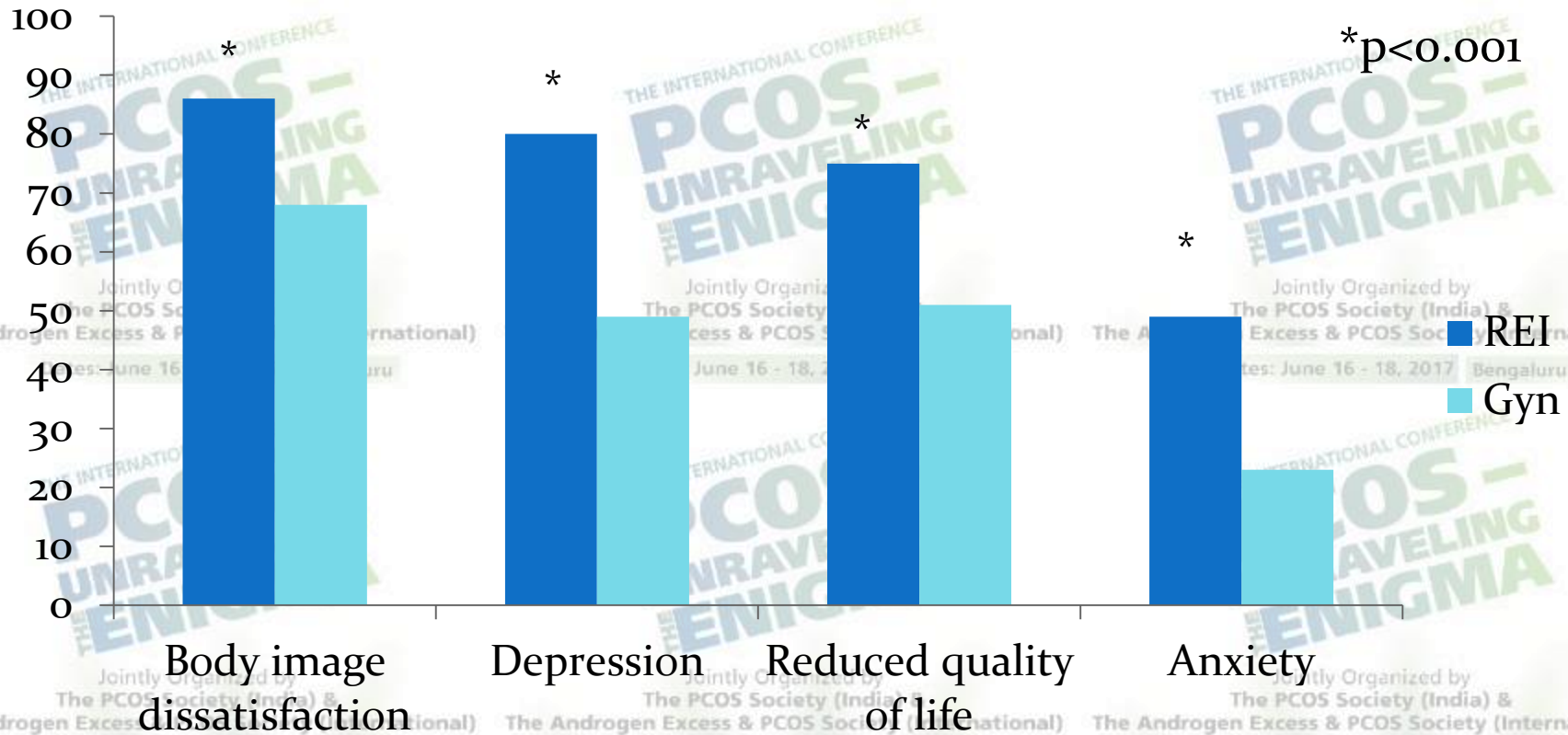
Diagnosis and therapy of polycystic ovarian syndrome: results of a survey among German gynecologists with a review on literature

Ines Doll · Richard Doll · Kai J. Buhling

- More endocrinologists (94%, n=78) performed screening for diabetes compared to gynecologists (83%, n=281, p<0.02)
- More endocrinologists (78%) used metformin for non-fertility indications compared to gynecologists (63%, p<0.02)

Archives of Gynecology & Obstetrics, 2012

Mood & Quality of Life Associated with PCOS



European survey of diagnosis and management of the polycystic ovary syndrome: results of the ESE PCOS Special Interest Group's Questionnaire

Gerard Conway, Didier Dewailly¹, Evanthia Diamanti-Kandarakis², Hector F Escobar-Morreale³, Steven Franks⁴, Alessandra Gambineri⁵, Fahrettin Kelestimur⁶, Djuro Macut⁷, Dragan Micic⁷, Renato Pasquali^{5,†}, Marija Pfeifer⁸, Duarte Pignatelli⁹, Michel Pugeat¹⁰, Bulent O Yildiz¹¹
on behalf of the ESE PCOS Special interest Group

Important long term concern (n=357)

- Obesity/Type 2 diabetes (64%)
- Infertility (29%)
- Cardiovascular disease (12%)
- Psychosocial problems (3%)
- Endometrial cancer (1%)

93% Endocrinologists

Eur J Endocrinol. 2014 Oct;171(4):489-98.

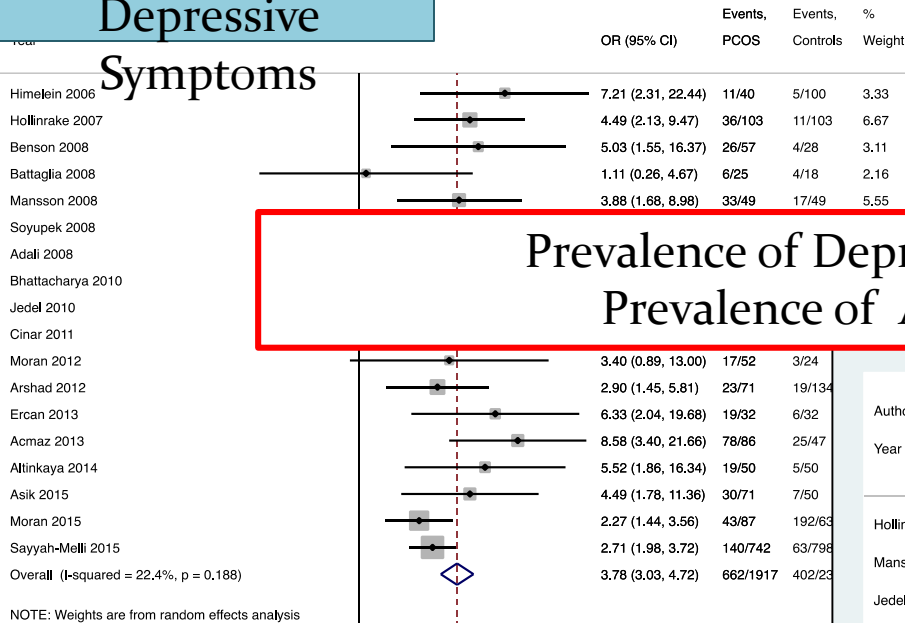
High prevalence of moderate and

severe and anxiety symptoms in women with polycystic ovary syndrome: a systematic review

Mary D. Sammel^{1,2} and Anuja Dokras¹

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)
June 16 - 18, 2017 Bengaluru

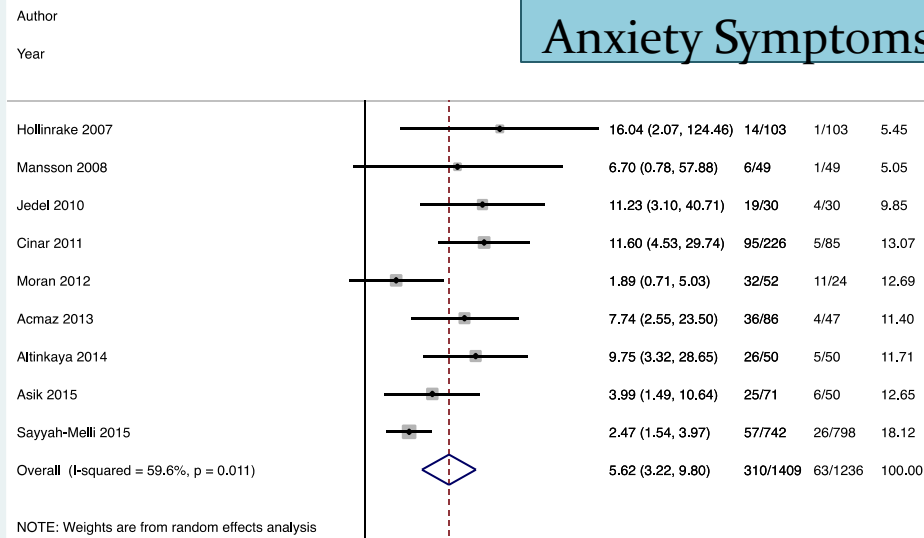
Depressive Symptoms



Prevalence of Depressive symptoms 33%
Prevalence of Anxiety symptoms 42%

OR: 3.78 (95% CI: 3.03-4.72)

Anxiety Symptoms



OR: 5.62 (95% CI: 3.22-9.80)

Treatment of PCOS

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

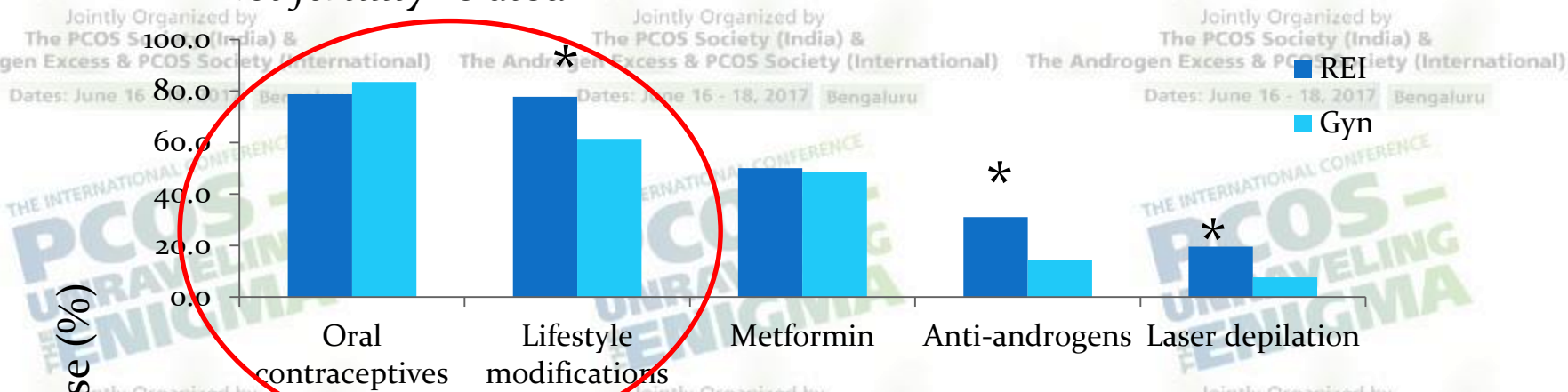
THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA

THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA

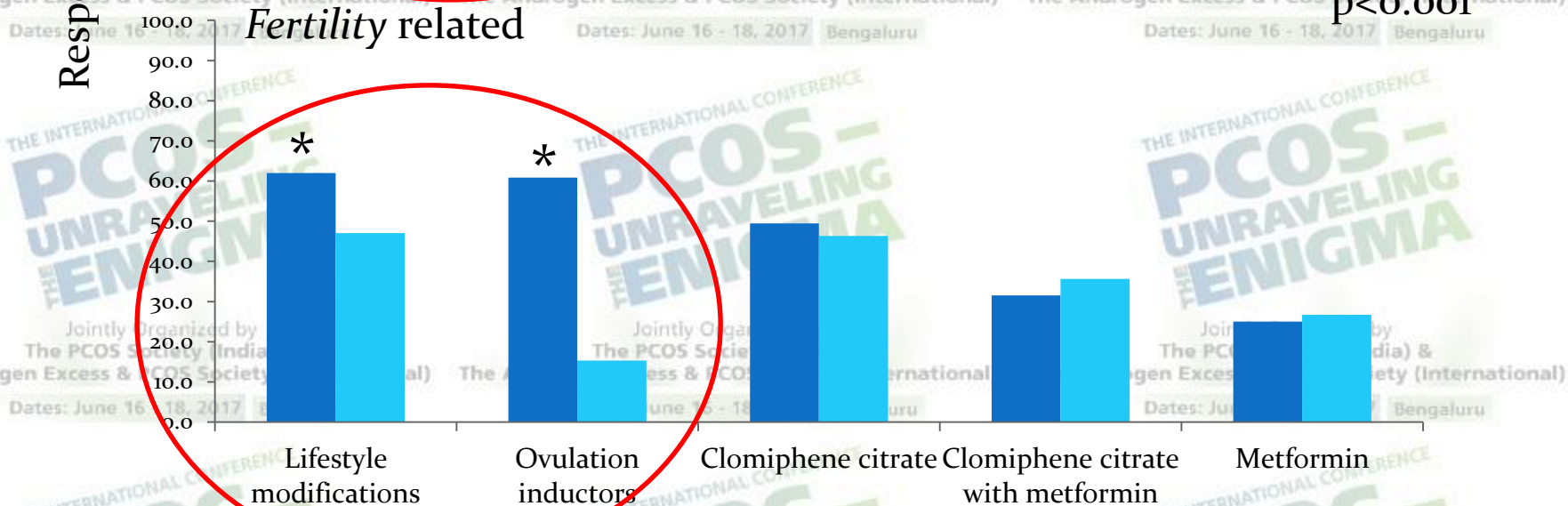
THE INTERNATIONAL CONFERENCE
PCOS - UNRAVELING THE ENIGMA

Most Common Treatment – REI/GYN

Not fertility related

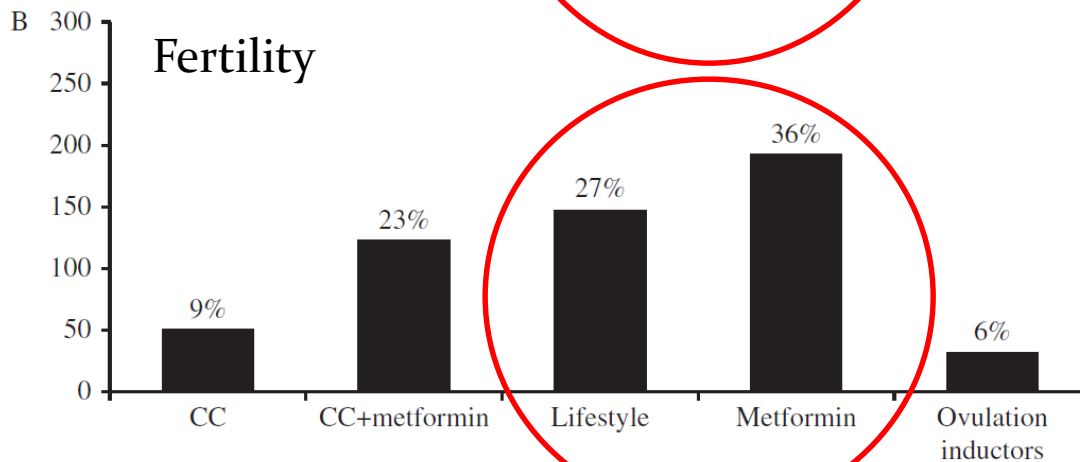
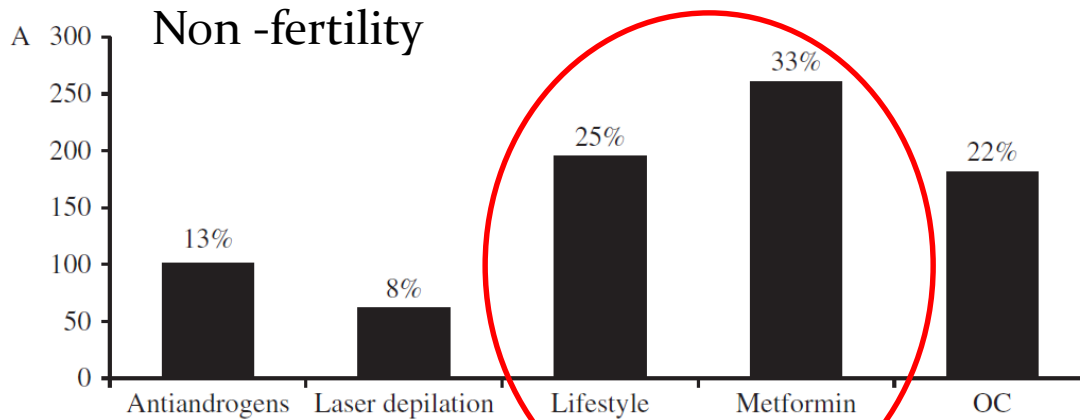


Fertility related



*p<0.001

Most Common Treatment – Endocrinologists



What do we need to tell our patients?

THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

THE INTERNATIONAL CONFERENCE
**PCOS -
UNRAVELING
THE ENIGMA**

Adolescent - Diagnosis

- Overlap with normal puberty
- Recommend caution in diagnosing PCOS if menarche occurred less than 2 years ago
- To prevent misdiagnosis recommend calling an adolescent “AT RISK”
- Offer treatments to alleviate symptoms
- Obesity and insulin resistance are not diagnostic criteria

Witchel et al, Hormone Research Peds 2015

Management - Adolescent

- Menstrual regulation
- Acne
- *Hirsutism*
- Weight management
- Metabolic risk
- *Anxiety/Depression*
- Contraception
- *Fertility*

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

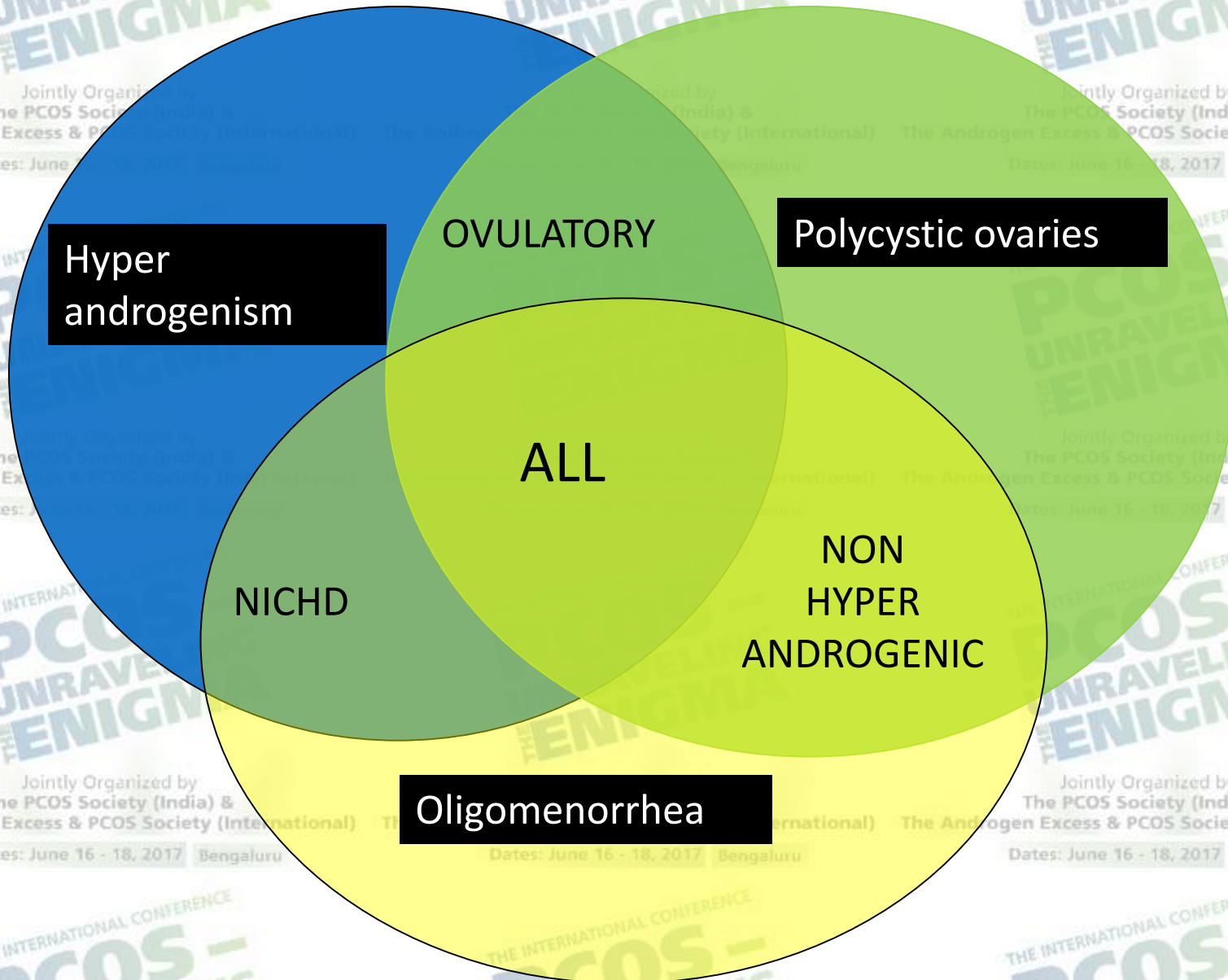
Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

PCOS PHENOTYPES



Hyper androgenism

OVULATORY

Polycystic ovaries

ALL

NICHD

NON HYPER ANDROGENIC

Oligomenorrhea

Management - Adults

- Menstrual regulation – risk of endometrial cancer
- Acne
- Hirsutism
- Weight management
- Long term medical risks – obesity, dyslipidemia, IGT/DM
- Anxiety & Depression
- Contraception
- Fertility – anovulatory
- Pregnancy complications - GDM, preeclampsia, PTD, not miscarriage

Diagnosis - Perimenopause

Table 2. Clinical and Endocrine Data of 193 Women With Polycystic Ovary Syndrome During 20 Years of Follow-up (Evaluated at 5-Year Intervals)

| | Age (y) | BMI (kg/m ²) | Waist Circumference (cm) | LH:FSH Ratio | Total T | DHEAS | Insulin | QUICKI | Ovarian Volume |
|------------|----------|--------------------------|--------------------------|--------------|--------------------|-----------------------|----------|------------|----------------------|
| Basal | 21.9±2.1 | 26.6±6.7 | 88.9±14.5 | 1.5±0.6 | 75±26 | 2.7±1.2 | 14.9±6.5 | 0.327±0.02 | 10.9±3.9 |
| After 5 y | 27.2±2.2 | 27.3±7 | 89.4±12 | 1.6±0.8 | 71±25 | 2.5±1.1 | 13.8±7 | 0.329±0.2 | 11±4.1 |
| After 10 y | 32.3±1 | 27.5±5.7 | 90.8±11.5 | 1.4±0.5 | 68±22* | 2.2±1.3 [†] | 15.2±8 | 0.328±0.02 | 10.7±4 |
| After 15 y | 37.5±1.4 | 26.8±4.5 | 91.7±11.8* | 1.4±0.6 | 65±25 [†] | 2.1±0.85 [†] | 14.5±6.8 | 0.332±0.02 | 10.3±3.1 |
| After 20 y | 42.8±1.5 | 26.9±5.1 | 94.7±12.5 [†] | 1.2±0.4 | 59±28 [†] | 2.00±0.9 [†] | 13.5±4.5 | 0.329±0.02 | 9.1±3.1 [†] |

women with ovulatory cycles increased from 52% to 85%

- Carmina et al, 2012, Obstetrics and Gynecology

Long Term CVD Risk

Table 3. Odds Ratio (95% Confidence Interval) of Cumulative Incident Diabetes and Dyslipidemia According to Baseline Body Mass Index (Year 2) and Polycystic Ovary Syndrome Classification at Ages 20–32

| | Diabetes | | | Dyslipidemia | | |
|-------------------------------------|----------|----------------|----------------------|--------------|---------------|---------------|
| | n | Model 1* | Model 2 [†] | n | Model 1 | Model 2 |
| No PCOS, normal weight [‡] | 610 | 1.0 | 1.0 | 531 | 1.0 | 1.0 |
| No PCOS, overweight [§] | 428 | 2.0 (1.3–2.9) | 1.4 (0.8–2.2) | 320 | 1.7 (1.2–2.3) | 0.9 (0.6–1.3) |
| PCOS, normal weight | 31 | 3.1 (1.2–8.0) | 3.2 (1.2–8.3) | 28 | 1.9 (0.8–4.3) | 2.0 (0.8–4.5) |
| PCOS, overweight | 21 | 4.0 (1.5–11.0) | 3.0 (1.0–8.6) | 15 | 3.5 (1.2–9.8) | 1.8 (0.6–5.4) |

CWS, Coronary Artery Risk Development in Young Adults Women’s Study; PCOS, polycystic ovary syndrome.

* Logistic regression model adjusted for age, race, education, parity, and family history of diabetes at baseline.

[†] Logistic regression model adjusted for the covariates in Model 1 plus body mass index (BMI) at year 20.

[‡] Normal weight defined as BMI (calculated as weight (kg)/[height (m)]²) lower than 25.

[§] Overweight defined as BMI 25 or higher.

Wang et al, 2010 Obstet Gynecol

Management - Perimenopause

- Menstrual regulation – risk of endometrial cancer
- *Acne*
- Hirsutism
- Weight management
- Metabolic risk
- Anxiety & Depression
- Contraception
- *Fertility*

Clinical Models of Care

• Multi-disciplinary approach

- Reproductive Endocrinologist
- Nurse Practitioner
- Clinical Nutritionist
- Dermatologist
- Psychiatrist/ Clinical Psychologist
- Weight management
- Research Coordinator

• Primary care model

• Relay information – use existing resources

- Medical Society handouts
- Make a check list
- Give a packet

• Translation of resources

Acknowledgements

Polycystic Ovary Syndrome Center

PENN *Fertility Care*



PENN

- Shailly Sani, MD
- Laura Cooney, MD
- Iris Lee

Australia

- Melanie Gibson-Helm
- Helena Teede

USA

- Andrea Dunaif

ACOG

ASRM

PCOS Challenge

Veritas



AE-PCOS

ANDROGEN EXCESS & PCOS SOCIETY

NIH WORKSHOP ON PCOS - 2012

Table 2. Potential Phenotypes of PCOS by NIH 1990, Rotterdam 2003, and AE-PCOS 2006

| | | Potential PCOS Phenotypes | | | | | | | | | |
|-------------------------------|--------------------------------|---------------------------|---|---|---|---|---|-------------------------|---|---|-------------|
| | | A | B | C | D | E | F | G | H | I | J |
| Panel Terminology | Diagnostic Criteria | NIH | | | | | | AE-PCOS/ Rotterdam 1 | | | Rotterdam 2 |
| Androgen Excess | Hyperandrogenemia | + | - | + | + | - | + | + | - | + | - |
| | Hyperandrogenism* | + | + | - | + | + | - | + | + | - | - |
| Ovulatory Dysfunction | Oligo-anovulation | + | + | + | + | + | + | - | - | - | + |
| Polycystic Ovarian Morphology | Polycystic Ovaries | + | + | + | - | - | - | + | + | + | + |
| | <i>NIH 1990 Criteria</i> | x | x | x | x | x | x | | | | |
| | <i>Rotterdam 2003 Criteria</i> | x | x | x | x | x | x | x | x | x | x |
| | <i>AE-PCOS 2006 Criteria</i> | x | x | x | x | x | x | x | x | x | |

ized by
y (India) &
Society (International)

2017 Bengaluru

CONFERENCE
S -
ELING
GMA

ized by
y (India) &
Society (International)

2017 Bengaluru

CONFERENCE
S -
ELING
GMA

ized by
y (India) &
Society (International)

2017 Bengaluru

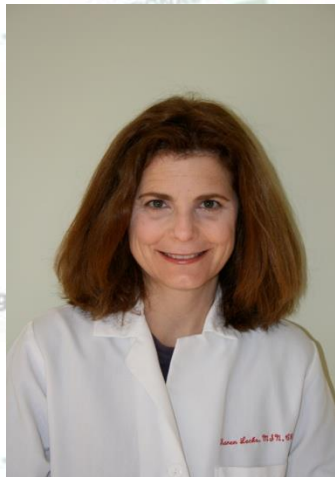
Polycystic Ovary Syndrome Center

PENN *Fertility Care*



Penn Medicine

- Reproductive Endocrinologist
- Nurse Practitioner
- Clinical Nutritionist
- Dermatologist
- Psychiatrist/ Clinical Psychologist
- Weight management
- Research Coordinator



Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)
Dates: June 16 - 18, 2017 Bengaluru

Opportunities

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

- To decrease time to diagnosis increase physician awareness regarding diagnostic criteria for PCOS
- Awareness that patient dissatisfaction is related to lack information on long term and emotional aspects of PCOS
- Introduce uniform practice patterns amongst all healthcare providers

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Polycystic ovarian syndrome: marked differences between endocrinologists and gynaecologists in diagnosis and management

Andrea J. Cussons*†‡, Bronwyn G. A. Stuckey*†, John P. Walsh*†, Valerie Burke‡ and Robert J. Norman§

Table 2. Features considered essential for the diagnosis of polycystic ovarian syndrome

| | Endo (%) <i>n</i> = 138 | Gyn (%) <i>n</i> = 172 | <i>P</i> -value |
|----------------------------------|----------------------------|---------------------------|-----------------|
| Menstrual irregularity | 70 | 47 | < 0.001 |
| Any androgenization | 81 | 59 | < 0.001 |
| Clinical (C) androgenization | 5 | 4 | 0.672 |
| Biochemical (B) androgenization | 8 | 9 | 0.816 |
| Either C or B androgenization | 55 | 35 | < 0.001 |
| Both C and B androgenization | 10 | 10 | 0.878 |
| Obesity | 11 | 8 | 0.320 |
| Polycystic ovaries on ultrasound | 14 | 61 | < 0.001 |
| Elevated LH/FSH ratio | 24 | 47 | < 0.001 |
| Insulin resistance | 6 | 11 | 0.162 |

PCOS Diagnosis Experience

- Targeted improvements in diagnosis experience may help meet women's needs and optimize early engagement with lifestyle and preventive health strategies.
- Receiving better quality information is associated with higher quality of life scores
- Enhanced knowledge is associated with engagement in lifestyle management

Underlying Reasons for Patient Dissatisfaction

- Changing definitions
- PCOS Phenotypes and Racial differences
- Age – related changes

Patient Perceptions of PCOS

| Demographic characteristic n=1381 | Number of women (%) |
|--|--|
| Age (years) 18-25 26-35 36-45 >45 | 190 (13.8) 705 (51.1) 390 (28.2) 96 (6.9) |
| World region of birth North America Europe Oceania Asia Central, Latin, South America, Caribbean Africa | 689 (49.9) 568 (41.1) 39 (2.8) 37 (2.7) 32 (2.3) 17 (1.2) |
| World region of residence North America Europe Other | 732 (53.0) 583 (42.2) 67 (4.8) |

PCOS Diagnostic Criteria

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

Jointly Organized by
The PCOS Society (India) &
The Androgen Excess & PCOS Society (International)

Dates: June 16 - 18, 2017 Bengaluru

| | Unadjusted OR | Adjusted OR* |
|--|--------------------|----------------------------|
| Age range | | |
| 26-35 | 1 (reference) | 1 (reference) |
| 36-45 | 1.77 (0.83, 3.79) | 1.94 (95% CI: 0.89, 4.20) |
| 46-55 | 5.32 (2.63, 10.79) | 7.65 (95% CI: 3.65, 16.03) |
| >56 | 5.51 (2.79, 10.88) | 8.46 (95% CI: 3.99, 17.9) |
| Gender | | |
| Female | 1 (reference) | 1 (reference) |
| Male | 1.55 (1.08, 2.23) | 1.02 (0.64, 1.63) |
| Number of PCOS patients seen annually | | |
| <50 | 1 (reference) | 1 (reference) |
| >50 ^t | 0.50 (0.35, 0.72) | 0.90 (0.58, 1.41) |

Dates: June 16 - 18, 2017 Bengaluru

Dates: June 16 - 18, 2017 Bengaluru

Dates: June 16 - 18, 2017 Bengaluru

PCOS Diagnosis Experience - Australia

(n=210)

Median (interquartile range)

5 (6.5)

time since diagnosis (years)

Time until diagnosis

Within 6 months

114 (54)

Within 12 months

26 (12)

Within 2 years

20 (10)

More than 2 years

50 (24)



Number of health professionals seen before diagnosis

1-2

127 (61)

3-4

63 (30)



≥5

18 (8.6)

Uncertain

1 (0.4)

PCOS Diagnostic Criteria – Physician Survey

