

Polycystic ovary syndrome v.2023: Simplified diagnostic criteria for an East Asian phenotype

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ABSTRACT

Introduction: Two decades after the Rotterdam 2003 consensus workshop, there have been considerable advances in elucidating the pathophysiology and epidemiology of polycystic ovary syndrome (PCOS). This has prompted the re-examination of the features that characterise this common condition. Current definitions have led to great heterogeneity in the prevalence of PCOS and have contributed to inconsistent treatment protocols and assessment of therapeutic outcomes. Diagnosis is further complicated by the lack of universal agreement on threshold cut-offs for ovarian dysfunction and ethnic differences in hirsutism; both of which are key features in the definitions that are commonly used currently. These challenges often result in dissatisfaction with medical care among PCOS patients and their physicians.

Method: Our factor analysis mathematically identified anti-Mullerian hormone (AMH), associated polycystic ovarian morphology (PCOM) and serum testosterone as the only significant cluster associated with menstrual cycle length variability.

Results and Conclusion: As such, we propose a simplified criteria wherein the presence of at least 2 of the 3 features below would be sufficient to define PCOS: (1) chronic oligo-ovulation or anovulation as indicated by oligomenorrhea (cycle lengths >35 days) or amenorrhea; (2) PCOM: raised AMH ≥ 37.0 pmol/L instead of transvaginal ultrasound assessment of ovaries; and (3) Androgen excess, or raised serum androgens above the laboratory reference for women. Further studies are required to examine whether the proposed criteria would reduce diagnostic confusion and improve care and outcomes, especially among patients of East Asian ethnicities.

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Keywords: AMH, anti-Mullerian hormone, endocrinology, obstetrics and gynaecology, polycystic ovary syndrome, simplified PCOS diagnostic criteria

CLINICAL IMPACT

What is New

- Simplified criteria for PCOS diagnosis in East Asian women developed based on Singapore data
- Requires at least 2 out of the 3 features of oligomenorrhea/amenorrhea, anti-Mullerian hormone >37.0 pmol/L and elevated serum androgens

Clinical Implication

- Consistent diagnosis of PCOS using time-efficient diagnostic tools will ensure timely and appropriate treatment for our patients.

INTRODUCTION

Polycystic ovary syndrome (PCOS) is a common endocrine condition affecting 6–19% of women of reproductive age, depending on the reference population and definition used.^{1,2} The incidence of PCOS is increasing and the syndrome can be considered the single most common endocrine abnormality among women of reproductive age.³ Although its pathophysiology is still being debated, the cardinal features of PCOS are considered to be chronic anovulation or oligo-ovulation, hyperandrogenism (HA) and the presence of multiple small cysts in the ovary.⁴ PCOS is associated with increased difficulty in conceiving; abnormal menstrual bleeding patterns; higher pregnancy complication rates; and raised cardiometabolic, oncological and psychiatric risks.⁵ This results in substantial economic burden, conservatively estimated to exceed an annual total cost of US\$8 billion in the US alone, which include healthcare costs related to diagnosis, reproductive, metabolic,

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vascular, pregnancy-related and long-term morbidities of PCOS.⁶

Current diagnostic criteria for PCOS

There is consensus that PCOS should be considered a syndrome, meaning a constellation of clinical features where no single feature is diagnostic. However, the syndrome is still enigmatic, and establishing agreement on diagnostic features has proven problematic.⁷ Varying definitions of PCOS have been proposed, including that from the Japan Society of Obstetrics and Gynecology.^{8,9} Nevertheless, 3 definitions of PCOS are commonly used globally, since the seminal series of 7 cases comprising amenorrhea associated with bilateral polycystic ovaries was first described by Drs Irving Stein and Michael Leventhal.¹⁰

The US National Institutes of Health (NIH) convened a meeting in 1990 that defined PCOS to be primarily a condition of HA and chronic anovulation, with both features necessary for diagnosis.¹¹ The Rotterdam 2003 definition, arising from a European consensus meeting, broadened the NIH 1990 definition by adding a third criteria: polycystic ovarian morphology (PCOM). The existence of PCOM, detected by transvaginal ultrasound, was indicated by ovarian antral follicle counts (AFC) of ≥ 12 (each follicle measuring 2–9 mm) and/or ovarian volume >10 mls.¹³ The advent of transvaginal ultrasound probes with a higher resolution of >8 MHz increased the ovarian AFC threshold for PCOM to 19–26 antral follicles.¹⁴ The 2 other criteria were clinical and/or biochemical HA and chronic anovulation. Two

out of the 3 items are sufficient to define PCOS.¹³ This definition remains the most widely used criteria among publications in the 2 decades following its introduction.^{15,16,17} The concept of PCOS as an androgen excess disorder was re-emphasised by the Androgen Excess and PCOS Society definition wherein both HA (clinical and/or biochemical) and ovarian dysfunction (oligo-ovulation and anovulation and/or polycystic ovaries) are needed for diagnosis.¹⁸

Current international evidence-based guideline for PCOS diagnosis

In 2018, a comprehensive international guideline was published to provide practitioners the best available evidence on PCOS diagnosis with the following recommendations being made based on evidence¹⁹: (1) biochemical HA should be established using free testosterone, free androgen index or calculated bioavailable testosterone using high-quality assays; (2) there is more evidence that AMH assays will be more accurate in picking up PCOM, but AMH levels have not been used as an alternative for PCOM or diagnostic of PCOS on its own; and (3) emphasis on screening for obesity, insulin resistance, cardiovascular disease, sleep, mental health issues and other comorbid conditions associated with PCOS.

Unfortunately, the 2018 guideline did not address the practical difficulties in obtaining accurate AFC through transvaginal ultrasound, which requires expert sonographic skills, is time-consuming and cannot be done in many patients due to discomfort from this intrusive procedure.

Table 1. Current polycystic ovary syndrome diagnostic criteria.

Features of PCOS	Chronic anovulation	Ovarian variables	HA	Diagnostic criteria
NIH 1990 ¹¹	Present	Nil	Biochemical hyperandrogenaemia and/or clinical hirsutism	Both features needed
Rotterdam 2003 ¹³	Present	PCOM	Biochemical hyperandrogenaemia and/or clinical hirsutism	2 of 3 features
AE-PCOS Society 2009 ¹⁸	Present	PCOM	Biochemical hyperandrogenaemia and/or clinical hirsutism	HA (clinical and/or biochemical) and ovarian dysfunction (chronic anovulation and/or PCOM)
JSOG 2013 ⁸	Present	PCOM	Hyperandrogenaemia or high level of serum LH with normal range of FSH	All 3 features are required
Proposed PCOS (v.2023) ¹⁷	Present	AMH	Biochemical hyperandrogenaemia	2 of 3 features

AE-PCOS: Androgen Excess & Polycystic Ovary Syndrome Society; AMH: anti-Mullerian hormone; FSH: follicle-stimulating hormone; HA: hyperandrogenism; JSOG: Japan Society of Obstetrics and Gynecology; LH: luteinising hormone; NIH: National Institutes of Health; PCOM: polycystic ovarian morphology

The guideline emphasises the role of obesity and insulin resistance and the metabolic syndrome in the assessment and management of PCOS. While relevant to the Caucasian population, this may be less so for the Singapore and other East Asian populations where obesity is less prominent.²⁰

It is increasingly recognised that the 2018 guideline is work in progress.²¹ Clinical reproductive and diagnostic features may be poorly correlated and may not represent true phenotypes. In a landmark study, a recent unsupervised phenotypic clustering analysis predicts different reproductive and metabolic PCOS subtypes in different populations.²² There remains room for diagnostic criteria targeted towards specific population subtypes.²³

Recent surveys also indicate that inconsistencies exist in current recommendations on PCOS diagnosis in adolescents, optimal lifestyle interventions, hirsutism and acne treatments, interventions to reduce the risk of ovarian hyperstimulation syndrome, the frequency and screening criteria for metabolic and cardiovascular disease, and optimal screening tools for mental health illness in women with PCOS.²⁴

Confusion for patients, clinicians and researchers

These varying definitions result in heterogeneous manifestations of PCOS phenotype, complicating diagnoses and assessments of therapeutic outcomes.²⁵ The diagnosis of PCOS can be made variously by general practitioners, gynaecologists, reproductive endocrinologists and general internists.^{26,27} Diagnosis of PCOS is further complicated by a lack of universal agreement on the exact AFC,^{14,28,29} need for transvaginal ultrasound assessment³⁰ and modified Ferriman–Gallwey (mFG) scoring of hirsutism in non-Caucasian populations.³¹ Furthermore, an unsupervised phenotypic clustering analysis identified different PCOS subtypes with varying levels of sex hormone-binding globulin (SHBG), body mass index (BMI), glucose, insulin and luteinising hormone (LH).²² This raises the question on whether an existing diagnostic criterion can sufficiently identify patients with PCOS, given the biochemical heterogeneity of the condition.

These challenges often result in delayed diagnosis and dissatisfaction with care among physicians³² and patients.³³ In Singapore, a survey of 160 gynaecologists, endocrinologists, family physicians and general practitioners found that a large percentage (60.5%) of these physicians were unable to identify the correct PCOS clinical features.¹⁶ Only 8.8% of respondents correctly used clinical and biochemical HA, menstrual disturbances and pelvic ultrasound to diagnose

PCOS, without performing unnecessary and incorrect investigations. Many physicians (37.3%) seek standardisation of PCOS diagnosis and management guidelines. Moreover, 19.4% of physicians would specifically like to have resources for diagnosing PCOS in primary care. The study highlighted the need for greater harmonisation of diagnostic processes and holistic evidence-based management of PCOS patients, through standardised workplace protocols and patient education resources. With widespread confusion among medical practitioners, it is not surprising that the advice given to and treatment of patients with suspected PCOS are unclear and unsatisfactory.^{25,26} There is a need for greater diagnostic clarity to reduce inappropriate labelling and the potential psychological harm that may accompany misdiagnosis.^{32,33}

This narrative review aims to explore various concepts that may improve clarity on the features necessary to diagnose PCOS.

METHOD

Unbiased factor group analyses to determine an objective PCOS phenotype

To identify features that define PCOS in an unbiased manner, we performed factor analyses using variables known to affect menstrual cycle length variability and/or related to PCOS.³⁶ Since the factor analysis algorithm does not require any preconception about what defines PCOS, we hypothesise that the clustering of features mathematically would provide an unprejudiced PCOS phenotype.

We used infrequent menstruation or oligomenorrhea as the underlying variable for factor analysis, as chronic anovulation and subfertility are the main concerns of patients with PCOS.³⁶ We did not utilise mid-luteal serum progesterone, as this variable is not routinely measured to detect the absence of ovulation given difficulty in predicting the mid-luteal phase in irregular menstrual cycles.³⁷ There is increasing appreciation that PCOS is not a binary all-or-none condition but represents a continuum of those with none, 1, 2 or more of the phenotypic features associated with PCOS, such as HA, oligo/amenorrhoea and PCOM.³⁸ We enrolled subjects attending an annual health screening at a tertiary hospital in Singapore. Known cases of PCOS were excluded since we wanted to have an unbiased identification of features that may cluster together.

RESULTS

We examined 23 lifestyle, physical, metabolic, pituitary, ovarian, estrogenic and androgenic

variables to identify key predictors of menstrual cycle length variability in healthy women.³⁶ Unsupervised factor analyses segregated the 23 potential predictors of menstrual cycle length into 7 factor groups with eigenvalues >1. Only 1 factor group was significantly associated with menstrual cycle length variability ($P<0.001$). This factor group (contributing 17.8% of total variance in the dataset) included 5 variables: 3 relating to the ovaries (i.e. ovarian volume, AFC, AMH), testosterone and LH as described in Table 2. Transvaginal ultrasound measurements were made using a Voluson E8 machine with 6–12 MHz transducer. Ovarian volume was derived via the formula for prolate ellipsoid volume ($0.523 \times \text{length} \times \text{height} \times \text{width}$). The ultrasound was performed by the same operator to decrease the interoperator variability. Each follicle <10 mm from 2 to 10 mm was documented, and their size was measured in 3 dimensions. The 3D ovarian images were also stored for cross-checking.¹⁷ The second factor group (contributing 13.3% of the variance) included the metabolic variables BMI, waist-to-hip ratio, insulin, glucose and triglycerides. Interestingly in this Singapore cohort, hirsutism defined by mFG scores was clustered with acne in the sixth factor group, contributing <8% of the total variance.

Our factor analyses identified ovarian variables (AMH, AFC, ovarian volume), serum testosterone and LH as the only significant cluster of variables affecting menstrual cycle length variability.³⁶ These findings are reminiscent of another principal component analysis wherein ovarian, androgenic parameters and LH segregate into a distinct principal component of control and PCOS patients.³⁹

The abnormal secretion of LH has long been recognised as one being prevalent in PCOS. LH and LH/follicle-stimulating hormone ratio are currently used in the PCOS diagnostic criteria of the Japan Society of Obstetrics and Gynecology.⁹ However, the measurement of LH is problematic because of the pulsatile nature of its secretion. It would therefore be prudent to have the ovarian variables, serum testosterone and menstrual cycle length as the key elements of a simplified PCOS diagnostic criterion, relevant to the Singapore and possibly other East Asian populations.

Ovarian variable measurement: The case for anti-Müllerian hormone (AMH)

Since factor analyses identified ovarian variables as a constituent of the “syndrome”, a simplification of PCOM measurement should be a top consideration. Currently, the determination of PCOM requires transvaginal ultrasound examination which

necessitates expert sonographic skills. This is time-consuming, may not be readily available in primary care setting, and cannot be performed in many patients due to discomfort from this intrusive process.³⁶ The advent of transvaginal ultrasound probes with higher resolution of >8 MHz increased the ovarian AFC threshold for PCOM to 19–26 antral follicles.^{14,17} The above contribute to the complexity for the diagnosis of PCOM.

AMH is an important regulator of ovarian folliculogenesis and is intimately involved in the pathophysiology of PCOS.⁴² AMH levels are closely associated with ovarian AFC.⁴³ AMH is 4-fold higher in women with AFC ≥ 25 compared to those with AFC <12 (Fig. 1). As such, there have been proposals to replace ovarian AFC by serum AMH levels to diagnose PCOM.^{28–30} On the basis of the area under curve (AUC)-calculated cut-offs, the diagnostic cut-off values of AMH for PCOM have been proposed to be 20–30 pmol/L (AUC: 0.67–0.92) in adults and 50 pmol/L (AUC: 0.87) in adolescents.⁴⁵ AMH thresholds above 35 pmol/L (4.9 ng/mL), as a surrogate for PCOM, have also been proposed for other populations.⁴³

Our studies in Singaporean women suggest that an AMH level ≥ 37.0 pmol/L best predicted PCOM.¹⁷ A cut-off value of ≥ 37.0 pmol/L for AMH has a receiver operating curve (ROC) of 80.9% (95% confidence interval [CI] 73.0–88.7), sensitivity of 79.2% and specificity of 82.6% to predict PCOM, defined by AFC ≥ 22 and/or ovarian volume of ≥ 8.4 mL in either ovary. Cases defined by AMH >37 would result in 94% of PCOS cases overlapping with those defined with the transvaginal ultrasound measurement of PCOM with the current Rotterdam 2003 diagnostic criteria.^{17,46} The adoption of AMH would result in most of the current PCOS cases to still have the diagnosis of PCOS, without the discomfort and the cost of transvaginal ultrasound. The universal standardisation of AMH assays would improve its utilisation in the diagnosis of PCOS and making AMH part of the diagnostic criteria in the future.⁴⁷

Hirsutism assessment: the problem of ethnic differences

Androgen excess is determined clinically by mFG score, in the NIH 1990, Rotterdam 2003 and AE-PCOS 2009 criteria. Nine body areas, namely, the upper lip, chin, chest, upper back, lower back, upper and lower abdomen, upper arm and thigh, are assigned a score of 0–4 based on the density of terminal hairs.⁴⁸ A score of 0 represents the absence of terminal hairs, a score of 1 minimally evident terminal hair growth and a score of 4

Table 2. Factor group analysis of 23 variables from subjects (n=200) participating in an annual health screen offered to all employees of a large university hospital.³²

	MENSTRUAL CYCLE IRREGULARITY						
	Factor groups						
	1b	2	3	4	5	6	7
Ovarian Variables:							
Ovarian Volume	0.751						
AFC	0.882						
AMH	0.836						
Metabolic Variables:							
BMI		0.736					
WHR		0.673					
Insulin		0.749					
Glucose		0.561					
Cholesterol				0.958			
Triglycerides		0.401					0.594
HDL					0.588		
LDL				0.909			
Androgen Variables:							
DHEAS			0.682				
Androstenedione				0.522			
Testosterone	0.596						
DHT			0.869				
SHBG			-0.41		0.44		
mFG						0.412	
Acne score						0.584	
Estrogen Variables:							
Estrone			0.829				
Estradiol					0.805		
Pituitary Variables:							
PRL						0.612	
LH	0.716						0.448
FSH							0.654

^a Factor groups with eigenvalues >1 were listed. Only variables with factor loadings >0.4 were included.

^b Only factor group 1 was associated with menstrual cycle length variability ($P<0.001$).

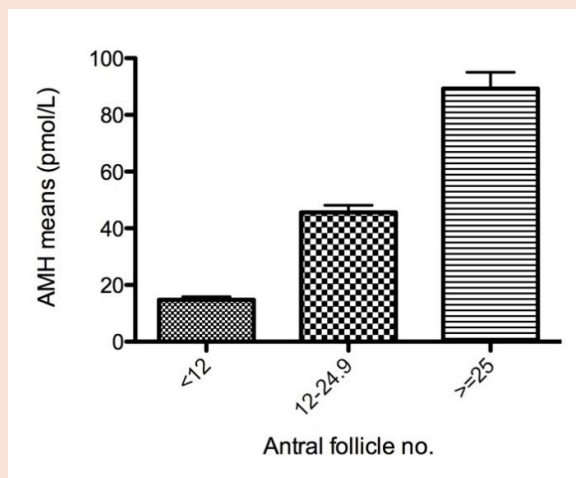
AFC: antral follicle count; AMH: anti-Müllerian hormone; BMI: body mass index; DHEAS: dehydroepiandrosterone-sulfate; DHT: dihydrotestosterone; FSH: follicle-stimulating hormone; HDL: high-density lipoprotein; LDL: low-density lipoprotein; LH: luteinising hormone; mFG: modified Ferriman-Gallwey score; SHBG: sex hormone binding globulin; WHR: waist-to-hip ratio

terminal hair growth equivalent to a hairy man. Hair growth on the forearms and legs are relatively less responsive to androgens and hence not part of mFG scoring. Hirsutism in women is defined conventionally as mFG scores ≥ 8 , present in <5% of Caucasian populations.⁴⁸

Presence of body hair is second only to skin colour as a feature of racial differences, and the prevalence of hirsutism varies widely according to ethnicity in normal populations.⁴⁸⁻⁵⁰ Hirsutism is lowest in Han Chinese (0%) and

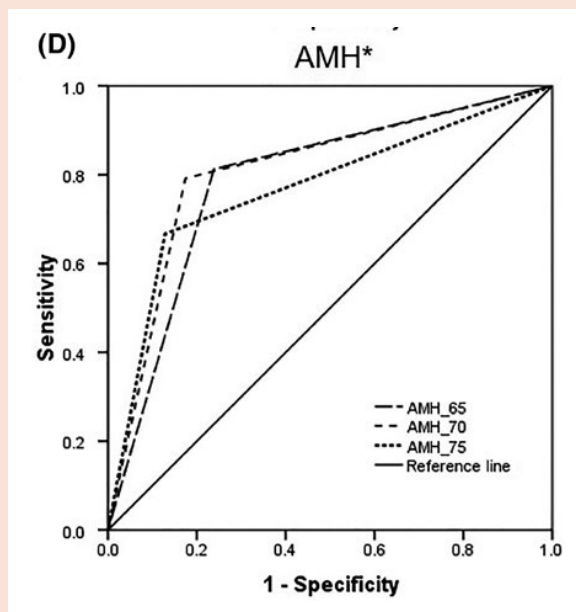
highest in Mediterranean countries and South Asians (32–36%) populations (Fig. 3). Taking the >95th percentile of the mFG score as the threshold, mFG cut-offs for hirsutism would vary between ≥ 2 –3 for Chinese and Thai populations, to ≥ 10 –11 for Middle Eastern and Hispanic populations (Table 3).⁵¹ In Singapore, the 95% percentile for healthy women in an annual health screen (excluding women with PCOS) was 4.4 (Fig. 4). Hence, hirsutism is determined to be mFG score ≥ 5 among Singaporean women, similar to that of

Fig. 1. Relationship between serum anti-Müllerian hormone levels and ovarian antral follicle counts.³⁶



Data are mean $\pm$ standard error of means.
AMH: anti-Müllerian hormone

Fig. 2. Receiver operating characteristic curves for anti-Müllerian hormone (AMH) to predict PCOM (antral follicle count ≥ 21.5 and/or ovarian volume ≥ 8.44 ml in either ovary).¹⁷



AMH: anti-Müllerian hormone

a Southern Chinese population.⁵²

The different cut-offs make the determination of hirsutism very confusing for practitioners. Assessing hirsutism by mFG scoring is intrusive and invades the privacy of patients, although this can be ameliorated by limiting the examination to facial and abdominal regions.³¹ Coupled with the fact that the mFG score is not a significant variable with respect to menstrual irregularity in cluster analysis (Table 2), it justifies the removal of

hirsutism as a criterion for the definition of PCOS in the Singapore population. In this scenario, hirsutism would be an associated clinical feature of PCOS, like obesity and insulin resistance. Therefore, androgen excess would only be defined by raised serum levels of androgens, which has already been adopted in the Japanese definition of PCOS.⁸

Simplified PCOS diagnostic criteria (version 2023)

We therefore propose simplified criteria to diagnose PCOS.¹⁷ The criteria would need to be straightforward so that practitioners, patients and researchers can easily recall the definition. The criteria should include clinical and biochemical features with objectively defined thresholds that are evidence-based with minimal variability in normal, healthy and ethnic-specific populations. Ideally, the revised definition needs to be consistent with historical usage and encompass almost all patients identified with PCOS currently for the continuity of care and consistency in research findings, including women with known PCOS.

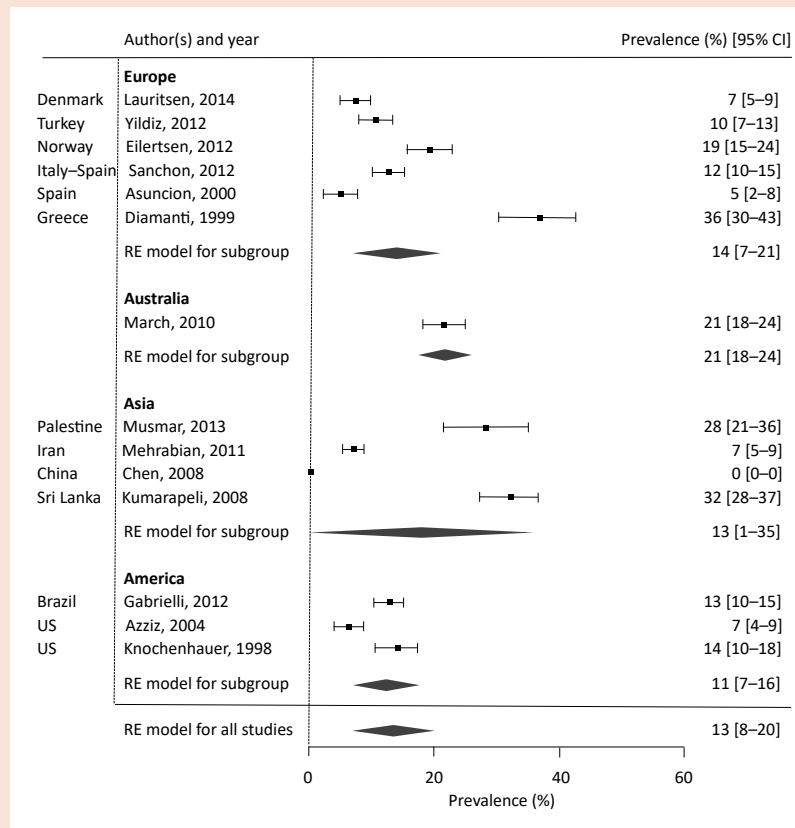
We propose the following simplified criteria. In our proposed simplified criteria, the presence of at least 2 of the 3 features below would be sufficient to define PCOS¹⁷: (1) Length of menstrual cycle: Chronic oligo-ovulation or anovulation as indicated by oligomenorrhea (cycle lengths >35 days) or amenorrhea; (2) PCOM with raised AMH ≥ 37.0 pmol/L; and (3) Androgen excess, or raised serum androgens (i.e. testosterone) above the laboratory reference for women.

Limitations of the simplified PCOS diagnostic criteria (version 2023)

This proposal for revised criteria needs to be interpreted in context, as our proposed criteria are based on studies done in Singapore. Although the cases were recruited from the 2 major tertiary referral hospitals on our island nation, our findings may not be directly applicable to other populations.

There should be standardisation in the measurement of AMH, as different test kits are currently used. The 95th percentile of controls without PCOM was 4.2 ng/mL (30 pmol/L) with automatic assays and 5.6 ng/mL (40 pmol/L) with manual assays.⁵³ The performance of the different AMH assays for PCOS diagnosis was comparable, and different threshold values may need to be used for manual and automatic assays.⁵³ Newer automated assay systems, such as the VIDAS and Elecsys-AMH, appear comparable in terms of technical performance for clinical use.⁵³ The upper threshold of serum AMH levels needs to be validated worldwide in populations of various

Fig. 3. Prevalence of hirsutism vary widely among unselected women in different populations.



Note: Modified from Bozdag et al. (2016)⁵⁰

RE: random-effects (models for indicated subgroups)

Table 3. Suggested cut-offs for the mFG hirsutism score according to the 95th percentile in different unselected populations of premenopausal women.

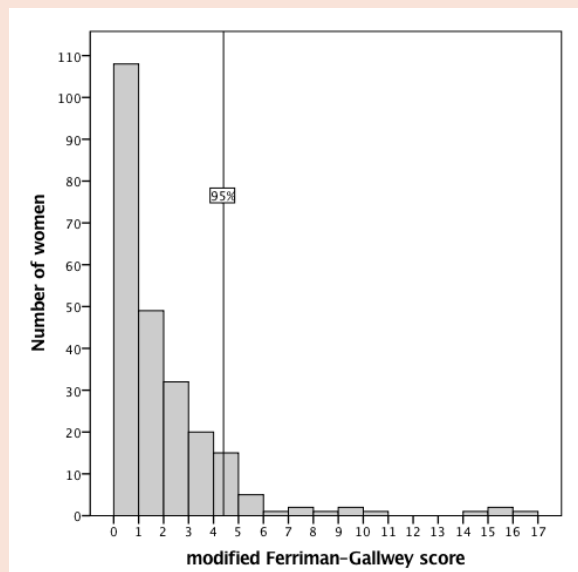
Author, year	Year	Country	Race	Ethnicity	Sample size	Suggested mFG cut-off ^a
Tellez and Frenkel (1995)	1995	Chile	White	Hispanic	236	≥6
Asuncion et al. (2000)	2000	Spain	White	Mediterranean	154	≥8
Sagsoz et al. (2004)	2004	Turkey	White	Middle Eastern	204	≥9
Cheewadhanarakas et al. (2004)	2004	Thailand	Asian	Thai and Chinese	531	≥3
DeUgarte et al. (2006)	2006	USA	White	Caucasian and Hispanic	283	≥8
			Black	African-American	350	≥8
Zhao et al. (2007)	2007	China	Asian	Chinese Han	623	≥2
Api et al. (2009)	2009	Turkey	White	Middle Eastern	121	≥11
Moran et al. (2010)	2010	Mexico	White	Hispanic	150	≥10
Noorbala and Kefaie (2010)	2010	Iran	White	Middle Eastern	900	≥10
Kim et al. (2011)	2011	Korea	Asian	Chinese	1010	≥6
Gambineri (2011, personal communication)	2011	Italy	White	Mediterranean	200	≥9
Escobar-Morreale (2011, personal communication)	2011	Spain	White	Mediterranean	291	≥10

Note: Modified from Escobar-Morreale HF et al. (2012)⁵⁰

^aAs defined by the 95th percentile of an unselected population of premenopausal women.

mFG: modified Ferriman–Gallwey score

Fig. 4. Distribution of modified Ferriman–Gallwey score in women without PCOS (n=153) in the National University Hospital annual health screen for staff.



Vertical line represents 95% percentile cut-off with mFG score of 4.4

ethnicities. AMH can vary according to age, and BMI and relevant adjustments have to be made.^{54–56} It is relevant to note that these limitations apply to AFC and serum testosterone as well.

The prevalence of hirsutism in the Singapore population is relatively low, and studies need to be replicated in other populations where the prevalence of hirsutism is higher to see whether the clustering of features defining PCOS is consistent with our proposed revised criteria.

CONCLUSION

There have been considerable advances in our knowledge of the pathophysiology, epidemiology and diagnostic tools of PCOS since currently used diagnostic criteria were first proposed over 2 decades ago. Despite an extensive 2018 review,¹⁹ there remain many challenges to understanding the diagnosis and treatment of PCOS. Evidence suggests that clinicians and consumers are not satisfied with the timeliness of diagnosis and treatment options. Although some women benefit considerably from a diagnosis of PCOS, including the metabolic and mental health consequences through increased awareness and reassurance, many women with minimal symptoms may experience more harm than benefit, including long-lasting anxiety and altered life plans.⁵⁷ Special attention to diagnosis at the ends of the reproductive spectrum are still needed, and the remaining areas of controversy need to be

resolved.⁵⁸ There is a need to re-evaluate the clinical features of PCOS and establish an integrated and comprehensive evidence-based guideline for the diagnosis of PCOS. Unbiased factor analyses had identified PCOM and serum testosterone as significant features associated with menstrual cycle length variability.¹⁷ We propose simplified criteria to diagnose PCOS.

Further studies are required to examine whether the adoption of the proposed criteria would enhance the diagnosis and management of women with PCOS as well as ameliorate mislabelling of women and allow medical practitioners to better care for them.

Disclosure

This paper was first presented on 9 October 2022 as part of the 100th anniversary celebration of the NUS Department of Obstetrics and Gynaecology at Raffles Convention Centre, Singapore.

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