SJ Gynecology and Obstetrics Africa
Vol. 3 No. 2 (2026): May 2026 Issue
https://doi.org/10.51168/dck79y62
Original Article

Prevalence and clinical correlates of impaired glucose tolerance in young women with polycystic ovary syndrome.

Swetha Reddy Sambireddy[1], Laxmi Malladi[2], Rahulya Marapelly[3]*
[1]Associate Professor, Department of Obstetrics and Gynaecology, Government Medical College, Mulugu, Telangana
[2]Associate Professor, Department of Obstetrics and Gynaecology, Kakatiya Medical College. Government Maternity Hospital, Hanumakonda, Telangana
[3]Assistant Professor, Department of Obstetrics and Gynaecology, Government Medical College, Mulugu, Telangana

Abstract

Background:

PCOS is often accompanied by insulin resistance, even during adolescence and early adulthood. Fasting glucose may remain normal despite abnormal glucose handling after a glucose load. This study estimated the prevalence of IGT and diabetes mellitus in young women with PCOS and examined their demographic, anthropometric, familial, and clinical correlates.

Methods:

A hospital-based cross-sectional study was conducted in the Departments of OBG at Kakatiya Medical College, Hanumakonda, and Government Medical College, Mulugu, Telangana, India. The study included 100 women aged 15–25 years who fulfilled the Rotterdam criteria for PCOS. Disorders that could mimic PCOS were excluded. Demographic characteristics, anthropometric measurements, family history, and clinical findings were recorded. Glycaemic status was assessed using a 75 g oral glucose tolerance test and classified according to WHO criteria. Associations were tested using the chi-square or Fisher's exact test.

Results:

Abnormal glucose tolerance was identified in 27% of participants. IGT was present in 22%, while 5% had diabetes mellitus; the remaining 73% had normal glucose tolerance. Dysglycaemia was observed across the 15–25-year age group and was proportionally higher among women from urban areas, higher socioeconomic groups, and those with a family history of PCOS, although these demographic associations were not statistically significant. The prevalence of abnormal glucose tolerance increased with BMI and was highest among women with class II obesity. A waist–hip ratio of ≥0.85 and a family history of diabetes were also significantly associated with dysglycaemia. Acanthosis nigricans, primary subfertility, and polycystic ovarian morphology on ultrasonography were more frequent among women with IGT or diabetes.

Conclusion:

More than one in four young women with PCOS had abnormal glucose tolerance. A 75 g oral glucose tolerance test may help identify early dysglycaemia, particularly in women with obesity, central adiposity, acanthosis nigricans, or a family history of diabetes.

Keywords: *polycystic ovary syndrome; impaired glucose tolerance; oral glucose tolerance test; young women; obesity; waist-hip ratio; diabetes mellitus; insulin resistance*
Submitted: *April 25, 2026* ***Accepted:*** *May 20, 2026* ***Published:*** *May 30, 2026*
Corresponding Author: *Dr. Rahulya Marapelly*
Email: ***Rahulyareddy.5@gmail.com***
Assistant Professor, Department of Obstetrics and Gynaecology, Government Medical College, Mulugu, Telangana

Introduction

Polycystic ovary syndrome (PCOS) is a heterogeneous endocrine disorder that begins around puberty and continues across reproductive life. It is traditionally recognised by ovulatory dysfunction, clinical or biochemical hyperandrogenism, and polycystic ovarian morphology, after exclusion of disorders that can mimic the phenotype [1-5]. Although menstrual irregularity, acne, hirsutism, and subfertility often bring patients to clinical care, the metabolic component of PCOS is equally important. Current international guidance places emphasis on metabolic risk assessment, including glycaemic evaluation, because PCOS is associated with insulin resistance, central adiposity, dyslipidaemia, metabolic syndrome, and an increased risk of type 2 diabetes [1,3,6].

Insulin resistance in PCOS is not explained by obesity alone. Obesity, particularly central obesity, amplifies insulin resistance, but lean women with PCOS may also show reduced insulin-mediated glucose disposal and compensatory hyperinsulinaemia [7-9]. Hyperinsulinaemia can worsen ovarian androgen production and lower hepatic sex hormone-binding globulin, thereby increasing free

https://doi.org/10.51168/dck79y62

androgen exposure. This interaction creates a clinically important bridge between reproductive and metabolic manifestations of PCOS [7-9].

The choice of screening test is relevant in young patients. Fasting plasma glucose is convenient, but it may fail to identify women whose fasting value is normal while the 2-hour post-load glucose value is abnormal. Several studies and consensus statements have therefore supported the use of a 75 g OGTT in women with PCOS, particularly when risk factors such as overweight, obesity, central adiposity, or family history of diabetes are present [10-17]. Adolescents and young adults deserve special attention because the diagnosis of PCOS is often made early, while opportunities for prevention are still realistic [14,15,25].

The present study was undertaken to estimate the prevalence of IGT among young women with PCOS attending a tertiary hospital outpatient department and to examine its relationship with demographic, anthropometric, familial, and clinical variables. The study focused on women aged 15-25 years, a group in whom early metabolic screening may guide counselling, lifestyle intervention, and long-term follow-up.

Materials and Methods

Study design and setting

This was a cross-sectional study conducted in the outpatient Departments of OBG at Kakatiya Medical College, Hanumakonda, and the Government Medical College, Mulugu, Telangana, India. The study period was August 2024 to April 2026. The study population consisted of young women presenting to the gynaecology outpatient department and diagnosed with PCOS according to Rotterdam criteria.

Study participants

Women aged 15-25 years were eligible if they fulfilled Rotterdam diagnostic criteria for PCOS. The criteria included at least two of the following features after exclusion of related disorders: oligo-ovulation or anovulation, clinical or biochemical hyperandrogenism, and polycystic ovarian morphology on ultrasonography. Polycystic ovarian morphology was defined as 12 or more follicles measuring 2-9 mm in diameter in each ovary and/or ovarian volume greater than 10 mL. Women with hypothyroidism, hyperprolactinaemia, Cushing syndrome, congenital adrenal hyperplasia, or adrenal tumours were excluded.

Sample size calculation

The sample size was calculated using the formula n = Z2pq/d2. A 95% confidence level was used, with Z = 1.96. The expected proportion of PCOS among women attending the obstetrics and gynaecology outpatient department was taken as 7%, q was 93%, and the absolute allowable error was 5%. The calculated sample size was approximately 100. Therefore, 100 eligible women with PCOS were included.

Sampling method

Eligible outpatient attendees with symptoms suggestive of PCOS were assessed against the inclusion and exclusion criteria. Women who provided complete information and written informed consent underwent clinical evaluation and OGTT. Recruitment continued until the required sample size was achieved.

Data collection and clinical evaluation

Data were collected using a predesigned, pretested, semi-structured schedule. Information on age, locality, socioeconomic status, marital status, menstrual history, symptoms, family history of PCOS, and family history of diabetes mellitus was recorded. Height was measured barefoot to the nearest 0.5 cm using a wall-mounted stadiometer. Weight was measured to the nearest 0.5 kg, and BMI was calculated as weight in kilograms divided by height in metres squared. Waist and hip circumferences were measured with a non-stretchable tape; waist circumference was measured midway between the lowest rib and the iliac crest, and hip circumference was measured at the maximum circumference over the buttocks. Waist-hip ratio was calculated as waist circumference divided by hip circumference. Hirsutism was assessed clinically by evaluating terminal hair distribution over standard body areas, consistent with the Ferriman-Gallwey approach. Acne, androgenic alopecia, and acanthosis nigricans were recorded as present or absent.

Oral glucose tolerance test

After a 3-day carbohydrate diet of approximately 150 g/day and an overnight fast of 8-10 hours, all participants underwent a 75 g OGTT. Fasting plasma glucose and 2-hour post-load plasma glucose were measured after administration of 75 g glucose dissolved in 250-300 mL water. Glucose estimation was performed using the glucose oxidase-peroxidase method. Glucose categories were interpreted using WHO criteria: normal glucose tolerance was defined as fasting glucose <110 mg/dL and 2-hour glucose <140 mg/dL; impaired fasting glucose as fasting glucose 110-125 mg/dL; impaired glucose tolerance as 2-hour glucose 140-199 mg/dL; and diabetes mellitus as fasting glucose >=126 mg/dL or 2-hour glucose >=200 mg/dL.

Bias

Several measures were taken to reduce potential bias. The same eligibility criteria and Rotterdam diagnostic standards were applied at both study centres to limit variation in participant selection. Conditions that could mimic PCOS, including hypothyroidism, hyperprolactinaemia, Cushing syndrome, congenital adrenal hyperplasia, and adrenal tumours, were excluded before enrolment. Demographic and clinical information were collected using a predesigned,

https://doi.org/10.51168/dck79y62

pretested schedule, while anthropometric measurements were obtained using uniform procedures and predefined cut-offs. All participants underwent the same 75 g oral glucose tolerance test after an overnight fast, and glycaemic status was classified according to World Health Organization criteria, thereby reducing measurement and classification bias. Clinical findings such as hirsutism, acne, acanthosis nigricans, and ultrasonographic ovarian morphology were recorded using predefined criteria. To reduce analytical bias, appropriate statistical tests were selected according to data distribution and cell frequency. However, selection bias cannot be completely excluded because the study was hospital-based, and recall bias may have affected self-reported family history. Residual confounding is also possible because individual-level data were not available for multivariable adjustment.

Ethical considerations

The study protocol was reviewed and approved by the Institutional Ethics Committee of Kakatiya Medical College, Hanumakonda, Telangana vide approval number-KMC/OBG/Faculty/2024-35 dated 12 July 2024. Written informed consent was obtained from all adult participants before enrolment. For participants younger than 18 years, written informed assent was obtained along with consent from a parent or legally authorised guardian. Participant confidentiality was maintained throughout the study, and all records were coded before analysis.

Statistical analysis

Data were entered into Microsoft Excel and analysed using SPSS version 16. Categorical variables were presented as frequencies and percentages, while available continuous variables were summarised as mean and standard deviation. Associations between abnormal glucose tolerance and demographic, anthropometric, and familial variables were assessed using Pearson's chi-square test. For the exploratory binary comparisons presented with odds ratios and 95% confidence intervals, Fisher's exact test was applied because of the small cell frequencies in some categories. A two-sided **p-value** below 0.05 was considered statistically significant.

Results:

Participant flow

During the study period, young women aged 15–25 years with clinical features suggestive of PCOS were assessed for eligibility at the two study centres. Women fulfilling the Rotterdam criteria, meeting the eligibility requirements, and providing written informed consent were enrolled. A total of 100 participants completed the demographic, clinical, anthropometric, and laboratory assessments, including the 75 g oral glucose tolerance test. All 100 participants were included in the final analysis. As this was a cross-sectional study, no longitudinal follow-up was planned, and there were no withdrawals after enrolment. The participant-selection process is shown in Figure 1.

https://doi.org/10.51168/dck79y62

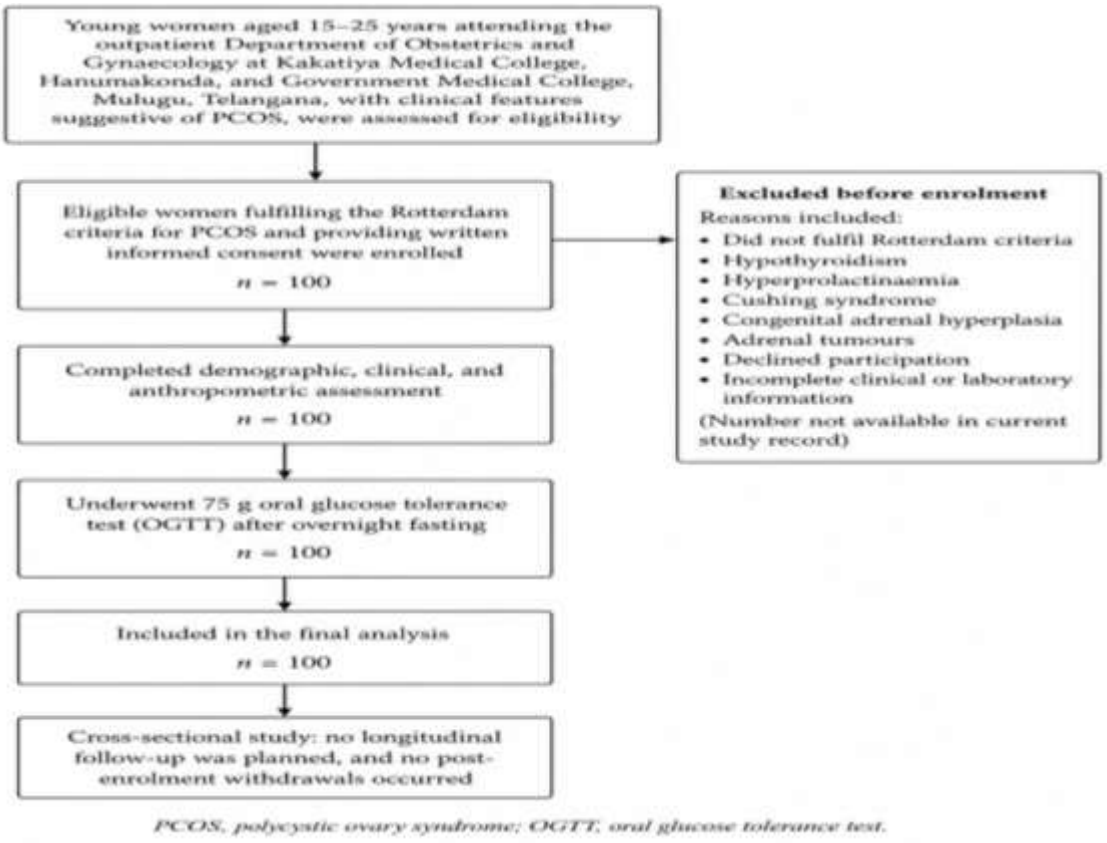

Figure 1: Participant Flow Diagram of the Study Participants

Baseline profile of the study population

The study included 100 young women with PCOS. Most participants were aged 21-25 years (81%), while 19% were aged 16-20 years. Urban residents formed 65% of the cohort. Socioeconomic class III was the largest group (43%). Based on BMI, 41% had normal weight, 29% were overweight, and 26% were obese. Family history of PCOS was present in 14%, family history of diabetes in 29%, and waist-hip ratio >=0.85 in 27%. The baseline distribution is presented in Table 1.

Table 1: Baseline demographic and anthropometric profile of the study population (N=100).

Variable	Category	n	%
Age group	16-20 years	19	19.0
	21-25 years	81	81.0
Locality	Rural	35	35.0
	Urban	65	65.0
Socioeconomic class	Class I	18	18.0
	Class II	18	18.0
	Class III	43	43.0
	Class IV	21	21.0
	Class V	0	0.0
BMI category	Underweight (<18.5)	4	4.0
	Normal (18.5-24.99)	41	41.0
	Overweight (25-29.99)	29	29.0
	Obese I (30-34.99)	17	17.0
	Obese II (35-39.99)	9	9.0
Family history of PCOS	Positive	14	14.0

https://doi.org/10.51168/dck79y62

	Negative	86	86.0
Family history of diabetes	Positive	29	29.0
	Negative	71	71.0
Waist-hip ratio	<0.85	73	73.0
	>=0.85	27	27.0
Marital status	Unmarried	21	21.0
	Married	79	79.0

BMI, body mass index; PCOS, polycystic ovary syndrome. Percentages are calculated using the total sample size of 100

Presenting clinical features

Irregular menstrual cycles were the most frequent clinical feature and were reported in 87 women. Polycystic ovarian morphology on ultrasonography was present in 80 women. Primary subfertility was present in 61%, hirsutism in 55%, acne in 44%, and acanthosis nigricans in 34% (Table 2).

Table 2: Clinical features among women with PCOS.

Clinical feature	n	%
Irregular cycles	87	87.0
Hirsutism	55	55.0
Acne	44	44.0
Primary subfertility	61	61.0
Acanthosis nigricans	34	34.0
PCOS on USG	80	80.0

More than one clinical feature could be present in the same participant.

Prevalence of glucose tolerance abnormalities

The OGTT showed normal glucose tolerance in 73 women, IGT in 22, and diabetes mellitus in five. Therefore, 27% of the cohort had abnormal glucose tolerance when IGT and diabetes were considered together. Figure 2 shows the distribution of glucose tolerance categories, and Table 3 presents the numerical distribution.

Table 3: Glucose tolerance status based on 75 g OGTT.

Glucose category	n	%
OGTT	73	73.0
IGT	22	22.0
Diabetes mellitus	5	5.0

OGTT, oral glucose tolerance test; IGT, impaired glucose tolerance.

https://doi.org/10.51168/dck79y62

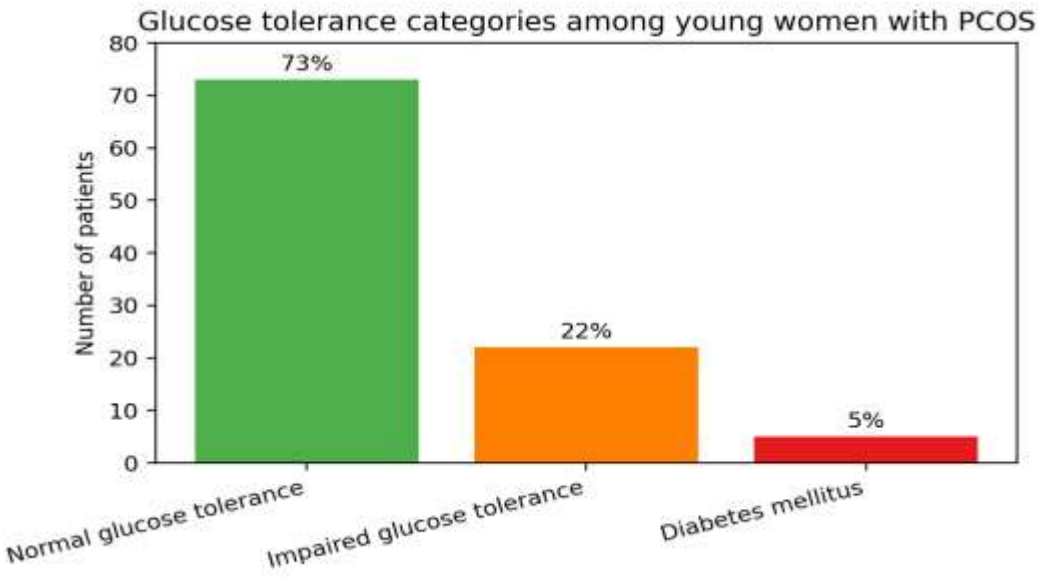

Figure 2: Distribution of glucose tolerance categories based on 75 g OGTT.

Association of abnormal glucose tolerance with demographic and anthropometric variables

Abnormal glucose tolerance was slightly more frequent in women aged 21-25 years than in those aged 16-20 years, but the difference was not statistically significant. Urban women had a higher proportion of abnormal glucose tolerance than rural women; however, this did not reach statistical significance on the reconstructed contingency analysis. Socioeconomic class showed a descending proportion from class I to class IV, but the overall association was not significant. BMI category showed a clear association with abnormal glucose tolerance. Women in the obese class II group had the highest proportion of abnormal glucose tolerance. Waist-hip ratio >=0.85 and positive family history of diabetes were also significantly associated with abnormal glucose tolerance. These associations are summarised in Table 4 and illustrated in Figures 3 and 4.

Table 4: Association between selected variables and abnormal glucose tolerance (AGT = IGT + diabetes).

Variable	Chi-square	df	p value	Interpretation
Age group	0.00	1	1.0000	Not significant
Locality	1.94	1	0.1636	Not significant
Socioeconomic class	2.64	3	0.4511	Not significant
BMI category	24.52	4	0.0001	Significant
Family history of PCOS	0.22	1	0.6402	Not significant
Family history of diabetes	5.37	1	0.0204	Significant
Waist-hip ratio	9.93	1	0.0016	Significant

AGT, abnormal glucose tolerance; IGT, impaired glucose tolerance; df, degrees of freedom. P values were recalculated from the aggregate counts reported in the dissertation. Pearson's chi-square test was used to assess associations between

SJ Gynecology and Obstetrics Africa
Vol. 3 No. 2 (2026): May 2026 Issue
https://doi.org/10.51168/dck79y62
Original Article

abnormal glucose tolerance and the selected categorical variables.

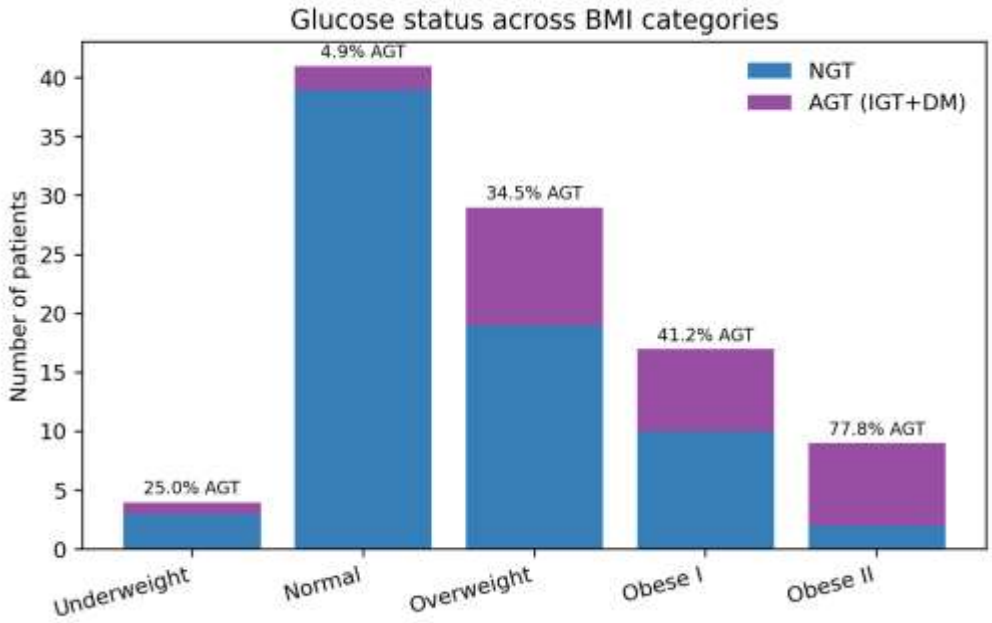

Figure 3: Normal and abnormal glucose tolerance across BMI categories.

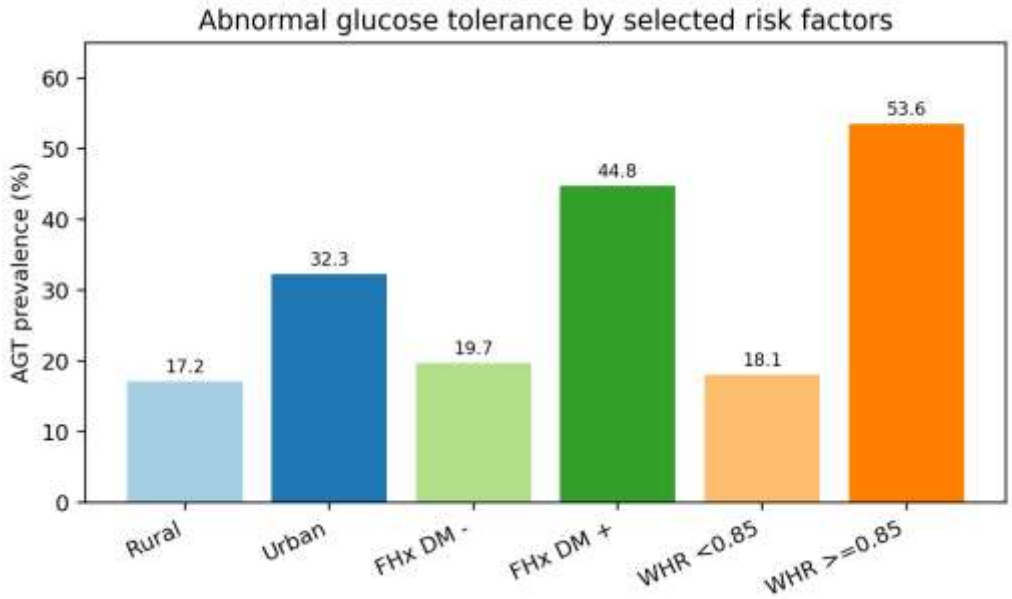

Figure 4: Abnormal glucose tolerance according to locality, family history of diabetes, and waist-hip ratio.

In binary effect estimation, obesity (BMI >=30 kg/m2), family history of diabetes, and waist-hip ratio >=0.85 showed increased odds of abnormal glucose tolerance. The strongest observed point estimate was for central adiposity measured by waist-hip ratio, followed by obesity and family history of diabetes (Table 5).

SJ Gynecology and Obstetrics Africa
Vol. 3 No. 2 (2026): May 2026 Issue
https://doi.org/10.51168/dck79y62
Original Article

Table 5. Odds ratios for selected binary predictors of abnormal glucose tolerance.

Predictor	Odds ratio	95% CI	Fisher's exact p-value
Obesity (BMI >=30) vs BMI <30	5.47	2.06-14.53	0.0007
Urban vs rural	2.31	0.83-6.41	0.1558
Family history of PCOS present vs absent	1.62	0.49-5.34	0.5177
Family history of diabetes present vs absent	3.31	1.30-8.44	0.0139
WHR >=0.85 vs <0.85	4.97	1.90-13.03	0.0017

CI, confidence interval. Odds ratios and 95% confidence intervals were calculated from the available aggregate counts. Fisher's exact test was used for the corresponding 2 × 2 comparisons. These estimates were exploratory because multivariable adjustment could not be performed without individual-level data.

Grouped scatter analysis for BMI and IGT prevalence

A grouped scatter plot was used to examine the relationship between increasing BMI category and IGT prevalence. Because individual-level BMI and glucose values were not available in the dissertation file, the plot used approximate BMI category midpoints and category-specific IGT percentages. Spearman's rank correlation showed a positive monotonic trend between BMI category and IGT prevalence (rho=0.90, p=0.037). This analysis should be interpreted as an ecological trend across categories rather than an individual-level correlation (Figure 5).

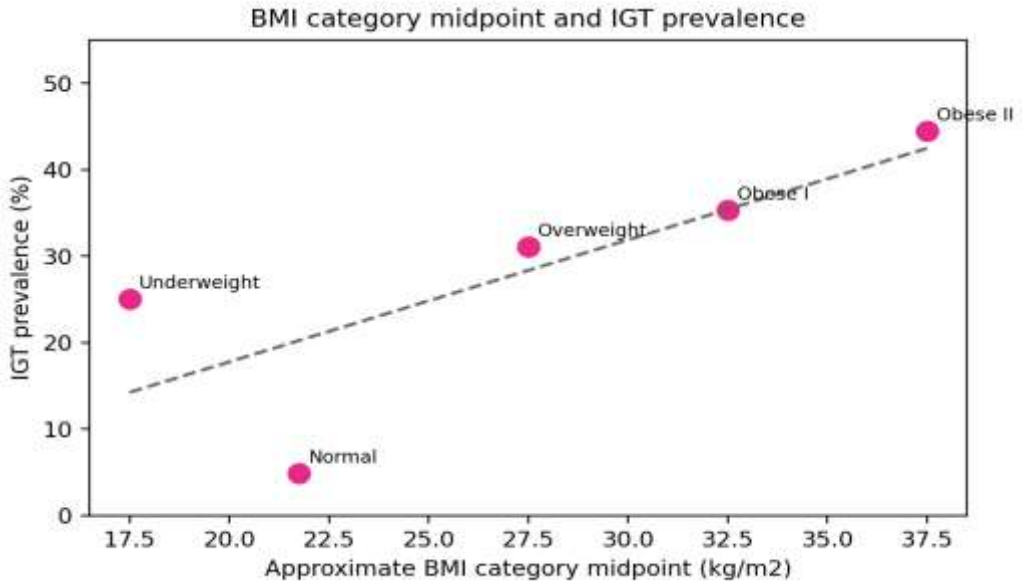

Figure 5: Grouped scatter plot showing the trend between BMI category midpoint and IGT prevalence.

https://doi.org/10.51168/dck79y62

Clinical features across glucose tolerance categories

Several clinical features were more frequent in women with IGT or diabetes than in those with normal glucose tolerance. Acanthosis nigricans increased from 26.02% in the normal glucose tolerance group to 54.54% in the IGT group and 60% in the diabetes group. Primary subfertility and polycystic ovarian morphology on ultrasonography also showed higher proportions in the IGT and diabetes groups. Irregular cycles remained highly prevalent across all glucose categories (Table 6).

Table 6. Clinical features according to glucose tolerance category.

Clinical feature	NGT (%)	IGT (%)	Diabetes (%)
Irregular cycles	87.67	90.90	100.00
Hirsutism	52.05	63.63	60.00
Acne	42.46	45.45	60.00
Primary subfertility	56.16	72.72	80.00
Acanthosis nigricans	26.02	54.54	60.00
PCOS on USG	75.34	90.90	100.00

NGT, normal glucose tolerance; IGT, impaired glucose tolerance. Values indicate the percentage within each glucose tolerance category.

Discussion

This hospital-based observational study found that abnormal glucose tolerance was common among young women with PCOS. Although the cohort was restricted to women aged 15-25 years, 22% had IGT and 5% had diabetes mellitus on 75 g OGTT. These findings are clinically relevant because many women in this age group present primarily for menstrual irregularity, acne, hirsutism, or subfertility, while metabolic risk may remain unrecognised unless specifically screened.

The prevalence of IGT in the present study is within the broad range reported in previous PCOS cohorts. Differences across studies are expected because of variation in age, ethnicity, BMI distribution, diagnostic criteria, and recruitment setting. Earlier prospective studies reported high rates of IGT and diabetes in reproductive-age women with PCOS [12,13]. Adolescent studies also found that dysglycaemia can occur early and may be detected across the BMI spectrum [14,15,25]. Systematic reviews have consistently shown that PCOS is associated with increased odds of IGT, type 2 diabetes, and metabolic syndrome, even when BMI is considered [10,20].

BMI was one of the clearest correlates of abnormal glucose tolerance in this cohort. The proportion of abnormal glucose tolerance was low among women with normal BMI but increased in the overweight and obese categories, reaching the highest level among women with class II obesity. The grouped scatter analysis also suggested a monotonic rise in IGT prevalence with increasing BMI category. This supports the known role of adiposity in aggravating insulin resistance in PCOS. However, the presence of abnormal glucose tolerance in non-obese categories reinforces the view that BMI alone should not be used to exclude metabolic risk [10,14,15].

Central adiposity, reflected by a waist-hip ratio >=0.85, showed a significant association with abnormal glucose tolerance. Waist-hip ratio may capture metabolic risk not fully reflected by BMI because abdominal adiposity is closely linked with insulin resistance, inflammatory adipokine changes, and hepatic metabolic dysfunction. The higher abnormal glucose tolerance in women with increased waist-hip ratio in this cohort is consistent with guideline recommendations to assess anthropometric risk beyond body weight alone [1,3,6].

Family history of diabetes was also significantly associated with abnormal glucose tolerance. This finding is biologically plausible because beta-cell reserve, insulin sensitivity, and diabetes risk are influenced by genetic and shared environmental factors. In PCOS, family history may help identify women who require closer glycaemic surveillance. The study also found higher glucose abnormality in women with a family history of PCOS, but the association was not statistically significant, possibly because only 14 women reported a positive PCOS family history. Prior work has suggested that family history of type 2 diabetes and PCOS can help stratify metabolic and endocrine phenotypes among women with PCOS [18].

A notable clinical observation was the higher prevalence of acanthosis nigricans among women with IGT and diabetes. Acanthosis nigricans is a visible marker of hyperinsulinaemia and insulin resistance. In practice, its presence should alert clinicians to the possibility of dysglycaemia, particularly when accompanied by obesity, central adiposity, or a family history of diabetes. Primary subfertility and ultrasonographic PCOS morphology were also more frequent among women with IGT or diabetes, but these findings should be interpreted cautiously because the sample size was limited and the analysis was not adjusted for BMI or age.

The present findings support the use of OGTT in young women with PCOS. Fasting glucose can appear normal in women who have abnormal 2-hour post-load glucose values. This limitation has been shown in several PCOS studies and is reflected in guideline discussions [11,16,17]. In the present cohort, IGT was substantially more common

than diabetes, which indicates an early metabolic stage where lifestyle counselling and follow-up can still be preventive.

Generalizability

The findings of this study may apply to young women with PCOS who attend hospital-based gynaecology outpatient services, particularly in similar tertiary care settings. Since the study included women aged 15 to 25 years, the results are most relevant to adolescents and young adults with PCOS. However, the findings should be applied with caution to the general community because the sample was hospital-based and may include women with more symptoms or higher health-seeking behaviour than the wider PCOS population. The results may also vary in older women, lean PCOS phenotypes, and women from different ethnic, dietary, and socioeconomic backgrounds.

Conclusion

In this cohort of young women with PCOS, 22% had impaired glucose tolerance and 5% had diabetes mellitus on 75 g OGTT. Abnormal glucose tolerance was significantly associated with higher BMI category, increased waist-hip ratio, and family history of diabetes. These findings indicate that metabolic screening should begin early in PCOS, rather than being delayed until later reproductive age. OGTT is useful because post-load dysglycaemia may be missed by fasting glucose alone. Young women with PCOS, especially those with obesity, central adiposity, acanthosis nigricans, or a family history of diabetes, should receive structured counselling on lifestyle modification and periodic metabolic follow-up.

Strengths and Limitations

The major strength of the study is that all participants underwent OGTT rather than relying only on fasting glucose. The study also focused on a young age group, where early identification can influence long-term counselling and prevention. Anthropometric and clinical data were collected systematically, allowing assessment of BMI, waist-hip ratio, family history, and common PCOS symptoms.

The study has limitations. It was hospital-based and included only 100 participants, so the estimates may not represent the community prevalence of dysglycaemia among all young women with PCOS. There was no non-PCOS control group. Family history was based on participant report rather than direct verification of relatives. Individual-level raw data were not available for this manuscript preparation; therefore, multivariable regression, individual-level scatter plots, and adjusted estimates could not be performed. The grouped scatter plot should be read only as an aggregate trend. Long-term follow-up was not available, so progression from IGT to diabetes could not be assessed.

Recommendations

Young women diagnosed with PCOS should be screened early for glucose intolerance, preferably with a 75 g oral glucose tolerance test, as fasting glucose alone may miss post-load dysglycaemia. Screening should be given particular importance in women with obesity, increased waist-hip ratio, acanthosis nigricans, or a family history of diabetes. Lifestyle counselling on diet, physical activity, weight control, and long-term metabolic follow-up should be included as part of routine PCOS care. Larger community-based studies with control groups and follow-up assessments are recommended to confirm these findings and to understand the progression of impaired glucose tolerance in young women with PCOS.

Acknowledgements

The authors sincerely thank the participants for their cooperation during clinical evaluation and oral glucose tolerance testing. The authors also acknowledge the support of the outpatient Department of Obstetrics and Gynaecology, nursing staff, and laboratory personnel who helped in patient coordination, sample collection, and glucose estimation.

Abbreviations

AGT: Abnormal glucose tolerance
BMI: Body mass index
CI: Confidence interval
DM: Diabetes mellitus
IGT: Impaired glucose tolerance
NGT: Normal glucose tolerance
OGTT: Oral glucose tolerance test
PCOS: Polycystic ovary syndrome
USG: Ultrasonography
WHR: Waist-hip ratio
WHO: World Health Organization

Source of Funding

The study did not receive any external funding. It was carried out as part of institutional academic work.

Conflict of Interest

The authors declare that they have no conflict of interest related to this study.

Authors' Contributions

SRS contributed to the study concept, clinical evaluation of participants, data collection, and manuscript review. **LM** contributed to study supervision, interpretation of clinical findings, review of methodology, and critical revision of the manuscript. **RM** contributed to patient recruitment, data compilation, literature review, manuscript drafting, and final coordination of the study. All authors reviewed the manuscript and approved the final version for submission.

Data Availability

The data used for this manuscript are based on the clinical and aggregate study records available to the authors. Individual participant data are not publicly available because of confidentiality and ethical restrictions. Relevant data may be made available from the corresponding author on reasonable request, subject to institutional approval.

Authors' Biography

Dr. Swetha Reddy Sambireddy is an Associate Professor in the Department of Obstetrics and Gynaecology, Government Medical College, Mulugu, Telangana. Her academic and clinical interests include reproductive endocrinology, menstrual disorders, and women's metabolic health.

Dr. Laxmi Malladi is an Associate Professor in the Department of Obstetrics and Gynaecology, Kakatiya Medical College and Government Maternity Hospital, Hanumakonda, Telangana. She has experience in teaching, clinical obstetrics and gynaecology, and research related to women's reproductive health.

Dr. Rahulya Marapelly is an Assistant Professor in the Department of Obstetrics and Gynaecology, Government Medical College, Mulugu, Telangana. Her areas of interest include PCOS, infertility, adolescent gynaecology, and metabolic risk assessment in young women.

References

1. Teede HJ, Tay CT, Laven JJE, Dokras A, Moran LJ, Piltonen TT, et al. Recommendations from the 2023 international evidence-based guideline for the assessment and management of polycystic ovary syndrome. J Clin Endocrinol Metab. 2023;108(10):2447-2469. https://doi.org/10.1210/clinem/dgad463
2. Stener-Victorin E, Teede H, Norman RJ, Legro RS, Goodarzi MO, Dokras A, et al. Polycystic ovary syndrome. Nat Rev Dis Primers. 2024;10(1):27. https://doi.org/10.1038/s41572-024-00511-3
3. Teede HJ, Misso ML, Costello MF, Dokras A, Laven J, Moran L, et al. Recommendations from the international evidence-based guideline for the assessment and management of polycystic ovary syndrome. Hum Reprod. 2018;33(9):1602-1618. https://doi.org/10.1093/humrep/dey256
4. Revised 2003 consensus on diagnostic criteria and long-term health risks related to polycystic ovary syndrome. Fertil Steril. 2004;81(1):19-25. https://doi.org/10.1016/j.fertnstert.2003.10.004
5. Azziz R, Carmina E, Dewailly D, Diamanti-Kandarakis E, Escobar-Morreale HF, Futterweit W, et al. Criteria for defining polycystic ovary syndrome as a predominantly hyperandrogenic syndrome: an Androgen Excess Society guideline. J Clin Endocrinol Metab. 2006;91(11):4237-4245. https://doi.org/10.1210/jc.2006-0178
6. Legro RS, Arslanian SA, Ehrmann DA, Hoeger KM, Murad MH, Pasquali R, et al. Diagnosis and treatment of polycystic ovary syndrome: an Endocrine Society clinical practice guideline. J Clin Endocrinol Metab. 2013;98(12):4565-4592. https://doi.org/10.1210/jc.2013-2350
7. Azziz R, Carmina E, Chen Z, Dunaif A, Laven JSE, Legro RS, et al. Polycystic ovary syndrome. Nat Rev Dis Primers. 2016;2:16057. https://doi.org/10.1038/nrdp.2016.57
8. Escobar-Morreale HF. Polycystic ovary syndrome: definition, aetiology, diagnosis and treatment. Nat Rev Endocrinol. 2018;14(5):270-284. https://doi.org/10.1038/nrendo.2018.24
9. Dumesic DA, Oberfield SE, Stener-Victorin E, Marshall JC, Laven JSE, Legro RS. Scientific statement on the diagnostic criteria, epidemiology, pathophysiology, and molecular genetics of polycystic ovary syndrome. Endocr Rev. 2015;36(5):487-525. https://doi.org/10.1210/er.2015-1018
10. Moran LJ, Misso ML, Wild RA, Norman RJ. Impaired glucose tolerance, type 2 diabetes, and metabolic syndrome in polycystic ovary syndrome: a systematic review and meta-analysis. Hum Reprod Update. 2010;16(4):347-363. https://doi.org/10.1093/humupd/dmq001
11. Salley KES, Wickham EP, Cheang KI, Essah PA, Karjane NW, Nestler JE. Glucose intolerance in polycystic ovary syndrome: a position statement of the Androgen Excess Society. J Clin Endocrinol Metab. 2007;92(12):4546-4556. https://doi.org/10.1210/jc.2007-1549
12. Legro RS, Kunselman AR, Dodson WC, Dunaif A. Prevalence and predictors of risk for type 2 diabetes mellitus and impaired glucose tolerance in polycystic ovary syndrome: a prospective, controlled study in 254 affected women. J Clin Endocrinol Metab. 1999;84(1):165-169. https://doi.org/10.1210/jcem.84.1.5393
13. Ehrmann DA, Barnes RB, Rosenfield RL, Cavaghan MK, Imperial J. Prevalence of impaired glucose tolerance and diabetes in women with polycystic ovary syndrome. Diabetes Care. 1999;22(1):141-146. https://doi.org/10.2337/diacare.22.1.141
14. Palmert MR, Gordon CM, Kartashov AI, Legro RS, Emans SJ, Dunaif A. Screening for abnormal glucose tolerance in adolescents with polycystic ovary syndrome. J Clin Endocrinol Metab. 2002;87(3):1017-1023. https://doi.org/10.1210/jcem.87.3.8305

15. Flannery CA, Rackow B, Cong X, Duran E, Selen DJ, Burgert TS. Polycystic ovary syndrome in adolescence: impaired glucose tolerance occurs across the spectrum of BMI. Pediatr Diabetes. 2013;14(1):42-49. https://doi.org/10.1111/j.1399-5448.2012.00902.x
16. Celik C, Abali R, Bastu E, Tasdemir N, Tasdemir UG, Gul A. Assessment of impaired glucose tolerance prevalence with hemoglobin A1c and oral glucose tolerance test in 252 Turkish women with polycystic ovary syndrome: a prospective, controlled study. Hum Reprod. 2013;28(4):1062-1068. https://doi.org/10.1093/humrep/det002
17. Vrbikova J, Hill M, Fanta M. The utility of fasting plasma glucose to identify impaired glucose metabolism in women with polycystic ovary syndrome. Gynecol Endocrinol. 2014;30(9):664-666. https://doi.org/10.3109/09513590.2014.912265
18. Lerchbaum E, Schwetz V, Giuliani A, Obermayer-Pietsch B. Influence of a positive family history of both type 2 diabetes and PCOS on metabolic and endocrine parameters in a large cohort of PCOS women. Eur J Endocrinol. 2014;170(5):727-739. https://doi.org/10.1530/EJE-13-1035
19. Joham AE, Ranasinha S, Zoungas S, Moran L, Teede HJ. Gestational diabetes and type 2 diabetes in reproductive-aged women with polycystic ovary syndrome. J Clin Endocrinol Metab. 2014;99(3):E447-E452. https://doi.org/10.1210/jc.2013-2007
20. Kakoly NS, Khomami MB, Joham AE, Cooray SD, Misso ML, Norman RJ, et al. Ethnicity, obesity, and the prevalence of impaired glucose tolerance and type 2 diabetes in PCOS: a systematic review and meta-regression. Hum Reprod Update. 2018;24(4):455-467. https://doi.org/10.1093/humupd/dmy007
21. Christ JP, Cedars MI. Current guidelines for diagnosing PCOS. Diagnostics (Basel). 2023;13(6):1113. https://doi.org/10.3390/diagnostics13061113
22. Gupta J, Antal Z, Mauer E, Gerber LM, An A, Censani M. Dysglycemia screening with oral glucose tolerance test in adolescents with polycystic ovary syndrome and relationship with obesity. BMC Endocr Disord. 2022;22(1):180. https://doi.org/10.1186/s12902-022-01098-0
23. Prosperi S, Tagliaferri V, Anichini R, Bini V, Fanelli F. Insulin resistance, metabolic syndrome and polycystic ovaries. Front Endocrinol (Lausanne). 2025;16:1669716. https://doi.org/10.3389/fendo.2025.1669716
24. Orisaka M, Miyazaki Y, Shirafuji A, Tamamura C, Tsuyoshi H, Tsang BK, et al. Chronic low-grade inflammation and ovarian dysfunction in women with polycystic ovary syndrome, endometriosis, and aging. Front Endocrinol (Lausanne). 2023;14:1324429. https://doi.org/10.3389/fendo.2023.1324429

PUBLISHER DETAILS:

SJC PUBLISHERS COMPANY LIMITED

SJC Publishers Company Limited

Catergory: Non Government & Non profit Organisation
Contact: +256 775 434 261 (WhatsApp)
Email:info@sjpublisher.org or studentsjournal2020@gmail.com
Website: https://sjpublisher.org
Location: Scholar's Summit Nakigalala, P. O. Box 701432,Entebbe Uganda, East Africa