



A DESCRIPTIVE STUDY TO ASSESS THE VARIOUS LEVELS OF RISK FACTORS FOR DEVELOPING POLYCYSTIC OVARIAN SYNDROME AMONG ADOLESCENT GIRLS IN SELECTED SCHOOL AT CHENNAI

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ABSTRACT:

Introduction: Reproductive health is crucial for overall well-being, and adolescence is a crucial period for adolescents to develop biologically and psychologically. Gynecological diseases, such as polycystic ovarian syndrome (PCOS), are common during adolescence, affecting 5-10% of females and 4-6% of adolescent girls worldwide. **Aim of the study:** The aim of the study to assess the risk factors and to decrease the polycystic ovarian syndrome among fertile age group girls. **Methodology:** This study employed a quantitative research approach with a descriptive research design to assess the risk factors for developing polycystic ovarian syndrome (PCOS) among adolescent girls. The study was conducted at Government Higher Secondary School, Gomathipuram, Thiruninravur, targeting 100 adolescent girls aged 14-17 years, selected using a non-probability purposive sampling technique. The inclusion criteria covered adolescent girls aged 14-17 years who were willing to participate, present during data collection, and able to read and write in English, while exclusion criteria involved those unwilling to participate or who had not attained menarche. **Results:** The result of this present study is that 60% of adolescent girls were at high risk of developing PCOS, while 38% fell into the moderate-risk category, and only 2% were classified as low risk. **Conclusion:** The study revealed that nearly 2% of the people possess adequate knowledge and 38% has moderate knowledge and 60% had inadequate knowledge regarding PCOS among adolescent girls.

Keywords: Reproductive, Polycystic ovarian syndrome, adolescent girls.

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Introduction

Reproductive health is crucial for overall well-being, and adolescence is a crucial period for adolescents to develop biologically and psychologically. Gynecological diseases, such as polycystic ovarian syndrome (PCOS), are common during adolescence, affecting 5-10% of females and 4-6% of adolescent girls worldwide. PCOS causes menstrual irregularity, hyper androgenism, acne, excess body hairs, male pattern baldness, and infertility. It is linked to long-term health problems like cardiovascular diseases and diabetes. The exact cause is unknown, but it is thought to be multifactorial, mainly due to hormonal imbalances.

Hyperandrogenism is linked to hyperinsulinemia and insulin resistance. Obesity is a common feature in women with PCOS, and a family history of obesity, diabetes mellitus, and thyroid diseases supports a genetic susceptibility to the disorder. Initially diagnosed in women at child-bearing age due to infertility, teenager girls are now presenting with PCOS, presenting with menstrual irregularities, obesity, type 2 diabetes, cardiovascular disease, and hyper androgenesis. Controlling PCOS can lower the risks of infertility, miscarriages, diabetes, heart disease, and cancer.

Polycystic Ovarian Syndrome (PCOS) affects 116 million women worldwide, with prevalence estimates ranging from 2.2% to 26%. The highest prevalence was found in Turkey, Pakistan, and Australia, while the lowest was in Oman. The prevalence is increasing in India, with studies showing a 9.13% prevalence rate in Indian adolescents. PCOS affects 5-10% of the female population, with 30% having normal menstrual cycles. Over 80% of women with PCOS present with androgen excess symptoms, with hirsutism being a common clinical presentation. Overt and occult PCOD accounts for 90% of patients with oligomenorrhea and 37% with amenorrhea. The annual incidence of infertility due to PCOD is 247 patients per million. Researchers play a crucial role in raising awareness among adolescent girls about identifying symptoms and modifying treatment to prevent further complications.

STATEMENT OF THE PROBLEM

A descriptive study to assess the various levels of risk factors for developing polycystic ovarian syndrome among adolescent girls in selected school at Chennai.

AIM OF THE STUDY

The aim of the study to assess the risk factors and to decrease the polycystic ovarian syndrome among fertile age group girls.

OBJECTIVES OF THE STUDY

1. To assess the level of risk factors based on oligomenorrhea, hirsutism and body markers among adolescent girls.
2. To associate the level of risk factors with the selected demographic values among adolescent girls.

HYPOTHESIS

H1: There will be significant association between risk factors and polycystic ovarian syndrome with selected adolescent girls.

OPERATIONAL DEFINITION

Assess: Assess refers to evaluate or estimate the nature, ability or quality of a variable. In this study it refers to evaluate the risk factors of polycystic ovarian syndrome.

Risk factor: in this study it refers to a characteristic or exposure of an individual and that develops a disease or injury. Oligomenorrhea, Hirsutism, Obesity, Increased androgen (sex,hormone) level.

Polycystic Ovarian Syndrome: It refers to small cysts occurring in an enlarged ovary due to androgen hormonal disorder.

Adolescent girls: According to the study, Adolescent girls refer to the age group between 14-17 years.

DELIMITATIONS

- The study is delimited to a selected school at Chennai.
- The age group is limited to 14-17 years.

ASSUMPTIONS

- Adolescent girls may be at risk of developing polycystic ovarian syndrome.
- Structured questionnaire will be able to assess the risk status of adolescent girls.

METHODOLOGY

This study employed a quantitative research approach with a descriptive research design to assess the risk factors for developing polycystic ovarian syndrome (PCOS) among adolescent girls. The study was conducted at Government Higher Secondary School, Gomathipuram, Thiruninravur, targeting 100 adolescent girls aged 14-17 years, selected using a non-probability purposive sampling technique. The demographic variables included age, age of menarche, family income, family history of menstrual irregularity, place of residence, family history of diabetes, family history of other medical conditions, and dietary habits.

The inclusion criteria covered adolescent girls aged 14-17 years who were willing to participate, present during data collection, and able to read and write in English, while exclusion criteria involved those unwilling to

participate or who had not attained menarche. The research tool was a structured dichotomous questionnaire, developed after an extensive literature review and expert consultation. The tool consisted of two sections: Section A, which gathered demographic details, and Section B, which assessed PCOS risk using an oligomenorrhea questionnaire, body markers assessment (BMI, waist-hip ratio, BP), and Ferryman-Gallway Hirsutism scale. The scoring system categorized participants as low risk (0-8), moderate risk (9-11), or high risk (12-16).

Ethical clearance was obtained from the ethical committee, and informed consent was secured, ensuring confidentiality. The data collection process involved obtaining permission from the school principal, briefing the participants, administering the questionnaire, and measuring BMI, waist-hip ratio, and BP. Data analysis was conducted using descriptive statistics (frequency and percentage) for demographic variables and inferential statistics (Chi-square test) to assess associations between risk factors and demographic variables.

Result and Findings:

Table 1: Frequency and percentage of distribution of demographic variables. (N=100)

S. No	Demographic Variables	Frequency (N)	Percentage (%)
1	Age		
	14-16	80	80%
	16-18	20	20%
2	Attained Menarche		
	Yes	100	100%
	No	-	-
3	Family income		
	2000-4000	17	17%
	4001-5000	45	45%
	5001-6000	38	38%
4	Place of Resident		
	Rural	-	-
	Urban	100	100%
	Slum	-	-
5	Family history of menstrual irregularity		
	Yes	20	20%
	No	80	80%
6	Family history of DM		
	Yes	45	45%
	No	55	55%
7	Family history of other medical conditions		
	Yes	31	31%
	No	69	69%
8	Habit of eating junk foods		
	Yes	93	93%
	No	7	7%
9	Absent from school during periods		
	Yes	41	41%
	No	59	59%

The study found that 80% of adolescent girls were aged 14-16 years, while 20% were aged 17-18 years. All participants (100%) had attained menarche. Regarding family income, 45% fell within the ₹4000-5000 range, 38% within ₹5000-6000, and 17% within ₹2000-4000. All participants resided in urban areas. 80% had no family history of menstrual irregularity, whereas 20% did. 55% had no family history of diabetes, while 45% did. Additionally, 69% had no family history of other medical conditions, while 31% did. Junk food consumption was prevalent, with 93% reporting the habit. 59% attended school during menstrual periods, while 41% were absent. Waist-hip ratio analysis showed that 59% had a ratio below 0.85, whereas 41% had a ratio above 0.86.

Table 2: Frequency and percentage distribution of level of risk factors of polycystic ovarian syndrome among adolescent girls (N=100)

S. No	Level of Knowledge	Frequency (N)	Percentage (%)
1.	Low risk (12-16)	2	2%
2.	Moderate (9-11)	38	38%
3.	High risk (0-8)	60	60%

Table 2 indicates that 60% of adolescent girls were at high risk of developing PCOS, while 38% fell into the moderate-risk category, and only 2% were classified as low risk. These findings highlight a significant prevalence of PCOS risk factors among the participants, emphasizing the need for increased awareness, early diagnosis, and preventive measures.

Table 3: Chi-square test on level of oligomenorrhea with their demographic variables.

S. No	Demographic variable	Inadequate n	Inadequate %	Moderate n	Moderate %	Adequate n	Adequate %	Chi Square
1.	Age							
	14-16	52	52%	27	27%	2	2%	X=3.783 Significant
	17-18	8	8%	11	11%	0	0	
2.	Family history of menstrual irregularity							
	Yes	13	13%	6	6%	1	1%	X=3.346 Significant
	No	47	47%	32	32%	1	1%	
3.	Family history of diabetes mellitus							
	Yes	25	25%	18	18%	2	2%	X=1.973 Significant
	No	35	35%	20	20%	0	0	
4.	Family income							
	2000-4000	13	13%	4	4%	0	0	X=3.4805 Significant
	4000-5000	23	23%	21	21%	1	1%	
	5000-6000	24	24%	13	13%	1	1%	
5.	Family history of medical illness							
	Yes	18	18%	12	12%	1	1%	X ² =0.3713 Significant
	No	42	42%	26	26%	1	1%	
6.	Habit of eating junk food							
	Yes	53	53%	38	38%	2	2%	X ² =2.2178 Significant
	No	7	7%	0	0	0	0	
7.	Absent from school during menstrual period							
	Yes	21	21%	18	18%	2	2%	X ² =3.2279

	No	39	39%	20	20%	0	0	Significant
8.	Body mass index							
	Normal	18	18%	12	12%	1	1%	X ² =3.713
	Overweight	42	42%	26	26%	1	1%	Significant
9.	Waist hip ratio							
	Above 0.86	21	21%	18	18%	2	2%	X ² =3.2279
	Below 0.85	39	39%	20	20%	0	0	Significant
10.	Blood pressure							
	Normal	52	52%	27	27%	2	2%	X ² =3.783
	High	8	8%	11	11%	0	0	Significant

DISCUSSION

The study assessed the risk factors for developing polycystic ovarian syndrome (PCOS) among adolescent girls in Government Higher Secondary School, Thiruninravur. The findings indicated that, in assessing the level of risk factors, 2% of participants had a low risk, 38% had a moderate risk, and 60% had a high risk of developing PCOS based on the frequency and percentage distribution of oligomenorrhea. Additionally, the study examined the association between risk factors and selected demographic variables. The statistical analysis revealed a significant association between PCOS risk factors and certain demographic variables. Therefore, the null hypothesis, which stated that there was a significant association between the risk factors and demographic variables related to PCOS, was accepted. These findings highlighted the prevalence of PCOS risk among adolescent girls and the potential impact of demographic factors on its development.

CONCLUSION

The investigator after analysing the data came to a conclusion that majority number of adolescent girls had Inadequate knowledge regarding PCOS. Here we found nearly 2% of the people possess adequate knowledge and 38% has moderate knowledge and 60% had Inadequate knowledge regarding PCOS among adolescent girls. Null hypothesis stated, the significant hypothesis was accepted.

RECOMMENDATIONS:

The findings of this study suggest several directions for future research. A similar study could be conducted on a larger sample size to enhance the generalizability of the results. A comparative study between urban and rural areas could provide insights into regional variations in PCOS risk factors. Additionally, an interventional study focusing on different strategies for managing PCOS among adolescent girls and their mothers could contribute to promoting a healthier environment. The study could also be replicated in different settings to examine variations in risk factors across diverse populations. Furthermore, a similar study could be conducted to assess the knowledge and attitude of adolescent girls regarding PCOS, which would help in developing targeted awareness programs.

REFERENCES**JOURNAL REFERNCES:****BOOK REFERENCES**

- Dutta, D. C. (2007). *Textbook of gynecology* (4th ed.). New Central Book Agency.
- Hacker, N. F. (2012). *Hacker and Moore's essentials of obstetrics & gynecology* (5th ed.). Elsevier.
- Carmina, E. (2004). Diagnosis of polycystic ovary syndrome: From NIH criteria to ESHRE-ASRM guidelines. *Minerva Ginecol*, 56, 1-6.
- Tomey, A. M. (2006). *Nursing theories and their work* (6th ed.). Mosby Publications.
- Pareek, B. (2005). *Textbook of nursing research and statistics* (3rd ed.). S. Vikas & Company.
- Bhaskaran, R. T. (2000). *Methods of biostatistics* (2nd ed.). Paras Publication.
- Elakkuvana, D. (2010). *Textbook of nursing research and statistics* (1st ed.). Emmess Publication.
- Burns, N. (2005). *The practice of nursing research* (3rd ed.). Elsevier Saunders.
- Polit, D. F., & Beck, C. T. (2004). *Nursing research: Principles and methods* (7th ed.). Lippincott Williams & Wilkins.
- Polit, D. F., & Hungler, B. P. (2001). *Nursing research: Principles and methods* (5th ed.). Lippincott Williams & Wilkins.
- Mahajan, B. K. (1991). *Methods in biostatistics* (5th ed.). Jaypee Brothers Medical Publishers.
- Wesley, L. R. (1992). *Nursing theories and models* (2nd ed.). Spring House Publications.
- Lewis, S. L. (Year). *A textbook of medical-surgical nursing* (1st ed.). Elsevier.
- Black, J. M. (Year). *Medical-surgical nursing* (2nd ed.). Elsevier.
- Brunner, L. S., & Suddarth, D. S. (Year). *Medical-surgical nursing* (13th ed.). Wolters Kluwer.
- Clement, N. (Year). *Textbook of nursing research and statistics* (1st ed.). Emmess Publication.

JOURNAL REFERENCES

- Hollirake, E., Abreu, A., Maifeld, M., Van Voorthis, B. J., & Dokras, A. (2007). Increased risk of depressive disorder in women with polycystic ovary syndrome. *Fertility and Sterility*, 87(6), 1369-1376.
- Herbert, D. L., Lucke, J. C., & Dobson, A. J. (2010). Depression: An emotional obstacle to seeking medical advice for infertility. *Fertility and Sterility*, 94(6), 1817-1821.
- Cedars, M. I. (2012). PCOS: Key issues and remaining questions. *Fertility and Sterility*, 97(1), 1.
- Franks, S., & Berga, S. L. (2012). Does PCOS have developmental origins? *Fertility and Sterility*, 97(1), 2-6.
- Cause, B. C., Tarlatzis, B. C., Rebar, R. W., Legro, R. S., & Balen, A. H. (2012). Consensus on women's health aspects of polycystic ovary syndrome (PCOS): The Amsterdam ESHRE/ASRM-sponsored 3rd PCOS consensus workshop group. *Fertility and Sterility*, 97(1), 28-38.

- Li, Y., Yu Ng, E. H., Stener-Victorin, E., Hou, L., et al. (2011). Polycystic ovary syndrome is associated with negatively variable impacts on domains of health-related quality of life: Evidence from a meta-analysis. *Fertility and Sterility*, 96(3), 452-458.
- Hassan, M. A., & Killick, S. R. (2003). Ultrasound diagnosis of polycystic ovaries in women who have no symptoms of PCOS is not associated with subfecundity or subfertility. *Fertility and Sterility*, 80(5), 966-975.
- Palomba, S., Falbo, A., Orio, F. Jr., & Zullo, F. (2009). Effect of preconceptional metformin on abortion risk in polycystic ovary syndrome: A systematic review and meta-analysis of randomized controlled trials. *Fertility and Sterility*, 92(5), 1646-1658.
- Eyvazzadeh, A. D., Pennington, K. P., Pop-Busui, R., Sowers, M., Zubieta, J. K., et al. (2009). The role of the endogenous opioid system in polycystic ovary syndrome. *Fertility and Sterility*, 92(1), 1-12.
- Farrell, K., & Antoni, M. H. (2010). Insulin resistance, obesity, inflammation, and interventions. *Fertility and Sterility*, 94(5), 1564-1574.
- Mansfield, R., Gale, R., Brincat, M., Hole, D., & Mason, H. (2003). Metformin has direct effects on human ovarian steroidogenesis. *Fertility and Sterility*, 79(4), 956-962.
- Lambrinoudaki, I. (2011). Cardiovascular risk in postmenopausal women with polycystic ovary syndrome. *Maturitas*, 68(1), 13-16.
- Morgan, J. F., McCluskey, S. E., Brunton, J. N., & Hubert Lacey, J. (2002). Polycystic ovarian morphology and bulimia nervosa: A 9-year follow-up study. *Fertility and Sterility*, 77(5), 928-931.
- Roepke, S., Ziegenborn, A., Krousbein, J., Merkl, A., Bahari, S., et al. (2010). Incidence of polycystic ovaries and androgen serum levels in women with borderline personality disorder. *Journal of Psychiatric Research*, 44(12), 847-852.

WEB REFERENCES

- International Journal of Biomedical and Advance Research. (n.d.). Retrieved from www.ijbamar.com
- Medical Journal of Australia. (n.d.). Retrieved from www.mja.com
- WebMD Women's Health. (n.d.). Retrieved from <http://women.webmd.com>
- Innovation Journal. (n.d.). Retrieved from <http://innovationjournal.in/ijnd/litex.php>
- National Center for Biotechnology Information. (n.d.). Retrieved from www.ncbi.nlm.nih.gov
- Worldwide Journal. (n.d.). Retrieved from www.worldwidejournal.com
- International Journal of Reproduction, Contraception, Obstetrics and Gynecology. (n.d.). Retrieved from www.ijrcog.org
- Indian Times. (n.d.). Retrieved from <http://m.indiatimes.com>
- International Journal of Advanced Nursing and Midwifery. (n.d.). Retrieved from <http://ijanm.com>
- IOSR Journal. (n.d.). Retrieved from www.iosrjournal.org
- Hindawi Journal. (n.d.). Retrieved from <http://www.hindawi.com>