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A STUDY ON MENSTRUAL IRREGULARITIES AMONG ADOLESCENT'S GIRLS AND LEVEL OF AWARENESS REGARDING PCOD

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Abstract

Adolescence is a vital stage marked by hormonal and physical changes that often lead to menstrual irregularities. Various menstrual disorders, such as dysmenorrhea, amenorrhea, and premenstrual syndrome, affect the physical and psychological well-being of adolescent girls, often leading to academic and social challenges. Poor nutrition, stress, and inactivity further contribute to menstrual and reproductive health problems. The growing prevalence of **Polycystic Ovary Disease (PCOD)** among adolescents, linked to hormonal imbalance and sedentary lifestyles, has emerged as a major public health concern. Early awareness, proper menstrual education, and adoption of healthy lifestyle practices are essential to prevent complications and promote long-term reproductive health among adolescent girls. The objectives of the study are to study the common menstrual problems and their management practices and to assess the level of awareness regarding PCOD and its complications. A total of 300 respondents were selected from two colleges in Sundargarh through a descriptive survey design using a structured questionnaire. Data were collected through direct interaction with female students aged 16–24 years and analyzed using descriptive statistical methods like SPSS-20, MS Office, Mean and Standard Deviation. The findings revealed that menstrual problems were highly prevalent among the participants, with dysmenorrhea, menorrhagia and hypomenorrhea being the most common. Menstrual irregularities were more frequent among girls with late menarche, irregular cycles, and premenstrual symptoms. Most respondents practiced some form of management, predominantly Ayurvedic and home remedies, while a smaller proportion sought medical help. However, only a limited number followed balanced diets, adequate hydration, yoga, or sufficient sleep as part of their lifestyle. Awareness regarding PCOD, its hormonal causes, symptoms, and relation to menstruation was found to be low, indicating a significant knowledge gap. The study concludes that menstrual problems are common among adolescent girls, influenced by physiological, lifestyle, and awareness factors. There is a strong need for educational interventions, awareness programs, and health-promoting lifestyle practices to improve menstrual and reproductive health and prevent PCOD in the early stages

Key words: Adolescent Girls, Menstrual Problems, PCOD, Awareness level, Reproductive Health and its Management.

Introduction

Adolescence represents a critical stage of human development, characterized by profound physical, psychological, and emotional changes. It is considered a vulnerable period due to the rapid hormonal and physiological transitions that influence overall health and well-being. Menarche is one of the most significant biological milestones of puberty (Rigon, F. et al., 2012), marking the onset of reproductive capability in adolescent girls. However, the menstrual cycle during this phase is often irregular due to the immaturity of the hypothalamic–pituitary–ovarian axis, which may lead to menstrual abnormalities and related complications. Although adolescents are generally perceived to be healthier than younger children or the elderly, their specific health issues often remain underrecognized. In many developing countries, adolescent girls face additional risks due to early marriage, inadequate reproductive awareness, and limited access to healthcare services, leading to increased reproductive morbidity and mortality (Marri, P. et al., 2021).

The menstrual cycle is a complex physiological process regulated by hormonal interactions that prepare the uterus for potential pregnancy. During each cycle, hormonal fluctuations lead to the thickening of the uterine lining. If fertilization does not occur, the lining is shed through the vaginal opening, resulting in menstruation (Mayo Clinic, 2021). A normal menstrual period typically lasts between two and seven days and occurs every 21–35 days. However, 14–25% of women



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experience irregularities, such as variations in cycle length, excessive or scanty flow, and severe abdominal cramps (ACOG, 2021). Additional irregularities include intermenstrual bleeding, spotting after intercourse, and amenorrhea (absence of menstruation for three to six months) (Whitaker, L., 2015).

Menstrual disorders are among the most common health issues affecting adolescent girls. Factors such as the age at menarche, nutritional deficiencies, hematological or endocrine disturbances, and emotional instability must be considered when assessing menstrual health (Jeffcoate, N. et al., 2014). They include conditions such as dysmenorrhea, premenstrual syndrome (PMS), and irregular menstrual cycles. These disorders can cause physical discomfort and psychological distress, thereby affecting daily activities, academic performance, participation in sports, and overall self-esteem (Deligeoroglou, E. & Creatsas, G., 2012; RupaVani, K. et al., 2013). Globally, approximately 75% of adolescent girls experience some form of menstrual problem (Lee, L.K. et al., 2006). Lifestyle patterns, including dietary habits, physical inactivity, and psychological stress, significantly influence the menstrual and reproductive health of females (Priyanka, N., & Aparajita, M., 2018). Adolescent girls comprise nearly one-tenth of India's population and represent a crucial demographic for national health and development. Their nutritional status directly influences maternal and child health outcomes. Undernutrition among adolescent girls leads to reduced muscle mass, diminished work capacity, and higher risks of obstetric complications. Moreover, undernourished girls are more likely to give birth to low-birth-weight infants, thereby perpetuating the intergenerational cycle of malnutrition (Malhotra, A. et al., 2007).

According to the World Health Organization (WHO), adolescence refers to individuals aged between 10 and 19 years. This stage of life is particularly sensitive to environmental and lifestyle influences, which play a vital role in determining long-term reproductive health. The increasing prevalence of Polycystic Ovary Disease (PCOD) among adolescents is a growing public health concern. Due to modern lifestyle patterns, such as poor dietary habits, obesity, and sedentary behaviour, PCOD has become one of the most frequently diagnosed endocrine disorders in adolescent girls (Sharma, M., 2021). Although the clinical features of PCOS may manifest during adolescence, diagnosis is often challenging because some symptoms overlap with normal pubertal changes. The diagnostic criteria for PCOS, including hyperandrogenism and oligo-anovulation, as suggested by the Androgen Excess Society (2006), are not entirely appropriate for early adolescents (Bugges, C., 2005).

Polycystic Ovary Disease (PCOD), a subset of PCOS, is one of the most common reproductive endocrine disorders affecting adolescent girls and young women. It manifests through symptoms such as irregular or absent menstrual cycles, acne, obesity, and excessive hair growth. The exact etiology of PCOD remains uncertain, but hormonal imbalance and genetic predisposition are considered key contributing factors. Normally, the ovaries produce estrogen and progesterone along with a small amount of androgens, while the adrenal glands also secrete androgens. These hormones collectively regulate the menstrual cycle and ovulation. In girls with PCOD, the ovaries produce an excess of androgens, which disrupts ovulation and leads to menstrual irregularities. Elevated insulin levels can further stimulate the ovaries to secrete androgens, worsening the condition (Tal Grunwald, M.D., 2021).

The increasing incidence of PCOD and menstrual irregularities among adolescent girls highlights the urgent need for greater awareness, early diagnosis, and preventive interventions. Awareness regarding menstrual hygiene, reproductive health, and the consequences of hormonal imbalance is essential for improving adolescent well-being and preventing long-term complications such as infertility, obesity, and metabolic disorders.

Objectives

- To study the common menstrual problems and their management practices.
- To assess the level of awareness regarding PCOD and its complications.



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Methodology

Research Approach and Design

A **quantitative research approach** with a **descriptive survey design** was adopted for the present study to assess the knowledge and awareness regarding menstrual irregularities and Polycystic Ovarian Disease (PCOD) among college-going girls in Sundargarh town, Odisha. This design was selected to obtain factual information and to describe the existing level of knowledge among adolescent girls in a natural educational setting.

Research Setting

The study was conducted in **two government colleges** of Sundargarh town, Odisha, **Government Women's College, Sundargarh** and **Government College, Sundargarh**. Both colleges were selected as they cater to a large number of adolescent and young adult female students, providing an appropriate population for the study.

Population of the Study

The target population of the study comprised **college-going girls** of Sundargarh town who were within the age group of **16 to 24 years**.

Sample and Sample Size

The total sample size for the study was **300 respondents**, consisting exclusively of female students from the two selected colleges. The sample size was determined based on the accessibility and feasibility of data collection during the study period.

Sampling Technique

A **convenient sampling technique** was used to select the participants. The researcher approached students in consultation with the respective **class teachers** during their **leisure or free periods** to ensure minimal disruption to academic activities. The students who were available and willing to participate were included in the study.

Criteria for Sample Selection

- **Inclusion Criteria:**

- Female students studying in the selected colleges.
- Students within the age group of 16–24 years.
- Students who were willing to participate and provide consent.

- **Exclusion Criteria:**

- Male students.
- Students who were absent or unwilling to participate during data collection.



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Data Collection Tool

A **well-structured, pre-tested questionnaire** was used as the primary tool for data collection. The questionnaire consisted of both **open-ended and closed-ended questions** covering:

- Socio-demographic information (age, education, place of residence, family type, family income, etc.)
- Menstrual problems and their preventive measures.
- Knowledge and awareness regarding PCOD and its complications.

The questionnaire was prepared in simple and understandable language. Before administration, it was reviewed by subject experts to ensure validity and reliability.

Data Collection Procedure

The researcher obtained permission from the college authorities and coordinated with the class teachers for the smooth conduct of the survey. During the leisure periods, the questionnaires were distributed to the selected students. The purpose of the study was clearly explained, and the meaning of each question was clarified to ensure understanding. The participants filled out the questionnaires independently and returned them to the researcher. This process continued until data from all 300 respondents were collected successfully.

Data Analysis

The collected data were organized, coded, and entered into the computer for statistical analysis. Data were analyzed using **Statistical Package for the Social Sciences (SPSS) version 20** and **Microsoft Office Excel**. Descriptive and inferential statistics such as **frequency, percentage, mean, standard deviation, and correlation** were used to interpret the findings in relation to the research objectives.

Results

A total of 300 college going girls participated in this study.

Table 1: Distribution of adolescent's girls according to socio-demographic factors and menstrual problem.

Factors	Menstrual problem (N=300)			
	Present		Absent	
	No	%	No	%
Age of respondents				
16-18	51	17	05	1.66
19-21	102	34	13	4.34
22-24	120	40	09	3
Caste				



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General	121	40.33	4	1.34
OBC	32	10.66	3	1
Scheduled caste	35	11.66	8	2.67
Scheduled tribe	85	28.34	12	4
Religion				
Hindu	143	47.67	9	3
Muslim	12	4	5	1.66
Christian	103	34.34	6	2
Any others	15	5	7	2.33
Type of family				
Nuclear	87	29	4	1.33
Joint	186	62	23	7.67
Education				
Higher secondary	57	19	4	1.33
Degree	216	72	23	7.66
Occupation				
Only students	269	89.66	24	8
Working student	4	1.34	3	1
Marital status				
Married	3	1	7	2.34
Un married	270	90	20	6.66

Table 1 shows the distribution of **300 adolescent girls** based on various **socio-demographic factors** and their **menstrual problems**. Most of the girls were in the **22–24 years** age group (40%) and **19–21 years** (34%), while only **17%** were between **16–18 years**. Menstrual problems were found to be **highest among girls aged 22–24 years (40%)**, followed by



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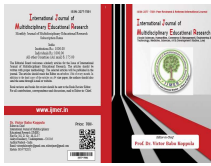


19–21 years (34%), indicating that menstrual issues increase with age. The majority of respondents belonged to the **General caste (40.33%)**, followed by the **Scheduled Tribe (28.34%)**, the **Scheduled Caste (11.66%)**, and **OBC (10.66%)**. Menstrual problems were most common among **General caste girls (40.33%)**, while fewer cases were reported among OBC and Scheduled Caste groups. Most participants were **Hindu (47.67%)**, followed by **Christian (34.34%)**, **Muslim (4%)**, and a few from **other religions (5%)**. Menstrual problems were mainly observed among **Hindu and Christian girls**, reflecting their higher participation in the study. A majority of the respondents belonged to **joint families (62%)**, whereas **29%** were from **nuclear families**. Menstrual problems were more frequent among girls from **joint families (62%)**, possibly due to lifestyle or dietary differences. Most of the girls were **degree students (72%)**, while **19%** were at the **higher secondary level**. Menstrual problems were reported more among **degree students (72%)**, which may be linked to stress, academic pressure, and irregular routines. Almost all respondents were **students only (89.66%)**, while a small number (1.34%) were **working students**. The occurrence of menstrual problems was higher among **non-working students**, showing that academic stress or lack of physical activity may contribute. Most of the girls were **unmarried (90%)**, and only **1%** was **married**. Menstrual problems were more common among **unmarried girls (90%)**, which is expected since the majority of the respondents fall in that category.

Table 2: Distribution of adolescent's girls according to their menstrual problem.
(N=300)

Menstrual problem		Number	Percentages
Absence of menstruation (Amenorrhea)	Yes	57	19
	No	243	81
Infrequent menstruation (Oligomenorrhea)	Yes	76	25.34
	No	224	74.66
Heavy bleeding (Menorrhagia)	Yes	96	32
	No	204	68
Break through bleeding (Metrorrhagia)	Yes	77	25.66
	No	223	74.34
Scanty bleeding (Hypomenorrhea)	Yes	93	31
	No	207	69
Painful cram and pelvic pain (Dysmenorrhea)	Yes	229	76.34
	No	71	23.66

Table 2 presents the distribution of adolescent girls based on the different types of **menstrual problems** experienced by them. Out of a total of **300 respondents**, various menstrual disorders such as amenorrhea, oligomenorrhea, menorrhagia, metrorrhagia, hypomenorrhea, and dysmenorrhea were assessed. It was observed that **19%** of the girls reported **absence of menstruation (amenorrhea)**, while **81%** did not face this problem. This indicates that although amenorrhea is not very common, a noticeable proportion of adolescent girls experience missed periods, which may be due to hormonal imbalance, stress, or nutritional deficiencies. Around **25.34%** of the respondents experienced **infrequent menstruation (oligomenorrhea)**, while **74.66%** reported regular cycles. This suggests that irregular menstrual intervals are relatively common among adolescent girls and could be linked with lifestyle factors, weight changes, or early signs of hormonal disorders like PCOD. A significant **32%** of the girls suffered from **heavy menstrual bleeding (menorrhagia)**, whereas **68%** did not. Heavy bleeding is one of the most reported menstrual problems in adolescence and may be associated with anemia, hormonal fluctuations, or uterine immaturity. About **25.66%** of respondents experienced **metrorrhagia** (bleeding between periods), while **74.34%** had no such issue. The occurrence of intermenstrual bleeding could be related to hormonal instability or stress, which is common during adolescence. **31%** of girls reported **scanty bleeding (hypomenorrhea)**, while **69%** had normal menstrual flow. Scanty periods may indicate poor endometrial development or nutritional deficiencies, reflecting the need for better menstrual awareness and health education. The most common menstrual problem reported was



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dysmenorrhea, affecting **76.34%** of the girls, while **23.66%** did not experience it. Painful menstruation is a very frequent complaint among adolescents and can significantly affect their daily activities, academic performance, and quality of life.

Table 3: Distribution of adolescent's girls according to Physical factors and Menstrual Problem.

Physical factors	Menstrual problems			
	Present(N=273)		Absent(N=27)	
	No	%	No	%
Age of menarche				
10yrs-11yrs	70	25.64	5	18.51
12yrs-13yrs	56	20.51	10	37.04
14yrs-15yrs	72	26.37	12	44.45
16yrs-17yrs	75	27.48	00	00
Total	273	100	27	100
Regularity of cycle				
Regular	52	19.05	21	77.77
Irregular	221	80.95	6	22.23
Total	273	100	27	100
Duration of cycle				
<2 days	42	15.38	00	00
2-4days	75	27.47	14	51.85
5-7 days	94	34.43	13	48.15
>7days	62	22.72	00	00
Total	273	100	27	100
Premenstrual symptoms				
Present	273	100	23	85.19
Absent	00	00	04	14.81
Total	273	100	27	100



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Table 3 shows the relationship between physical factors and the occurrence of menstrual problems among adolescent girls. The findings show that menstrual problems were most common among those who attained menarche at 16–17 years (27.48%), followed by 14–15 years (26.37%), indicating that a later age of menarche is more associated with menstrual irregularities. A majority (80.95%) of girls with menstrual problems had irregular menstrual cycles, whereas most girls without problems (77.77%) reported regular cycles. In terms of duration, menstrual problems were frequent among those with bleeding lasting 5–7 days (34.43%), while short or prolonged cycles were less common. All respondents with menstrual problems (100%) experienced premenstrual symptoms, such as abdominal pain or mood changes, whereas only 85.19% of those without problems had such symptoms.

Table 4: Distribution of Adolescent's Girls according to their Management practices of Menstrual Problem.

Management factors		Number	Percentages
Taking any management practices	Yes	273	91
	No	27	9
	Total	300	100
Type of practices	Allopathic	45	16.48
	Homeopathic	49	17.94
	Ayurveda	109	39.93
	Home remedies	70	25.65
	Total	273	100
Whom you consult	Doctor	50	18.32
	Pharmacists	47	17.22
	Mother	91	33.34
	Friends	9	3.29
	Others	76	27.83
	Total	273	100
Do you take balance diet in every day	Yes	90	30
	No	210	70
	Total	300	100
Do you practice any physical activities in every day	Yes	205	68.33
	No	95	31.67
	Total	300	100
Do you add nutritious food in your diet every day	Yes	76	25.33
	No	224	74.67
	Total	300	100
Do you take 3/4 liter water in every day	Yes	85	28.34
	No	215	71.66
	Total	300	100



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Do you practices yoga and pranayama every day	Yes	43	14.33
	No	257	85.67
	Total	300	100
Do you take 7-8 hr. of sleep in every day	Yes	119	39.66
	No	181	60.34
	Total	300	100

Table 4 presents the menstrual management practices and related lifestyle behaviors among adolescent girls. A majority of girls (91%) reported taking some form of management for menstrual problems, while 9% did not. Among those using management methods, Ayurveda (39.93%) was the most common, followed by home remedies (25.65%), homeopathy (17.94%), and allopathy (16.48%). In terms of consultation, girls primarily sought guidance from their mother (33.34%), followed by doctors (18.32%), pharmacists (17.22%), and others (27.83%), while few relied on friends (3.29%). The table also reflects the lifestyle practices of all 300 respondents. Only 30% consumed a balanced diet, 25.33% included nutritious food daily, and 28.34% drank sufficient water (3–4 liters/day). Physical activity was practiced by 68.33%, but yoga or pranayama was followed by only 14.33%, and adequate sleep of 7–8 hours/day was reported by 39.66%.

Table 5: Distribution of Adolescent's girls by level of Awareness on PCOD and it's interlinked to Menstruation.

Level of awareness		Number	Percentages
Do you know the average of menstrual cycle is about 28 days?	Yes	172	57.34
	No	128	42.66
Do you know progesterone hormone regulate menstrual bleeding?	Yes	63	21
	No	237	79
Do you know period of adolescent is the beginning of PCOD?	Yes	37	12.34
	No	263	87.66
Do you know hormonal imbalance is the main cause of PCOD?	Yes	32	10.66
	No	268	89.34
Do you know the secretion of androgen hormones in female body is one of the causes of PCOD?	Yes	32	10.66
	No	268	89.34
Do you know irregular menstruation is the one of the symptoms of PCOD?	Yes	45	15
	No	255	85
Do you know ovulation occurs 2 weeks before a girl's period?	Yes	87	29
	No	213	71
Do you know that PCOD is a condition of anovulation?	Yes	49	16.33
	No	251	83.67
Do you know that PCOD causes many small cysts in the ovaries?	Yes	35	11.66
	No	265	88.34

Table 5 presents the level of awareness of adolescent girls regarding PCOD (Polycystic Ovarian Disease) and its relationship with menstruation. The findings indicate that overall awareness is low among the respondents. Only 57.34% of girls knew that the average menstrual cycle lasts about 28 days, while 42.66% were unaware. Knowledge about hormonal regulation of menstruation was very limited, with only 21% aware that progesterone regulates menstrual bleeding.



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Awareness about PCOD and its causes was particularly low. Only 12.34% knew that adolescence is the beginning stage for PCOD, 10.66% were aware that hormonal imbalance is the main cause, and another 10.66% recognized androgen hormone secretion as a contributing factor. Regarding PCOD symptoms and ovulation, only 15% knew that irregular menstruation is a symptom, 16.33% understood that PCOD involves anovulation, and 11.66% were aware that it causes multiple small ovarian cysts. Knowledge about ovulation timing was slightly higher, with 29% correctly identifying that it occurs two weeks before menstruation.

Conclusion

The present study aimed to assess **menstrual health, physical factors, management practices, lifestyle behaviors, and awareness of PCOD among adolescent girls**. The study of **300 adolescent girls** revealed that menstrual problems are **highly prevalent**, with **dysmenorrhea (76.34%)** being the most common, followed by Menorrhagia, Hypomenorrhea, Metrorrhagia, Oligomenorrhea, and Amenorrhea. **Adolescent girls** are influenced by socio-demographic, physiological, and lifestyle factors. Physical factors such as **late menarche, irregular cycles, prolonged bleeding, and premenstrual symptoms** were strongly associated with menstrual issues. Problems were more frequent among **older adolescents, degree students, and those living in joint families**. Most girls adopted **management practices**, mainly **Ayurveda and home remedies**, often consulting their **mothers**, but **healthy lifestyle practices** balanced diet, adequate hydration, physical activity, sleep, and yoga were insufficient. Awareness regarding **PCOD, its hormonal causes, symptoms, and relation to menstruation** was generally low, indicating a significant knowledge gap among adolescents. While traditional **management practices are widely used**, there is **low awareness of PCOD and inadequate adoption of healthy habits**. These findings underscore the importance of **structured health education programs** in schools and colleges to improve **menstrual health knowledge, promote healthy habits, and raise awareness about PCOD**, ultimately enhancing the **overall reproductive health of adolescent girls**. This highlights the need for **educational interventions, awareness programs, and promotion of healthy lifestyle practices** to improve menstrual and reproductive health among adolescent girls.

Suggestions and Recommendations

Based on the findings of the present study, the following suggestions and recommendations are made to improve menstrual health and awareness regarding PCOD among adolescent girls:

1. Health Education Programs:

Regular awareness sessions should be organized in schools and colleges to educate girls about menstrual hygiene, menstrual irregularities, and the early signs and prevention of PCOD.

2. Inclusion in Curriculum:

Reproductive health and menstrual education should be integrated into the school and college curriculum to develop accurate knowledge and positive attitudes among adolescents.

3. Counselling and Guidance Services:

Institutions should establish counselling cells where girls can seek guidance regarding menstrual issues, hormonal changes, and emotional well-being without hesitation.



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4. Promotion of Healthy Lifestyle:

Adolescent girls should be encouraged to adopt balanced diets, maintain adequate hydration, practice regular physical exercise, yoga, and ensure sufficient sleep to promote hormonal balance and prevent menstrual disorders.

5. Parental and Community Involvement:

Mothers and community health workers should be educated and involved in spreading awareness about menstrual health and PCOD, as they are often the first source of guidance for young girls.

6. Medical Screening and Early Detection:

Periodic health check-ups and screening programs should be conducted in educational institutions for early detection and management of PCOD and other menstrual disorders.

7. Further Research:

Similar studies should be conducted on larger populations across different regions to compare findings and to develop more comprehensive strategies for adolescent reproductive health promotion.

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Cover Page



INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY EDUCATIONAL RESEARCH
ISSN:2277-7881(Print); IMPACT FACTOR :9.014(2025); IC VALUE:5.16; ISI VALUE:2.286
PEER REVIEWED AND REFEREED INTERNATIONAL JOURNAL
(Fulfilled Suggests Parameters of UGC by IJMER)
Volume:14, Issue:10(5), October, 2025
Scopus Review ID: A2B96D3ACF3FEA2A
Article Received: Reviewed : Accepted
Publisher: Sucharitha Publication, India
Online Copy of Article Publication Available : www.ijmer.in

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26. Taha, R., Abdin, H., & Musleh, T. (2025). Comparative analysis of supervised machine learning models for PCOS prediction using clinical data. *Journal of Engineering Research and Sciences*, 4(6), 16–26. <https://doi.org/10.55708/js0406003>.