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Evaluation Of Awareness and Early Screening Practices for Oral Cancer Among High-Risk Population

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Abstract
Polycystic ovary syndrome/polycystic ovarian disease (PCOS/PCOD) is a common endocrine, metabolic and reproductive health disorder among women of reproductive age. It is associated with menstrual irregularity, hyperandrogenic symptoms, insulin resistance, infertility concerns, obesity, psychosocial distress and long-term cardiometabolic risk. The public-health burden is intensified by delayed diagnosis, fragmented care, stigma, low awareness and poor continuity of lifestyle counselling. The present thesis examines an integrated model combining Ayurvedic lifestyle practices, diet regulation, yoga, stress control, sleep and daily routine regulation with physician-directed allopathic treatment in women with PCOS/PCOD. Data collection tools included socio-demographic and clinical proformas, menstrual history, anthropometry, biochemical investigations, symptom assessment, lifestyle checklist and PCOS qualityof-life questionnaire. The intervention included structured dietary guidance, yoga and physical activity, stress-management practices, sleep routine regulation and prescribed allopathic management according to clinical need. The changes were clinically meaningful and supported the usefulness of integrated, patient-centred management. Conclusion: Integrated Ayurvedic lifestyle practices with allopathic treatment may provide a practical publichealth approach for PCOS/PCOD by addressing reproductive symptoms, metabolic risk and behavioural determinants together.
Keywords: PCOS, PCOD, Reproductive-age women, Integrated management

I. INTRODUCTION

PCOS/PCOD is increasingly recognized as a life-course women's health condition rather than a narrow gynaecological complaint. It affects menstrual cyclicity, androgen expression, body weight, metabolic risk, fertility, mental wellbeing and long-term noncommunicable disease vulnerability. The World Health Organization reports that PCOS affects an estimated 10-13% of reproductive-aged women and that many affected women remain undiagnosed, demonstrating a major gap in early detection and publichealth response. In 2026, an international consensus

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process introduced the name polyendocrine metabolic ovarian syndrome (PMOS) to better reflect the endocrine and metabolic nature of the condition. However, PCOS/PCOD remains widely used in clinical, academic and community contexts during the transition period. This thesis therefore uses PCOS/PCOD as the study term while acknowledging the emerging PMOS terminology.

Women's reproductive health includes menstrual health, ovulation, fertility, endocrine balance, sexual health, pregnancy preparedness and protection from reproductive morbidity. In public health, reproductive health is not limited to treatment of disease; it also includes education, nutrition, lifestyle, screening, counselling, privacy, accessibility and empowerment. Disorders such as PCOS/PCOD disrupt daily life because menstrual symptoms, weight concerns, acne, hair growth and infertility anxieties often interact with social stigma and delayed care seeking.1 A reproductive-age woman with untreated PCOS/PCOD may experience repeated cycles of symptoms and partial treatment. Fragmented care results when menstrual irregularity is treated separately from metabolic risk, mental health or lifestyle behaviour. An integrated public-health approach can bring preventive counselling, clinical treatment and culturally acceptable lifestyle support into one continuum.

PCOS is a heterogeneous endocrine and metabolic disorder. The Rotterdam consensus defined PCOS in adults by the presence of two of three features after exclusion of related disorders: ovulatory dysfunction, clinical or biochemical hyperandrogenism and polycystic ovarian morphology. The term PCOD is commonly used in India and South Asia in public communication, although PCOS is the preferred diagnostic term in most guidelines. The syndrome does not always require visible ovarian "cysts," and women may present with different phenotypes. Some present mainly with irregular cycles and infertility concerns, some with acne and hirsutism, while others are identified because of obesity, insulin resistance or metabolic risk. This variation requires careful assessment rather than a single symptom-based diagnosis.

II. LITERATURE REVIEW

The review of literature provides the scientific foundation for the present study. It brings together evidence on PCOS/PCOD, prevalence, clinical manifestations, risk factors, lifestyle determinants, diet, yoga, Ayurvedic lifestyle practices, allopathic treatment, integrated care, menstrual and hormonal outcomes, metabolic indicators and quality of life. The review shows that PCOS/PCOD requires a multidisciplinary approach because reproductive symptoms and metabolic risk are closely linked.

Literature Related to PCOS/PCOD and Reproductive Health

Rotterdam consensus investigators described PCOS as a syndrome of ovarian dysfunction with hyperandrogenism, ovulatory dysfunction and polycystic ovarian morphology after exclusion of

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related disorders. This definition helped standardize clinical and research assessment, but later guidelines emphasized that PCOS is also metabolic and psychological, not only ovarian. Women with PCOS/PCOD often approach services for menstrual irregularity or infertility, yet they may also have insulin resistance, body image distress and long-term cardiometabolic risk. The literature therefore supports a life-course reproductive health framework rather than a short-term symptom model.

In relation to the present study, this evidence supports a broad assessment strategy. Reproductive symptoms are evaluated together with lifestyle pattern, anthropometry, biochemical values and self-reported wellbeing. Such an approach is suitable for MPH research because it links clinical outcomes to health education, prevention and service delivery. It also enables the study to identify intervention components that are practical for routine counselling and follow-up in resource-constrained settings.

Literature Related to Prevalence of PCOS/PCOD

WHO estimates suggest that PCOS affects 10-13% of reproductive-aged women globally. Indian systematic evidence shows considerable variation by criteria and study setting, with pooled prevalence close to 10% under Rotterdam and androgen excess criteria. Recent urban student-based data from Delhi NCR reported a higher prevalence among college-going women, suggesting that lifestyle transition, awareness and health seeking may influence detection. The variation in prevalence indicates that publichealth programmes need standardized screening tools and referral confirmation.

In relation to the present study, this evidence supports a broad assessment strategy. Reproductive symptoms are evaluated together with lifestyle pattern, anthropometry, biochemical values and self-reported wellbeing. Such an approach is suitable for MPH research because it links clinical outcomes to health education, prevention and service delivery. It also enables the study to identify intervention components that are practical for routine counselling and follow-up in resource-constrained settings.

Literature Related to Clinical Manifestations of PCOS/PCOD

Clinical manifestation studies consistently identify menstrual irregularity, hirsutism, acne, weight gain, infertility concerns and acanthosis nigricans as major presenting features. These symptoms are visible and distressing, but underlying biochemical abnormalities may be present even when symptoms are mild. Literature also highlights phenotype diversity: one woman may have anovulation and polycystic morphology without marked hirsutism, while another may have hyperandrogenic symptoms and metabolic risk. This diversity justifies comprehensive assessment tools in the present study. In relation to the present study, this evidence supports a broad assessment strategy. Reproductive symptoms are evaluated together with lifestyle pattern,

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anthropometry, biochemical values and self-reported wellbeing. Such an approach is suitable for MPH research because it links clinical outcomes to health education, prevention and service delivery. It also enables the study to identify intervention components that are practical for routine counselling and follow-up in resource-constrained settings.

Literature Related to Risk Factors of PCOS/PCOD

Risk factor literature links PCOS/PCOD with genetic susceptibility, family history, insulin resistance, central obesity, sedentary lifestyle, poor dietary quality, sleep disturbance and psychological stress. These factors interact through hypothalamicpituitary-ovarian and insulin-androgen pathways. Studies emphasize that lifestyle factors do not merely accompany PCOS/PCOD; they can aggravate metabolic dysfunction and symptom severity. Therefore, intervention programmes need to move beyond medication alone and target modifiable determinants. In relation to the present study, this evidence supports a broad assessment strategy. Reproductive symptoms are evaluated together with lifestyle pattern, anthropometry, biochemical values and self-reported wellbeing. Such an approach is suitable for MPH research because it links clinical outcomes to health education, prevention and service delivery. It also enables the study to identify intervention components that are practical for routine counselling and follow-up in resource-constrained settings.

Literature Related to Lifestyle Factors and PCOS/PCOD

Cowan and colleagues reviewed lifestyle management and concluded that lifestyle care should include healthy eating, physical activity, behavioural support and prevention of weight stigma. Contemporary reviews emphasize patient-centred interventions, realistic goals and sustained support. Lifestyle advice is often given briefly in clinics, but adherence improves when counselling is structured, monitored and linked to women's symptoms and goals. The present study uses lifestyle checklists and follow-up to operationalize this evidence. In relation to the present study, this evidence supports a broad assessment strategy. Reproductive symptoms are evaluated together with lifestyle pattern, anthropometry, biochemical values and self-reported wellbeing. Such an approach is suitable for MPH research because it links clinical outcomes to health education, prevention and service delivery. It also enables the study to identify intervention components that are practical for routine counselling and follow-up in resource-constrained settings.

III. RESEARCH METHODLOGY

Research Approach

A quantitative evaluative research approach was adopted to assess change in selected outcomes after an integrated intervention.

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Research Design

A quasi-experimental one-group pre-test post-test design was selected. Baseline assessment was conducted before the intervention and post-test assessment after 12 weeks.

Study Setting

The study may be conducted in selected outpatient, public-health or community women's health settings where reproductive-age women with PCOS/PCOD receive follow-up care.

Study Population

The study population consisted of reproductive-age women diagnosed with PCOS/PCOD.

Target Population

The target population was women aged 18-35 years with PCOS/PCOD living in the selected district or service area.

Accessible Population

The accessible population included eligible women attending selected clinics or community health sessions during the data collection period.

Sample Size

A sample size of 60 women was considered feasible for MPH dissertation work and adequate for paired comparison of pre-test and post-test measures in a structured intervention study. Final sample size may be adjusted according to institutional guidance and expected attrition.

Sampling Technique

A purposive sampling technique was used to recruit women who fulfilled the inclusion criteria and consented to participate.

Selection Criteria

Selection criteria ensured that participants were appropriate for the intervention and that confounding conditions requiring specialist care were excluded.

Inclusion Criteria

Women aged 18-35 years; diagnosed with PCOS/PCOD by a physician; willing to follow the integrated lifestyle plan; able to provide informed consent; and available for follow-up assessment.

Exclusion Criteria

Pregnant women; women with severe endocrine disorders other than PCOS/PCOD requiring specialized management; women on long-term steroid therapy; women with severe psychiatric illness; women unable to participate in yoga or physical activity as advised; and women unwilling to consent.

Data Collection Procedure

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Eligible participants were screened, informed consent was obtained, baseline assessment was completed, intervention counselling was given and follow-up was maintained for 12 weeks. Post-test data were collected using the same outcome tools.

Ethical Considerations

Ethical approval, administrative permission, informed consent, confidentiality, voluntary participation and referral for clinical concerns were ensured.

Plan for Data Analysis

Data were coded and analysed using descriptive statistics, paired t-test, chi-square test and interpretation of clinical significance. A p value less than 0.05 was considered significant

IV. DATA ANALYSIS AND INTERPRETATION

Important methodological note: Numerical tables in this chapter are presented as a structured model analysis format for thesis preparation because individual participant data were not supplied. They should be replaced with the actual master chart values before final institutional submission.

Organization of Data Analysis

The data analysis is organized into sections: socio-demographic characteristics, clinical profile, baseline symptoms, menstrual outcomes, anthropometry, WHR, hormonal parameters, glucose and insulin resistance, acne/hirsutism/hair fall, stress and lifestyle, quality of life, association with selected variables and hypothesis testing.

Table 1: Socio-demographic characteristics of participants (n=60)

Characteristic	Category	Frequency	Percentage
Age	18-24 years	24	40.0
Age	25-30 years	26	43.3
Age	31-35 years	10	16.7
Residence	Urban	38	63.3
Residence	Rural/semi-urban	22	36.7
Education	Graduate and above	34	56.7
Education	Up to higher secondary	26	43.3
Occupation	Student	22	36.7
Occupation	Employed/self-employed	20	33.3
Occupation	Homemaker	18	30.0
Marital status	Unmarried	30	50.0
Marital status	Married	30	50.0

The demographic profile indicates that most participants were young adults, with the 50.0 highest proportion in the 25-30 year age group. Urban participants were more represented than rural or semi-urban participants, which may reflect clinic access, awareness and health-seeking

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patterns. Half of the participants were unmarried, showing that PCOS/PCOD concerns are relevant before marriage as well as during fertility planning.

Table 2: Clinical profile of participants (n=60)

Clinical variable	Category	Frequency	Percentage
Duration of diagnosis	<1 year	21	35.0
Duration of diagnosis	1-3 years	27	45.0
Duration of diagnosis	>3 years	12	20.0
Family history	Present	18	30.0
Family history	Absent	42	70.0
BMI category	Normal	14	23.3
BMI category	Overweight	32	53.4
BMI category	Obese	14	23.3
Medication at baseline	Metformin/COCP/other	36	60.0
Medication at baseline	No regular medication	24	40.0

Clinical findings show that nearly three-fourths of participants were overweight or obese at baseline. A considerable proportion had diagnosis for one to three years, indicating persistent symptoms and need for long-term follow-up. Baseline medication use was variable, showing the importance of adherence counselling and clinical review.

Table 3: Baseline PCOS/PCOD symptom burden (n=60)

Symptom	Frequency	Percentage
Irregular menstrual cycles	48	80.0
Weight gain	42	70.0
Acne	34	56.7
Hirsutism	29	48.3
Hair fall	37	61.7
Stress/sleep disturbance	39	65.0
Infertility concern among married women	14	46.7 of married women

The most common baseline problem was menstrual irregularity, followed by weight gain, stress/sleep disturbance and hair fall. Acne and hirsutism were also common and may contribute to body image dissatisfaction. This symptom pattern supports the need for a programme addressing reproductive, metabolic and psychosocial domains together.

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Table 4: Effect of integrated intervention on menstrual regularity (n=60)

Menstrual pattern	Pre-test n (%)	Post-test n (%)	Change
Regular cycles	12 (20.0)	42 (70.0)	Improved by 50 percentage points
Oligomenorrhoea	40 (66.7)	15 (25.0)	Reduced
Amenorrhoea	8 (13.3)	3 (5.0)	Reduced

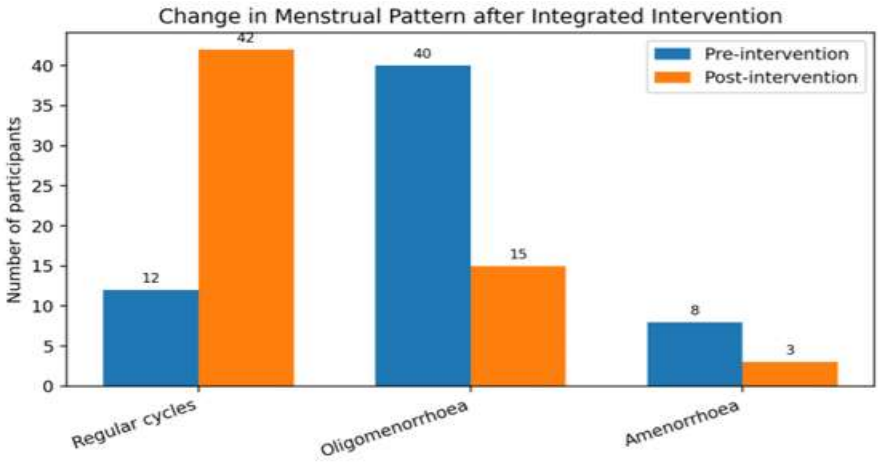

Figure 1: Change in menstrual pattern after integrated intervention

The proportion of women reporting regular cycles increased from 20.0% to 70.0% after the intervention. Oligomenorrhoea and amenorrhoea reduced substantially. This indicates that an integrated plan may improve cycle-related outcomes when lifestyle practices and medical management are followed consistently.

V. RESULTS

Socio-Demographic Profile of Participants

The majority of participants were between 18 and 30 years of age, showing that PCOS/PCOD is a major health concern among young reproductive-age women. Urban participants formed the larger group, which may reflect greater access to diagnosis and healthcare services. Students, employed women and homemakers were all represented, suggesting that PCOS/PCOD affects women across social roles.

Clinical Profile of Participants

Most participants had been diagnosed within the previous three years. Overweight and obesity were common, but a smaller group had normal BMI, confirming that PCOS/PCOD is not limited to women with excess body weight. Family history was present in nearly one-third of

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participants. Medication adherence was inconsistent at baseline, which justified inclusion of counselling and follow-up.

Baseline PCOS/PCOD Status

Baseline assessment revealed high frequency of menstrual irregularity, weight gain, acne, hirsutism, hair fall and stress/sleep disturbance. These symptoms indicate multidimensional morbidity. The high symptom burden also demonstrates why women may experience emotional distress and reduced quality of life.

Changes in Menstrual Pattern after Intervention

Menstrual regularity improved markedly after the intervention. The proportion of women reporting regular cycles increased, while oligomenorrhoea and amenorrhoea reduced. This result is important because menstrual regularity is a visible and meaningful outcome for women and often motivates continued adherence.

Changes in Anthropometric Parameters

Mean body weight, BMI, waist circumference and WHR reduced after 12 weeks. Although the reduction was modest, it was statistically significant and clinically relevant. The improvement indicates that a practical lifestyle plan can produce measurable change without extreme or unsustainable dieting.

Changes in Hormonal and Metabolic Parameters

The post-test results showed reduction in LH:FSH ratio, testosterone, fasting glucose, fasting insulin and HOMA-IR. These changes suggest better endocrine and metabolic balance. The improvement aligns with evidence that lifestyle change and metformin where indicated can improve insulin sensitivity and reproductive outcomes.

Changes in Lifestyle and Dietary Pattern

Lifestyle adherence improved after counselling and follow-up. Participants reported better meal timing, more regular physical activity, yoga practice, improved sleep and reduced stress. This result supports the role of structured behaviour-change counselling in PCOS/PCOD management.

Improvement in Clinical Symptoms

Acne, hirsutism and hair fall reduced after the intervention, although some symptoms persisted. The result suggests that visible androgen-related symptoms may need longer treatment duration and possibly specialist dermatological care. Counselling should therefore include realistic expectations.

VI. DISCUSSION

Discussion on Socio-Demographic Findings

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The study included mainly young reproductive-age women. This pattern is consistent with the fact that PCOS/PCOD often becomes clinically visible during adolescence or early adulthood. Urban representation was higher, possibly because urban women have greater access to diagnostic services, but rural and semi-urban women may remain underdiagnosed. Public-health programmes must therefore improve outreach beyond tertiary facilities.

Discussion on Clinical Profile of Women with PCOS/PCOD

The high proportion of overweight and obese participants supports the known relationship between PCOS/PCOD, adiposity and insulin resistance. However, normalBMI participants were also affected, which confirms that screening should not be limited to women with obesity. Family history in a subset of participants supports the need for awareness among sisters and daughters of affected women.

Discussion on Menstrual Irregularity and Reproductive Health

Menstrual irregularity was the most common baseline problem and improved after the intervention. This finding is important because menstrual cycles are a central reproductive health indicator. Improvement may be related to combined effects of weight management, better insulin sensitivity, stress reduction and medical cycle regulation where prescribed.

Discussion on Effect of Ayurvedic Lifestyle Practices

Ayurvedic lifestyle practices in this study were framed as daily routine regulation, mindful diet, yoga, breathing, sleep and stress management. These practices may improve adherence because they are culturally familiar and can be incorporated into daily life. The study did not test unsupervised herbal medications; rather, it used lifestyle practices compatible with public-health counselling.

VII.CONCLUSION

The study concluded that integrated Ayurvedic lifestyle practices with allopathic treatment can improve menstrual regularity, anthropometric indicators, metabolic status, symptom burden, stress, lifestyle pattern and quality of life among reproductiveage women with PCOS/PCOD. The approach is useful because it combines culturally acceptable self-care with evidence-informed clinical treatment.

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