A STUDY ON KNOWLDEGE AND PERCEPTION REGARDING POLYCYSTIC OVARIAN SYNDROME ALSO IDENTIFYING BARRIERS TO GAIN KNOWLEDGE ABOUT PCOS AMONG WOMEN AGED 18-50 IN DEHRADUN, UTTARAKHAND

Dissertation Submitted to

IIHMR UNIVERSITY

The IIHMR University, Jaipur

for the partial fulfillment for the award of the degree of

Master of Business Administration (MBA)

in

Hospital and Health Management

By

Priya Singh Sisodia

Under the Supervision and Guidance of

Ms. Sunita Nigam

2022

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DECLARATION BY STUDENT

I hereby declare that this dissertation titled **A study on knowledge and perception regarding polycystic ovarian syndrome also identifying barriers to gain knowledge about PCOS among women aged 18-50 in Dehradun, Uttarakhand** is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

Priya Singh Sisodia

Date

ACKNOWLEDGMENT

To begin with, I would want to take this chance to thank my mentor, Ms. Sunita Nigam (Associate Professor, IIHMR University). She has provided constant direction, encouragement, and drive, which is the only reason this project could be accomplished. I would want to special thanks to IIHMR University for giving me the chance to develop my talents and gain a comprehensive understanding of healthcare management.

I'd also like to thank everyone who eagerly offered their academic expertise to help me, as well as my colleagues on the project.

Thankfully,

Priya Singh Sisodia

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ABBREVIATIONS

1	**PCOS**	Polycystic Ovarian Syndrome
2	**FSH**	Follicle- Stimulating Hormone
3	**HDL-C**	High Density Lipo-protein Cholesterol
4	**BMI**	Body Mass Index
5	**FBS**	Fasting Blood Sugar
6	**LH**	Luteinizing Hormone

.

ABSTRACT

TITLE

A Study on knowledge and perception Regarding polycystic ovarian syndrome also identifying barriers to gain knowledge about PCOS among women aged 18-50 in Dehradun, Uttarakhand

INTRODUCTION

PCOS is a metabolic, endocrine, and diverse condition characterized by increased androgen secretion as well as aberrant insulin activity. In India, PCOS affects about ten percent of women. In women with polycystic ovaries, Periodic abnormalities, inconsistent menstrual cycle, impotence, and/or signs of high levels of testosterone such hirsutism, eczema, and seborrheic dermatitis are characterized as the symptoms of anovulatory. Infertility, pregnancy-related issues like gestational diabetes, preeclampsia, and spontaneous abortions, psychological issues like extremely high anxiety and depression, metabolic issues like elevated risk considerations for impaired glucose tolerance and type 2 diabetes, and heart conditions are all more common in women with PCOS.As a result, PCOS is linked to both short- and long-term symptoms that can harm women at different periods of their lives.

METHODOLOGY

In a cross-sectional research, females between the ages of 18 and 50 were investigated. A total of 102 responses to the online survey that was used to gather the data were taken account of. Convenience sampling was used as the sample method. With the respondent's full knowledge and consent, the responses were gathered. The data were analyzed using a bar graph and MS Excel.

RESULTS

Women's knowledge of PCOS was found to be enough, albeit they still needed to learn more about it. They had a favorable opinion of the condition, although in some cases, their ignorance clouded that opinion. Regarding the barrier, it was discovered that a certain proportion of women still did not have the freedom to make an informed choice regarding their own bodies.

CONCLUSION

The entire survey revealed a range of perspectives and responses to every query. As knowledge directly affects perception, this study focuses on the need to increase the knowledge of the female population in Dehradun by establishing education programs through various sources including seminars, educational events, and many others. Additionally, women need to be encouraged to interact with healthcare professionals more. They should be aware of the necessity of visiting their gynecologist annually without any justification, merely for routine checkups, so they can act if necessary.

CHAPTER 1: INTRODUCTION

PCOS is characterized by an increase in the production of androgens and male sex hormones in the ovaries, which are normally present in miniscule amounts in women. The multiple small tumors (liquid sacs) that develop in the ovaries are termed as polycystic ovarian syndrome. Alterations in reproductive hormones such as LH, FSH, estrogen, and testosterone cause the regular menstrual cycle to be affected. leading in oligomenorrhoea and amenorrhea-like irregularities, Periodic abnormalities, obesity, and occasionally hirsutism which are all symptoms of PCOS.

Even though some women with this illness don't develop tumors, others who might not have the illness might. The most prevalent disorder affecting women is polycystic ovarian syndrome (PCOS), which strikes 4–6 percent of teens and 4–12 percent of adult women. Previously, PCOS was thought to be a disorder that only plagued adult women, but new research suggests that PCOS is a lifelong affliction. Increased estrogen levels, as compared to progesterone, are one of the most key risk factors for endometrial cancer. Progesterone levels are lower in PCOS, whereas testosterone and estrogen levels are higher. (Reference: - the Prevalence of Polycystic Ovary Syndrome: A Brief Systematic Review by Ritu Deswal, Vinay Narwal, Amita Dang, and Chandra S. Pundir)

The development of differing cysts in the ovaries, hyperandrogenism, and periodic abnormalities all contribute to the diagnosis of PCOS, which has resulted in the emergence of a few comorbidities. Obesity, type 2 diabetes, infertility, endometrial dysplasia, cardiovascular problems, and mental illnesses are just a few of the issues we face. Obesity increases the risk for Polycystic syndrome, along with neuroendocrine, ecological, lifestyle, and hereditary components, as shown in Fig. 1.

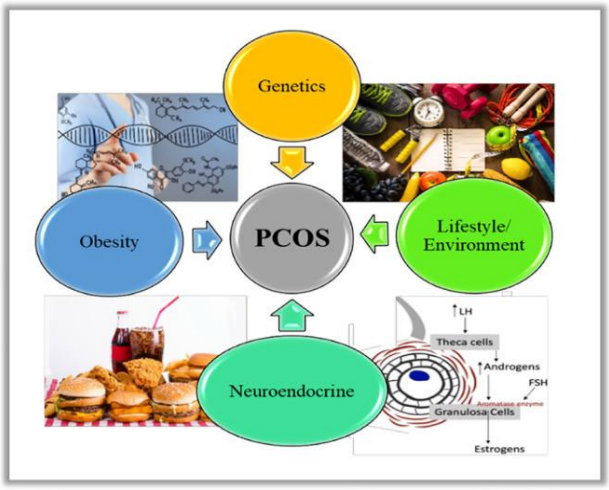

Fig.1. Changes in PCOS risk factors (Source – A review: Brief insight into polycystic ovarian syndrome)

The preceding is a few of the symptomatology of PCOS:

- Periods that have been missed, irregular, or very mild
- Sizable ovaries or ovaries with several number of cysts
- Abnormal body hair, notably on the breast, stomach, and back (hirsutism)
- Excessive weight, primarily around at the stomach
- Acne or acne-prone skin
- Hair thinning or male-pattern alopecia
- Infertility
- Excess skin on the neck or underarm in little bits
- On the nape, inside the underarm, and under the chests, there are darkish or heavy skin patches.

DIAGNOSIS

A surge in hormone abnormalities has prompted various lifestyle modifications, with doctors confirming that over 80% of patients with hormonal fluctuations are clinically obese. And while there are some conditions in which PCOS can last a lifetime in women, gynecologists have stated that in most cases, dietary and lifestyle adjustments have proven to be effective in reducing the effects of the illness. While the syndrome's early indications can be seen in children, the unique characteristics of PCOS in adolescence are still uncertain. Regardless of these challenges, early detection of PCOS is vital. Because of the complexity of this disorder, the Endocrine Society urges physicians to identify PCOS adopting 2003 Rotterdam criteria, despite prescriptions

changing amongst standards. The Rotterdam standards state that at least two of the following three symptoms should be prevalent: hyperandrogenism, ovarian malfunction, and cystic ovaries.

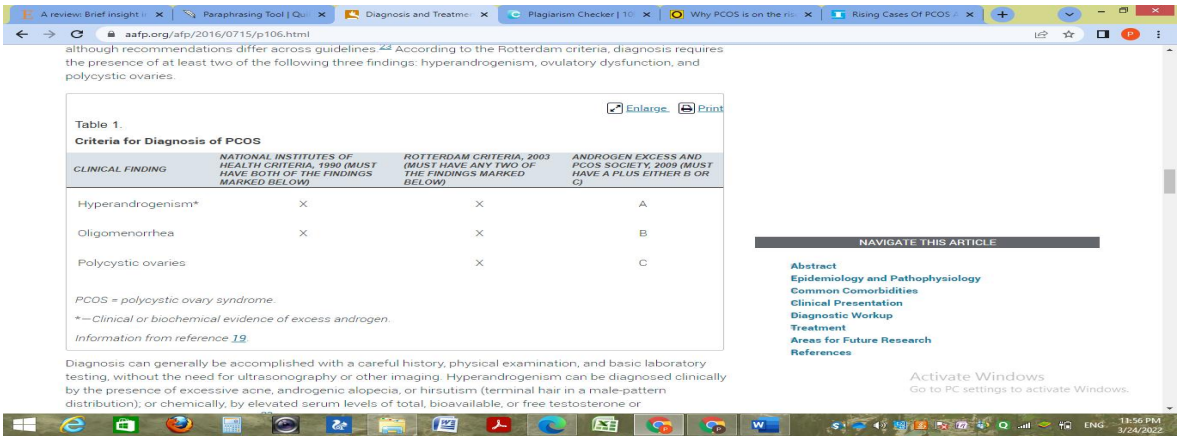

Fig.2. shows the Rotterdam criteria of PCOS diagnostic. (Source- Taken from Diagnosis and Treatment of Polycystic Ovarian Syndrome)

However, given PCOS is a complicated syndrome, almost no single test can validate the diagnosis. Without using ultrasonography or other imaging, most diagnoses by physicians can be made with a comprehensive history, medical history, and examination mostly, by doing a pelvic exam and they may perform blood examinations to assess your hormone balance, blood glucose levels, and cholesterol. An ultrasound can reveal cysts in your ovaries, screen for malignancies, and evaluate the uterine lining.

PCOS IN INDIA

Polycystic ovarian syndrome affects one out of every ten Indian women. In India, there is a lack of knowledge and understanding of the ailment, and it frequently goes undiscovered for years. Around 10 million women are thought to be impacted by this condition around the globe. If not handled appropriately, the disorder might have major long-term consequences. One of India's largest wellness brands recently launched a countrywide survey to commemorate PCOS month. The survey reported that 20 percent of the female audience had no knowledge what PCOS was, and that 65 percent of females were confused with or clueless of PCOS clinical manifestations. (References- Rising Cases of PCOS Among Women: The Need of Careful Watch by Ritika Rana)

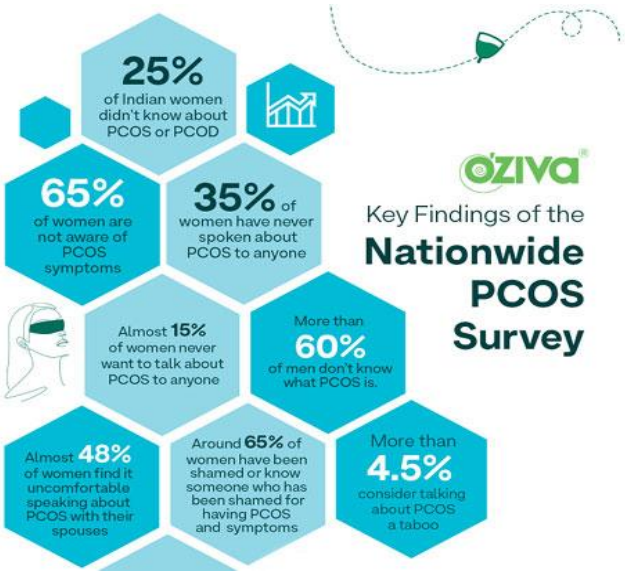

Fig.3. Results about PCOS awareness (Taken from Oziva's Survey about PCOS awareness)

In India in 2021, the prevalence of PCOS is estimated to be at 22.5 percent. PCOS is growing more widespread in India for several reasons. The most likely cause of is a sedentary lifestyle. PCOS in predominantly metropolitan women or Obese women, as most women with PCOS are obese. However, other aspects, such as genetics, insulin resistance, and inflammation, have been linked to an increased risk of PCOS in women. The lockdown was also a contributing factor. As the country was placed on lockdown numerous times to contain the deadly COVID, the proportion of the public was confined to their houses. This resulted in considerable lifestyle shifts as well as a high level of stress. Many women avoided exercising, also not getting enough sleep, and ignoring their overall health and symptoms of menstrual irregularity, which could be contributing to the rise in PCOS instances also because of a poor understanding regarding the disorder, many people have been ignoring their health until it has become a serious issue. In the pre-COVID-19 period, the total incidence of PCOS in India was estimated to be around 10%.

How it can be managed?

To minimize health complications associated with PCOS, it's critical that all the symptoms are treated and addressed long-term. PCOS is a chronic disorder that necessitates long-term treatment. Women with PCOS who receive care from a range of health providers, rather than just one, had better health benefits, as per research. Because PCOS can manifest in a variety of ways, several treatments may be required to effectively control the illness. This is where a collaborative approach might be beneficial.

Being overweight is a very well contributory factor in many disorders. As a result, the first line of treatment is diet management, exercising, and weight reduction monitoring. Just a 10% weight decrease can aid in the control of hormonal fluctuations.

Bringing your BMI down to 25 is also a smart option. Menstrual abnormalities, fertility complications, insulin sensitivity, hirsutism, and pimples are all improved significantly because of this.

These men dominate hormonal increases can be controlled via using contraceptives tablets. Although medical experts in India are significantly more likely than in the United States to propose nutritional and lifestyle alterations as a first response to a PCOS identification, but they're still least likely to advocate for prescription medications like hormonal contraception and metformin as an initial response. Endometrial examination may be required for the management of endometrial hyperplasia. Hormonal changes are used to promote ovulation in young females who are sterile.

While managing PCOS, it's also a great way to take supplements to ensure proper nutritional status. Consider omega-3 cod liver oil to reduce inflammation, as well as other supplements such as inositol, vit D, and b - complex vitamins to help regulate your PCOS metabolism.

As PCOS is so misinterpreted in the healthcare world, promoting awareness is vital. There are enough unaddressed questions about just what triggers it and how some women get symptoms, but many do not.

The most important thing is that individuals must really be aware of their condition to attain assistance for their symptoms and lessen their chances of having long-term health complications. Brands should take up this issue and promote awareness about PCOS, not just in terms of knowledge, but also in ways that encourage people to speak out about it, especially in countries like India, where addressing the menstruation cycle, let alone PCOS, is considered taboo. And that is why the month of September is dedicated to promoting consciousness regarding PCOS.

BROAD OBJECTIVE

The broad objective of the study is to determine PCOS knowledge and perception, as well as barriers to learning about PCOS, among women aged 18–50 in Dehradun, Uttarakhand (PCOS).

SPECIFIC OBJECTIVES

1. To assess the knowledge of polycystic ovarian syndrome in women.
2. To assess women's perceptions regarding the polycystic ovarian syndrome

3. To determine the barriers to women's acquiring knowledge.

CHAPTER 2: REVIEW OF LITERATURE

Review of Literature

Name of the Author	Title of the study	Study Findings
1. May Abu-Taha, Aya Daghash, Rajaa Daghash and Rana Abu Farha	Evaluation of women knowledge and perception about polycystic ovary syndrome and its management in Jordan: A survey-based study	● Doctors (n = 77, 34%) were found to be the primary source of knowledge. The principal resource of information for the same number of persons (n = 77, 34%) was home, trailed by webpages as the third and pharmacy as the fourth source. ● Many of the respondents were knowledgeable that irregular menstrual cycles menstrual (period) cycles, odd portions of hair growth on various body parts are a sign of PCOS (n = 190, 83.7

		percent), and that PCOS can cause infertility (n = 180, 79.3%). ● They were unaware, however, that PCOS can cause heart illness and diabetes. Furthermore, of those polled were unaware that fat and smoking cigarettes, correspondingly, do not cause PCOS. ● As per research, women have poor understanding of PCOS and accompanying comorbidities. Females who were married and had a high level of education knew more about PCOS than those who were not married and had a lower level of education. This study highlighted the importance of implementing educational initiatives for Jordan's female community.

2. Manisha Rao, MS, K. Shane Broughton, PhD, Monique J. LeMieux, PhD	Cross-sectional Study on the Knowledge and Prevalence of PCOS at a Multi-ethnic University	● A statistical analysis revealed that participants with a high level of education had strong awareness and knowledge. ● The survey had 769 responses, with 722 females and 47 men over the age of 18 completing it. ● 28.5 percent of female responders had a proper diagnosis of PCOS, while 40.5 percent of those without a proper diagnosis had two or even more characteristics that matched PCOS. Most participants (66.3 percent of women and 83 percent of males)

		rated their PCOS awareness as "Know some" or even less. The most popular source of knowledge for women with PCOS was healthcare practitioners (83.7 percent). ● Hispanics were the least able to attain information from friends and relatives (36%) and to use health resources (17.6 percent). Educational status also made a difference

3. Anandraj Vaithy.K, Rupal Samal, Shanmugasamy K and K.R Umadevi.	Knowledge, attitude, and awareness towards polycystic ovarian syndrome among women of southeast coastal population of India**.**	● In terms of PCOS knowledge, most individuals have a hazy understanding of ovarian cystic illnesses, with 90% of their knowledge coming from health education awareness schedules and social demographic contacts. ● The media outlets also played a key role in spreading roughly 30% of the awareness regarding PCOS. ● Even though 51% of participants recognize irregular periods as displaying symptoms, 49% of the public is uninformed of the condition. ● In the cases of face acne, hirsutism, excess

		weight, infertility, possibilities of miscarriage, diabetes and hypertension, premature sexual maturation, and other conditions, there was a low level of awareness. ● Authors concluded the study, stating that the awareness of PCOS among many of the South-Eastern population is still low, patients' knowledge and attitudes about PCOS are still in the dark, but this might be changed with a comprehensive awareness campaign.

4. R Sasikala, Deepa Shanmugham, Jessy Varghese, Deepak Kannan Saravanan	A study of knowledge and awareness on polycystic ovarian syndrome among nursing students in a tertiary center in South India	● Online survey was answered by 88 students out of a total of 95. PCOS was the most frequent endocrinological condition in the reproduction aged category, according to the large number of students (89.8%). ● In terms of risk concerns, 83 respondents were knowledgeable of obesity as a health risk, while 73 students were aware that an inactivity and sedentary lifestyle can lead to a higher risk of PCOS. 70% of the respondents agree that unhealthy food consumption is ● linked to PCOS. About 50 % of participants were aware of PCOS's family inheritance. ● When asked about their understanding of the symptomology, 85 percent said periodic

		abnormalities, and 50% knew about hirsutism and acanthosis nigricans (56.81 percent and 61.36 percent respectively). Surprisingly, the large bulk of them (84.09 percent) were aware that PCOS can lead to fertility problems. ● So, while the nursing candidates were aware of the potential risks linked with PCOS, they were much less knowledgeable of the problems of PCOS. A well-designed education program aimed specifically at nursing staff can greatly improve their understanding of PCOS.
5. Prashant Amale, Shilpa Deshpande , Varsha Barethia	Understanding status of PCOS in Nagpur city: A survey-based study	● The participants were grouped into three ages ● People who participated from 12 to 40 years were shown to be at a greater risk of developing PCOS, either now or in the long term. Females over the age of 40 are more likely to develop CVS and lipid conditions. ● Group I was the most vulnerable, even though group II had a higher chance of developing PCOS. This research assisted in determining the prevalence of PCOS in the chosen location as well as raising public awareness about the condition in the future.
6. Manju Lal, Priyanka Goyal,	Prevalence and	● This observational study enrolled 200

Saba Shamim	Predictors of Metabolic Syndrome in Polycystic Ovarian Syndrome in Uttarakhand	Gynecologic unit participants between the ages of 15 and 40. ● Out of 200 participants, 44 developed MS. In the Uttarakhand tertiary care facility, the frequency increased to 22%. In PCOS women, the levels of central obesity, FBS greater than 110 mg/dl, triglycerides higher than 150 mg/dl, high density lipoprotein cholesterol (HDL-C) below 50 mg/dl, and blood pressure higher than 130/85 mmHg were 30 percent (60), 3.5 percent (7), 34 percent (68), 70 percent (140), and 11 percent (22) respectively. ● Women with a greater BMI were more prone to develop PCOS. ● MS prevalence varies by region, degree of urbanization, changing lifestyle, cultural mores, and occupational prestige, with MS being seen in 22% of patients due to their living and economic status of the slimmer and shorter build individuals from hilly terrain. ● PCOS is now recognized as a potential factor for endocrine and metabolic disorders. To prevent MS and its consequences in PCOS women, certain interventions are required.

7. Sonia Rawat, Gomathi B, Laxmi Kumar,	Structured teaching programme on	● 94 teenage girls in total participated in the survey.

Mahalingam V	knowledge about polycystic ovarian syndrome among adolescent girls at Himalayan College of Nursing, SRHU, Dehradun	● In terms of menarche age, over three-quarters of the participants (71.1%) reached menarche between the ages of 14 and 16. Dysmenorrhea was experienced by 46.8% of the subjects. Many of the respondents (95.30 percent) used 2-four pads every day. Moreover, half of respondents (55.32%) had a menstruation period that lasted 21-35 days. Many of the participants (98.93%) had no prior experience of PCOS. There was no previous or family history of PCOS in any of the respondents (100%). ● It may be concluded that the teaching programme was beneficial in increasing teenage girls' understanding of polycystic ovary syndrome condition. ● As per the implementation of a structured training programme, it was observed that teenage girls' awareness of polycystic ovarian syndrome had enhanced. ● When comparing pre-test and post-test knowledge levels, post-test understanding rates over all categories increased substantially. ● STP was found to be useful in increasing teenage girls' understanding of PCOS. As a result, it was concluded that a structured training programme had a high potential for raising PCOS consciousness.

CHAPTER 3: METHODOLOGY

3.1. Research Question: What is the level of general knowledge and perception regarding PCOS as well as barriers to gaining knowledge about polycystic ovarian syndrome among women aged 18–50 in Dehradun, Uttarakhand (PCOS)?

3.2. Study Design: Cross sectional, descriptive type of study

3.3. Study Setting: Dehradun, Uttarakhand

3.4. Study Population: Women studying in colleges, working in offices or home makers were taken for the study.

3.5. Inclusion criteria: Women from the general population who are in the age group 18-50 years. (Married and unmarried)

3.6. Exclusion criteria: Men, Women of age group of less than 18 years and not more than 50 years.

3.7. Duration of Study: 22nd March to 5th June 2022

3.8. Sample Size: 102

3.9. Sampling Technique: Convenience sampling

3.10. Study Tool: An Online Survey form was constructed based on the research objectives, review of literature and guidance of the mentor.

3.11. Data Collection Method: The data was collected through the Online Survey form that was sent through means of Email, WhatsApp, Instagram.

3.12. Tool of Analysis: The collected responses were entered into Microsoft excel and analyzed using bar graphs.

3.13. Ethical Consideration: Every respondent was made aware of the research study, and their consent replies were taken only after that. The information gathered was only for the purpose of the research study.

CHAPTER 4: RESULTS

The study was conducted through an online survey. About 102 responses were collected and all the respondents was between the ages of 18 and 50. Most participants 59.8% was in the 18-to-24-year age range. followed by 19.6% from 25-31 years age group.

Socio-demographic aspects of the study's female participants

For a more thorough analysis and summation of the responses collected, the respondents' background knowledge is crucial. Following table shows the distributions of the respondents based on some important categories like age, education level, marital status etc.

Most participants 59.8% pertained to the 18–24 age group followed by 19.6% from 25-31 years. Remaining portion belongs to 32-50 years of age as shown in the table.

Professionally, most of the women (51%) are students whereas the second major group are the women working in the private sector (26.5 %). Other small groups belong to categories like housewives, working women in the public sector.

The study found that one's living region or residence had a significant impact on one's knowledge of concerns like PCOS. In our survey, we discovered that most of the respondent's like 91.2 percent of people reside in urban settings, and 8.8 percent do so in rural locations, which led to the creation of another key category: analyzing the participants' educational levels. Most of the respondents had already completed their undergraduate or postgraduate degree. Around 48% of the respondents fell into each of these categories.
Finally, the respondents' marital status was a very essential piece of information. While many of the participants were single (73.5%), there were also married women (25.5%) and women who were separated from their relationships (1%) in the study.

Table.1. socio-demographic parameters of respondents (n=102)

S. No	Age	percentage	N
1.	18 - 24	59.8 %	61
	25 - 31	19.6 %	20
	32 - 38	9.8 %	10
	39 - 44	4.9 %	5
	45 - 50	5.9 %	6
2.	**Profession**		
	Student	51 %	52
	Working in private	26.5 %	27
	Working in public	7.8 %	8
	Housewife	10.8 %	11
	Business	2 %	2
	Other	2 %	2
3.	**Residence**		
	Urban	91.2 %	93
	Rural	8.8 %	9
4.	**Education level**		
	Primary Level	0 %	0
	Middle School	0 %	0
	High School	4 %	4
	Graduation	48 %	49
	Post-Graduation	48 %	49
5.	**Marital status**		
	Not Married	73.5 %	75
	Married	25.5 %	26
	Divorced	0 %	0
	Separated	1 %	1

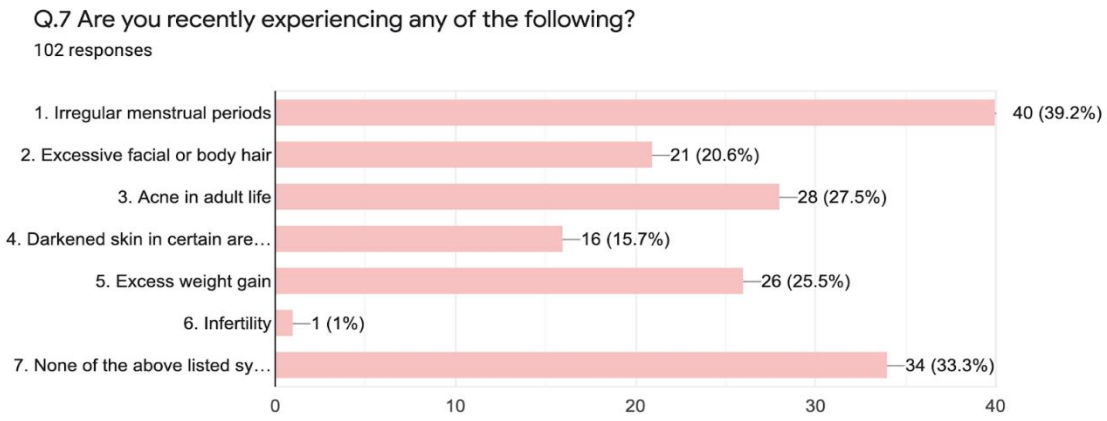

Fig.4. discomfort experienced by the respondents

Another important part of this questionnaire was to see if the respondents were experiencing any discomfort or problems pertaining to PCOS, and the results revealed that most of the women (39.2%) had irregular menstrual periods, followed by (27.5%) acne in adulthood and (25.5%) excess weight gain, with a good majority (33.3%) of women responding that they were not experiencing any of the following as shown in the figure. This question revealed their understanding of PCOS in some way.

a) Awareness of polycystic ovarian syndrome in women

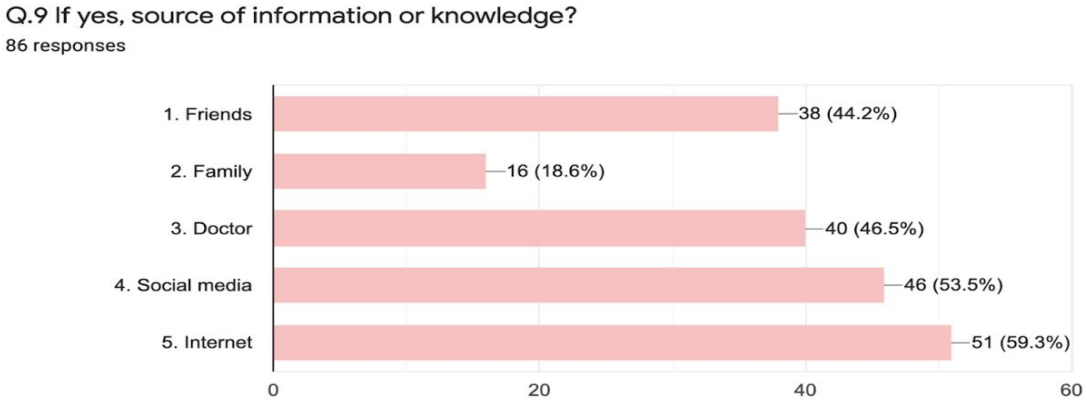

Fig.5. Source of participants knowledge about PCOS

The critical component was figuring out the respondents' sources of information on PCOS. The image in the figure represents the PCOS information's source. The internet was found to be the primary source of information (n = 51, 59.3%). Social media was once more deemed the key source of information for about 46 (53.5%) of the respondents, followed by doctors, who accounted for 46.5 percent (n = 40) of the participants. Friends were chosen by 44.2 percent (n = 38) of the participants as the fourth source. Only 18.6% of participants (n = 16) mentioned family as a source of information.

Table.2. Evaluation of study participants knowledge about PCOS (n = 102)

Q. No.	Question	Choices	% Distribution
1	Are you aware of PCOS?	Yes	80.4
		No	13.7
		Do not know	5.9
2	PCOS may result from smoking cigarettes?	Yes	45.6
		No	14.4
		Do not know	40
3	PCOS may result from obesity?	Yes	68.5
		No	6.7
		Do not know	24.7
4	Is irregular or absence of menstrual cycle a PCOS characteristic?	Yes	89
		No	1.1
		Do not Know	9.9
5	Unusual amount of hair growth on different body parts is a symptom of PCOS?	Yes	80.2
		No	5.5
		Do not know	14.3
6	Is mood swing a symptom of PCOS?	Yes	63.7
		No	20.9
		Do not know	15.4
7	PCOS may lead to infertility?	Yes	75.6
		No	6.7
		Do not know	17.8
8	Is PCOS curable?	Yes	58.2

		No	25.3
		Do not know	16.5
9	Anxiety and depression could be brought on by PCOS?	Yes	79.1
		No	4.4
		Do not know	16.5
10	Junk food intake associated with PCOS?	Yes	73.6
		No	7.7
		Do not know	18.7
11	Is extreme acne during periods a characteristic of PCOS?	Yes	71.9
		No	5.6
		Do not know	22.5

All 102 respondents were questioned in a variety of ways to see how well they understood PCOS. According to the table, most participants (80.4%) were aware of the term "PCOS," while 13.7% were not. Additionally, when asked if irregular or missed menstrual periods were a symptom of PCOS, most respondents (89%) agreed, while only 1.1 percent disagreed. However, 9.9% of those surveyed remained uncertain in both cases.
In response to the next question, 80.2% of most responders claim that PCOS is indicated by severe hair development in numerous body locations. 5.5% of respondents said that excessive hair growth is not a sign of PCOS. Likewise, 75.6 percent of respondents believed that PCOS could cause infertility, whereas 6.7 percent disagreed and did not think this was the case.
In addition, 45,6% and 68.5% of respondents said that PCOS may be caused by smoking and obesity, respectively.
Surprisingly, 73.6 percent of respondents agreed that consuming junk food is linked to PCOS, displaying their knowledge of the condition. A significant number of respondents were aware of and believed that mood swings are a symptom of PCOS, whereas 20.09 percent disagreed with the statement, and 15.4 percent said they didn't know enough about the statement to agree or disagree with it, and when asked if PCOS can cause anxiety and depression, 79.1 percent agreed. The similar percentage of people (79.1%) agreed that severe acne during periods is an indication of PCOS. However, 22.5 percent of people do not agree or oppose but are uninformed of the situation.

The most crucial question to assess awareness was whether PCOS is curable in their opinion, and 25.3 percent of respondents disagreed, while 58.2 percent said PCOS can be cured. The respondents' information was revealed to be inaccurate or inadequate in this case, as most of them assumed the condition was curable.

b) To assess women's perceptions regarding the polycystic ovarian syndrome

Table.3. Respondents' viewpoints on PCOS (n = 102)

Q. No.	Question	Choices	% Distribution
1	Through workout and calorie control, PCOS can be handled.	Yes	92.3
		No	7.7
		Do not know	0
2	Patients with PCOS have poor body esteem.	Yes	31.1
		No	17.8
		Do not know	51.1
3	PCOS is a challenging disorder to manage.	Yes	45.6
		No	44.4
		Do not know	10
4	PCOS patients cannot have children	Yes	7.9
		No	66.3
		Do not know	25.8
5	Patients with PCOS struggle to socialize with others.	Yes	14.3
		No	57.1
		Do not know	28.6
6	The syndrome occurs in lean women	Yes	47.2
		No	20.2
		Do not know	32.6

To assess women's perceptions of PCOS, a series of questions were asked to them in order to analyze their opinions toward the condition and women who suffer from it. According to the table, over half of the participants (51.1%) were unaware of the question, which inquired if PCOS patients have a low body image, while only 31.1 percent agreed with the question and just 17.8% disagreed with the statement. Furthermore, 92.3 percent of people presume PCOS can be

managed via diet and exercise, which is a large percentage of the population; only 7.7% believe the reverse.
When asked If PCOS is a challenging condition to manage, 45.6% said that they think it is difficult to live with PCOS, while 44.4% had an opinion that said it isn't difficult to live with this condition.
When participants were asked if they believe PCOS sufferers cannot have children, the results were fascinating. About 66.3 percent of women did not support the issue and said NO, while just 7.9 percent of the respondents supported the question, and 25.8% had no opinion on either option. This was an extremely important question to research to determine their perspective.
When asked if PCOS patients had problems associating with other individuals, 57.1 percent of the participants said no, and 14.3 percent said yes. When asked if PCOS occurs in thin women, 47.2 percent of the women agreed that it does, whereas 20.2 percent disagreed and were not in agreement with the question, and 32.6 percent had no idea.

c) To determine the barriers to women's acquiring knowledge.

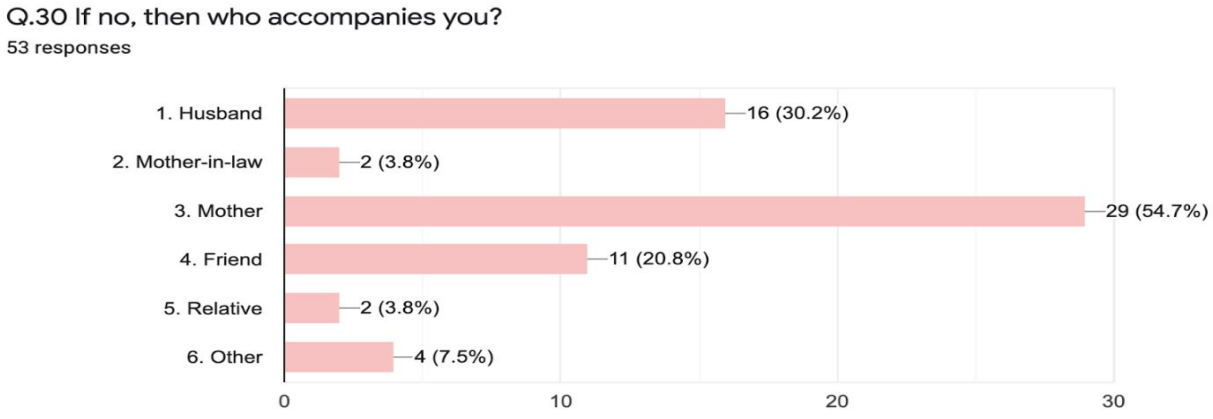

Fig. 6. showing responses of participants when asked who accompanies them to gynecologist

The above figure shows the responses of participants when they were asked who accompanies them to the gynecologist if they are not allowed to go alone. With that question in mind, the responses show that most participants were accompanied (54.7%) by their mother, which was followed by their husband (30.2%), with a friend accompanying them at the third number. This analysis suggests that one of the barriers preventing women from gaining knowledge was their inability to visit the clinic even by themselves, even though all respondents were 18 or older.

Table.4. Barriers to participants in acquiring knowledge regarding PCOS

Q. No.	Issues	Choices	% Distribution
1	Frequency of visiting Gynecologist	Regular	3.9
		Once a year	8.8
		Once in 24 months	0
		When required	87.3
2	Do you visit the clinic alone or accompanied by some person?	Yes	78.4
		No	21.6
3	What is the distance to the nearest health service available in your area?	< 1 km	40.2
		1 >= but < 5 km	48
		>= 5 km	11.8
4	Are you able to discuss your period problems in your family freely?	Yes	85.3
		No	11.8
		Do not know	2.9

The analysis of the barriers to women learning about PCOS is depicted in the table above. When asked how often they visit the gynecologist, 8.8% replied just when necessary or when there is a need, 8.8% said once a year, only 3.9 percent said on a regular basis, and there was no response for once every 24 months. In response to the question of whether they are allowed to visit the clinic alone or with someone else, 78.4 percent agreed and stated that they can visit the clinic alone, while 21.6 percent disagreed and stated that they must be accompanied by someone else while visiting the clinic, as shown in Fig.

The next question was about what distance the nearest health service is available in their area, to which 48% marked their response at more than one but less than 5km, while 40.2% stated that their nearest health service is available at less than one km and 11.8% had the facility available at beyond 5km. The question was pertinent to determine whether the knowledge gap is due to a lack of clinic facilities in their immediate vicinity. The final question asked if participants could

discuss their period issues with their families or not, and 85.3% of respondents said yes and said they had no problems discussing their period problems, while 11.8% said no and could not discuss their period-related issues with their families without hesitation.

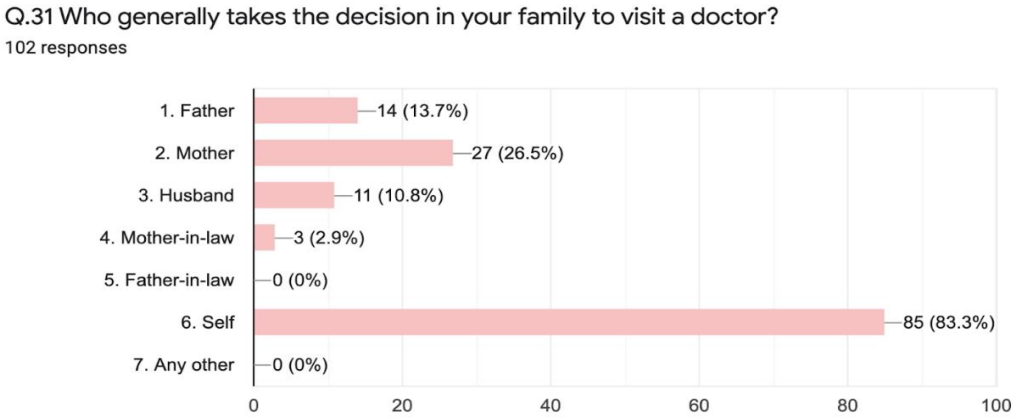

Fig.7. participants' answers to who takes the decisions in the family about visiting a doctor

The poll taken by the participants to determine who in their family makes decisions about going to the doctor for them is depicted in the chart above. According to the research, 83.3 percent of them indicated the decision was made by them and not by anybody else. The mother was the second most popular choice, with 26.5 percent of respondents opting for her, and 13.7 percent opting for the father. It was 10.8 percent for the husband, and 2.9 percent for the mother-in-law. The conclusion we can draw from this data is that most women do not rely on anybody else when it comes to making decisions about going to the doctor, but there is still a small percentage of women who do not have the power to make the decision to go to the doctor on their own.

CHAPTER 5: DISCUSSION

The most frequent female condition is polycystic ovary syndrome, a complex disorder that alters a woman's hormone levels. The occurrence, however, largely depends on the age range of the people studied. This is a metabolic, endocrine, and diverse condition characterized by increased androgen secretion as well as aberrant insulin activity. In India, PCOS affects about ten percent of women. In PCOS sufferers, there is an increased risk of health complications such as fertility issues, pregnancy-related disorders such maternal hypertension, preeclampsia, and pregnancy complications, along with emotional issues like extreme anxiety and depression. PCOS doesn't just affect the women’s body or mental health but also their social interactions as well.

This is the first study to look at PCOS knowledge and perceptions, as well as learning barriers to acquiring knowledge about the syndrome, among women aged 18 to 50 in Dehradun, Uttarakhand (PCOS). The study was a cross-sectional descriptive study for which 102 participants were surveyed and all of them answered and took part in the survey. The first objective of the study was to understand if there is awareness in women about polycystic ovarian syndrome and all the related symptoms that women experience because of the syndrome. To assess the knowledge of about twelve questions were farmed in the awareness section which were straight enough to understand the rate or level of awareness regarding the knowledge. Menstrual issues, irregularity, mood swings, infertility, acne, obesity, depression, and other symptoms and conditions that can contribute to or develop because of PCOS were included in the poll, and it was discovered that more than 80% of the public is aware of some of the signs of PCOS. This result of this study for the first objective shown that the large percentage of women have good awareness regarding PCOS. Since most women belong to 18 - 24 years of age so we could say that the awareness level was a bit high on their part nevertheless, other age groups were also well versed with the knowledge. For instance, when asked if they were aware of PCOS 80.4% women said yes in their response. Also, when they were asked if PCOS can lead to infertility, anxiety, and depression then surprisingly it was answered by 75.6% and 79.1% respectively. Most of the answers were in majority of the question which correlates with the theory of 2016 poll by Chandrasekhar and Brundha, which stated that higher than 80% of the public is aware of many of the characteristics of PCOS.

Contrarily, we could see that the participants clearly lacked knowledge in some areas because, when asked if PCOS is curable, most people (58.2%) responded positive. This response was obviously incorrect because PCOS can be managed through diet and lifestyle changes but cannot be permanently cured, which was not what most respondents said. (Reference: - Polycystic ovary syndrome: status and future perspective by Erin K. Barthelmess and Rajesh K. Naz) Additionally, only 14.4 percent of respondents indicated they did not believe smoking cigarettes may lead to PCOS, while 45.6 percent agreed with the claim and roughly 40 percent were unsure. Smoking cigarettes may not immediately result in PCOS, but it can undoubtedly exacerbate the symptoms in women who already have the condition. This was stated in the article "Evaluation of Women's Knowledge and Perception about Polycystic Ovary Syndrome and its' Management in Jordan: A Survey based Study" by May Abu Taha, Rana Abu Farha, and Aya Dasgah. This area demonstrated that ladies were well-informed about PCOS. They are therefore aware of the symptoms of the condition, but they unquestionably require a thorough awareness of the factors that can exacerbate the syndrome but not its underlying causes.

A total of six questions were posed to the participants in the perception portion of the study to better understand how they felt about PCOS syndrome or women who had it. Regarding PCOS, there are several opinions. Despite most participants being ignorant about the options related to the questions, several people believed that PCOS patients have poor body image. Only 7.9 percent of PCOS patients answered "yes," although the majority correctly answered "no," when asked if they are unable to have children. While 44.45 percent of respondents did not believe that PCOS was a tough condition to live with, 45.6% agreed that it was. Most people also believe that PCOS may be controlled with diet and exercise. Regardless of facts, some people thought PCOS may affect skinny women.

This segment suggested that each question had a variety of interpretations, which could either directly or indirectly impact respondents' understanding of the syndrome.

We also had knowledge gaps, that is barriers in acquiring knowledge about the syndrome, which were included to understand the percentage of respondents who had no idea about the questions that were posed to them. This indicated that they were most likely not familiar with the syndrome and how crucial it is to be aware of its long-term complications. When asked how frequently they see their gynecologist, most respondents, 87.3 percent, stated that they only go when it's necessary. Only 3.9 percent of respondents said that they go frequently, and 8.8 percent said they go once a year. Most respondents only visit their gynecologist when they feel the need to, so how would they be aware of any ongoing issue that might be connected to PCOS? It has been established that women between the ages of 21 and 29 should see their gynecologist every year for a routine exam as well as in between visits for any issues that arise.

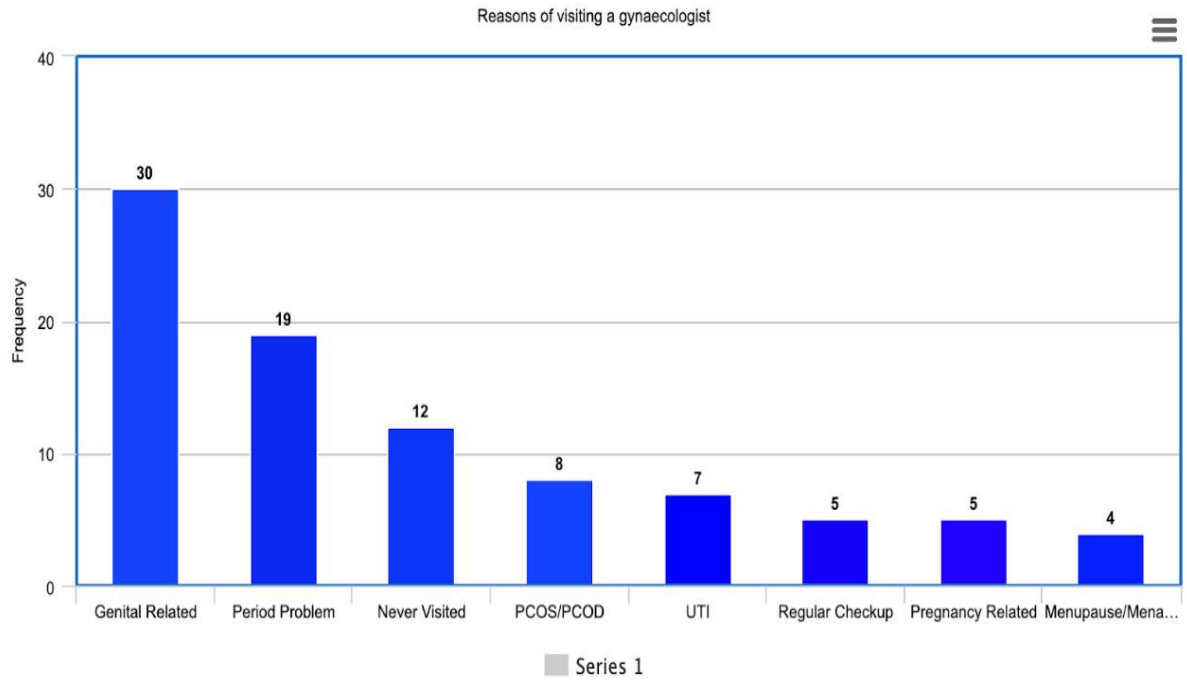

Fig.8. Showing respondent’s reason to visit a gynecologist

About 30% of the respondents who were asked why they saw a gynecologist for treatment said it was because of genital concerns, 19 percent said it was because of period problems, and roughly 8 percent said it was because of PCOD/PCOS problems. Surprisingly, only 5% of them claimed to regularly see a gynecologist, while 12% of them reported never setting foot inside a clinic. Even though 78.4% of respondents—a remarkable accomplishment—said they are permitted to visit the clinic alone, they nevertheless go there when they are in need. Nevertheless, a small minority of respondents, or roughly 21.6%, are accompanied by someone when they attend the clinic. This implies that individuals lack the authority to go to the clinic alone or make decisions regarding their own bodies because it's likely they won't even be informed of any potential health problems, which is another barrier. There are still some women who find it difficult to talk openly about their periods with their families. Most of them answered yes when this question was posed, but 11.8 percent are still unable to talk about it. Most respondents stated that their

closest healthcare institution was more than one but under five kilometers away, and some said it was farther than that.

This study has several restrictions. Since most participants were from metropolitan regions, the viewpoints of those who resided in rural areas were not accurately represented. Therefore, improved associations with information, viewpoints, and obstacles from that field might have resulted in a more diverse viewpoint. The study was conducted online, therefore we might have missed out on additional individuals. Additionally, only English was available for the questionnaire.

CHAPTER 6: CONCLUSION

According to the study's findings, women have a sufficient understanding of PCOS but still need to get more knowledge about its consequences, factors that can cause PCOS, and factors that can affect the syndrome. Remarkably, the respondents gave surprisingly positive responses when questioned about several important questions regarding perception. There were undoubtedly several instances where it was obvious that the main cause of their incorrect answers or ignorance of the topic was a lack of information. After all, perception and knowledge are closely

tied to one another. However, it was evident that no matter how many respondents were clearly fully independent to make decisions about their bodies on their own, the smallest percentage of women who are unable to visit clinics alone or are even unable to make decisions for their medical attention on their own need to have enough knowledge to understand the syndrome so that they can take precautions. Alternatively, if they are already dealing with PCOS, they may need to be aware of this.

The entire survey revealed a range of perspectives and responses to every query. As knowledge directly affects perception, this study focuses on the necessity to implement education programs through many means, like as seminars, training sessions, and several others, to expand the depth of understanding of the female population in Dehradun. Additionally, females need to be encouraged to interact with healthcare professionals more. They should be aware of the necessity of visiting their gynecologist annually without any justification, merely for routine checkups, so they can act if necessary. Podcasts are a popular trend right now. To educate women about co-morbidities and how to manage their lifestyle by changing required factors that can influence the disease, a variety of podcasts can be organized.

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