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DEMOGRAPHIC DISTRIBUTION OF POLYCYSTIC OVARY SYNDROME PARTICIPANTS IN THE SUB-HIMALAYAN REGION OF UTTARAKHAND

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Abstract: Polycystic Ovary Syndrome (PCOS) is a prevalent hormonal disorder among women of reproductive age, and its occurrence and management are strongly influenced by lifestyle and demographic factors. Understanding the socio-demographic profile of affected women is essential for designing targeted awareness and intervention strategies. This cross-sectional baseline study was conducted among 300 women diagnosed with PCOS in the Sub-Himalayan region of Uttarakhand to assess their socioeconomic status, educational level, occupation, religion, family structure, age, marital status, and place of residence. Data were collected using a self-structured questionnaire and analyzed through descriptive statistics, including frequencies and percentages. The results showed that the majority of respondents were urban residents (93.7%), predominantly young adults aged 26–33 years, belonging to nuclear families (83%) and possessing a high level of education, with 56.3% being graduates and 12.7% postgraduates. In terms of occupation, 40.3% were employed, 38.3% were homemakers, and the remainder were students or engaged in public or private sector work. Most participants were Hindu (87%), and over half (50.7%) belonged to middle-income households. Overall, the findings indicate that awareness of and engagement with PCOS-related healthcare are largely concentrated among young, educated, urban women from nuclear, middle-class families, suggesting that lifestyle-based and educational interventions in this region should be tailored to this demographic to improve participation, awareness, and long-term management of PCOS.

Keywords: PCOS; Prevalence; Demographics; Women's Health; Sub-Himalaya.

Introduction

Worldwide, women of reproductive age suffer from the prevalent hormonal and metabolic disorder known as polycystic ovarian syndrome (PCOS). High levels of male hormones, irregular ovulation, and many ovarian cysts identify it. Between 6 and 20% of people worldwide have PCOS. Variations in India range from 9 to 36%, according to studies. Lifestyle factors, ethnicity, and diagnostic criteria influence these variations.

Along with metabolic disorders like obesity, insulin resistance, type 2 diabetes, cardiovascular concerns, and psychological stress, PCOS has an impact on reproductive health. Because sociocultural and environmental factors can cause prevalence to vary, regional studies aid in identifying patterns unique to particular communities.

The Sub-Himalayan region of Uttarakhand has a unique demographic with a mix of urban and rural populations. This area has different lifestyle habits, dietary practices, and healthcare access. However, there is limited data on the prevalence of PCOS in this region.

This study aimed to determine the demographic distribution of PCOS among women in the Sub-Himalayan belt of Uttarakhand, focusing on age, residence, and education level.

Methodology

Study Design and Setting: The current study aimed to assess the demographic profile of the participants who have Polycystic Ovary Syndrome (PCOS). It was conducted in the Pauri district of Uttarakhand. Data was collected from hospitals in Srikot, Srinagar, and Pauri. The focus was on women's reproductive health issues in this area.

Population and Sample Size: The study included women aged 18 to 40 years, the reproductive age group. Three hundred respondents were chosen using random purposive sampling. This method ensured the target group was well represented within the defined setting.

Inclusion Criteria: Women of reproductive age who gave informed consent were included in the study.

Exclusion Criteria: The study excluded pregnant women, those who had been diagnosed with chronic endocrine disorders other than PCOS, and women who did not want to participate. This exclusion was necessary to keep the findings valid and reliable.

Data Collection

Tools and Measures: Data were collected using a structured questionnaire that gathered information about sociodemographic profile, menstrual history, and lifestyle habits. This tool aimed to give a detailed look at the participants' health status and possible risk factors for PCOS. Data was collected with the informed consent of participants.

Participant's Selection Criteria

The Rotterdam criteria from 2003 were used to diagnose PCOS. If a participant satisfied two or more of the three requirements listed below, they were diagnosed with PCOS:

1. Clinical or biochemical hyperandrogenism;
2. Oligo/anovulation; and
3. If feasible, polycystic ovarian morphology on ultrasonography.

Using the criteria above, PCOS was identified in patients through hormonal tests and ultrasound, and I collected data from participants identified by gynaecologists who wished to participate in the study.

Data Analysis

After coding the gathered data, I loaded it into the Statistical Package for the Social Sciences (SPSS) for examination. They determined the PCOS rate and converted it to a percentage. Using descriptive statistics, they looked at frequency and percentage distributions of demographic traits such as age, place of residence, and educational attainment. Data findings are presented in frequency tables and charts to help understand the results.

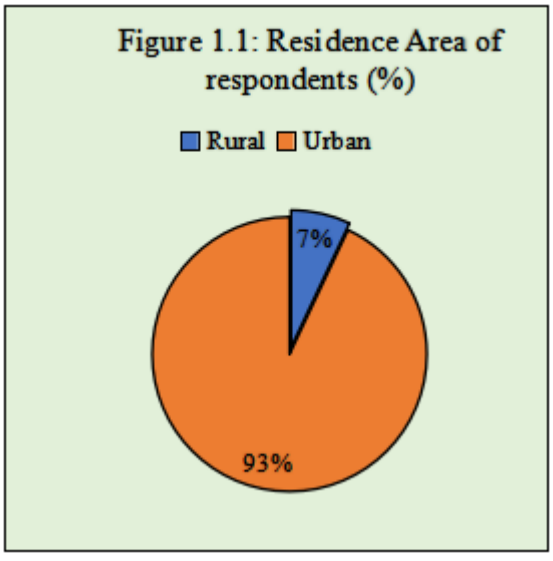
Results

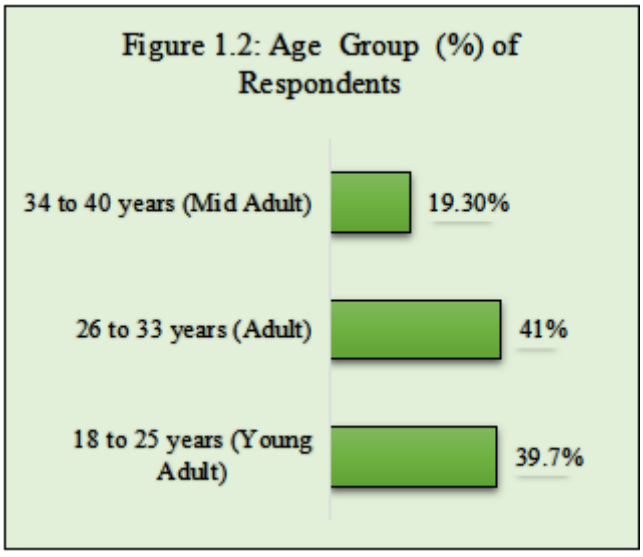
Demographic Distribution

Table 1 revealed that there were 300 respondents. Most respondents (93.7%) were urban dwellers, and those in rural areas were 7.0% (Fig. 1.1) This represents an urban superiority that can foreshadow the concentration of the target population in city regions, either in improved access to health services or awareness campaigns about PCOS. The increased city representation may also be associated with the rise in lifestyle-related risk factors, such as sedentary lifestyles and dietary changes, which have become more common in urban living (Kalra et al 2016).

Table 1: Demographic profile of the PCOS subjects (n=300)

Residence Area of Respondents	Frequency of subjects	Percent of subjects
Rural	21	7.0
Urban	279	93.7
Age		
18 to 25 years old (Young Adult)	119	39.7
26 to 33 years old (Adult)	123	41.0
34 to 40 years old (Mid adult)	58	19.3
Family Types		
Nuclear Family	249	83.0
Joint Family	51	17.0
Marital Status		
Married	89	29.7
Unmarried	209	69.7
Widowed	2	0.7

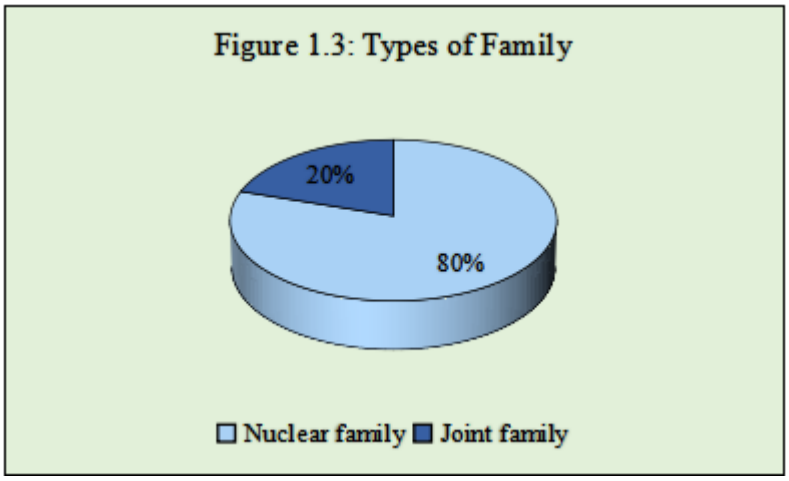




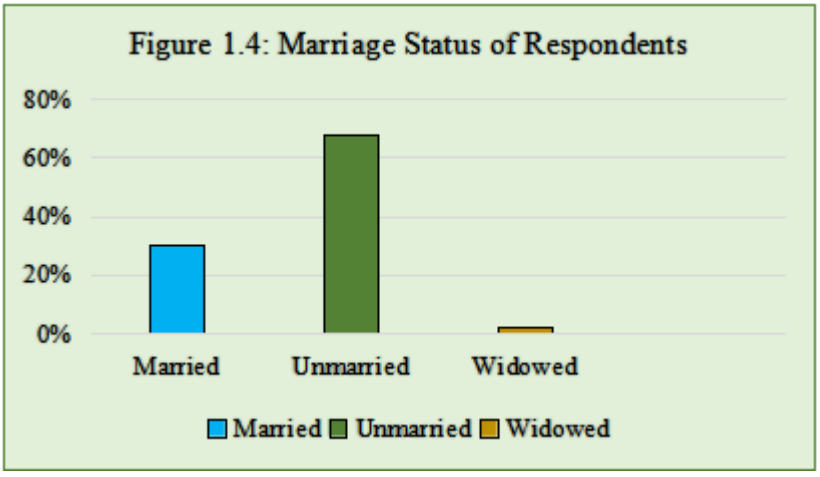
The participants were mostly young adults, according to the age distribution. The most significant number of them fell in the age category of adults (26 to 33 years), 41.0%, and in the young adults category of 18 to 25 years, to be precise 39.7 %. The 34-40-year-old participants comprised 19.3 percent of the population, and the age bracket is middle-aged (Fig. 1.2). This implies that PCOS awareness and intervention interest rates are higher among women of reproductive age. This age distribution is in line with other studies that have shown that PCOS manifestations are commonly diagnosed during childbearing years, with a peak among the 20s and 30s, as changes in hormonal and

metabolic status become more pronounced and fertility issues commonly occur (Azziz et al 2004; March et al 2010).

Regarding the family structure 83.0 percent of the subjects were members of nuclear families, with the remaining 17.0 percent representing the joint families. This may mean a change in the individual lifestyles' social patterns and behaviour, at least in the urban areas. This is the prevailing influence of nuclear family structures, which shows the trend of the current process in most areas of India to smaller self-sufficient family units, especially in the urban scenario (Desai et al 2010). The nuclear environment can also affect habit selection, food independence, and health behaviours, key factors in chronic condition management, such as PCOS (Fig. 1.3).



Regarding marital status (Fig. 1.4), the majority (69.7 percent) were unmarried, whereas 29.7 percent were married. A very low percentage (0.7%) were widowed, and no one was divorced. Such a distribution also confirms the young character of the sample, which is consistent with the age distribution stated above. It is noteworthy that the number of unmarried women is also relevant, given that the symptoms of PCOS, including menstruation, acne, and hirsutism, before marriage are discussed and talked about due to fertility and physical attractiveness all the time (Teede et al 2018). At that, younger unmarried women may also be immersed in such research, fearing their reproductive organ conditions in the future.



Socioeconomic Profile of the Respondents:

Table 2 shows the descriptive statistics on the educational background. Most responders, or 56.3 percent (n=169), were graduates or higher. Next among the exam takers were those who cleared their intermediate exams, who made up 25.7% (n=77) of the total. A smaller percentage had completed postgraduate studies (12.7%, n=38). A minority of them only finished high school (5.0%, n=15), and the only respondent (0.3%) had a doctorate. This means the sample population is relatively well-educated, and more than two-thirds have post-graduate education. All subjects were found to be literate, and no one was illiterate. The gradient of graduates and postgraduates is in line with Sharma et al (2020), who concluded that urban/semi-urban residents of North India were more educated than their rural counterparts and showed the highest proportion of higher education attainment among women who needed a medical service or enrolled in a scholarly program. Health awareness is an essential condition predetermined by education that significantly affects lifestyle and food, physical activity, and reproductive nutrition choices (WHO 2020).

Table 2: Socioeconomic Profile of the Respondents

Variable	Frequency of subjects	Percent of subjects
Education		
Highschool	15	5.0%
Intermediate	77	25.7%
Graduate	169	56.3%
Postgraduate	38	12.7%
Doctorate	1	0.3%
Illitrate	0	0%
Occupation		
Government gob	15	5.0%
Private Sector	49	16.3%
Home Maker	115	38.3%
Study	121	40.3%
Religion		
Hindu	261	87.0%
Muslim	29	9.7%
Sikh	10	3.3%
Monthly Income		
More than or equal to 9130	48	16.0%
4565 to 9129	152	50.7%
2739 to 4564	97	32.3%
1369 to 2738	3	1.0%

Source: modified B.G. Prasad scale, January 2024

In Fig. 1.6, regarding occupation, the highest percentage of people was clustered as working (40.3%, n=121), followed by homemakers (38.3%, n=115), indicating a large percentage of non-working people. The participants working in the private sector comprised 16 percent (n=49), and 5.0 percent (n=15) of the study participants were in government employment. The occupational distribution indicates that students and non-work participants are in the sample. This trend is aligned with another study published by Tandon & Singh (2019) that stated that many young women in Uttarakhand were either studying full-time or working as domestic workers because of the sociocultural and economic circumstances. Students or stay-at-home women are more likely to be available to health education programs. However, they could have irregular lifestyle patterns because of the absence of a regimen

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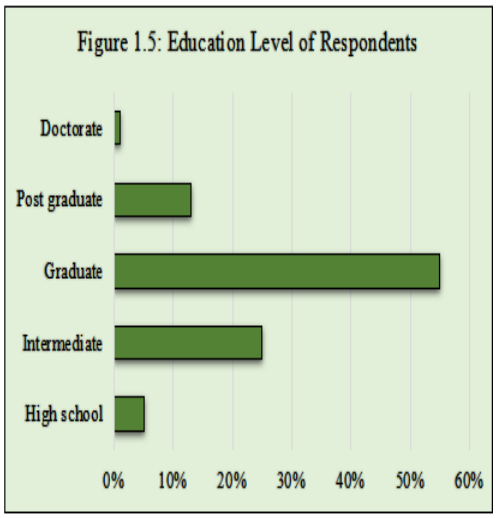
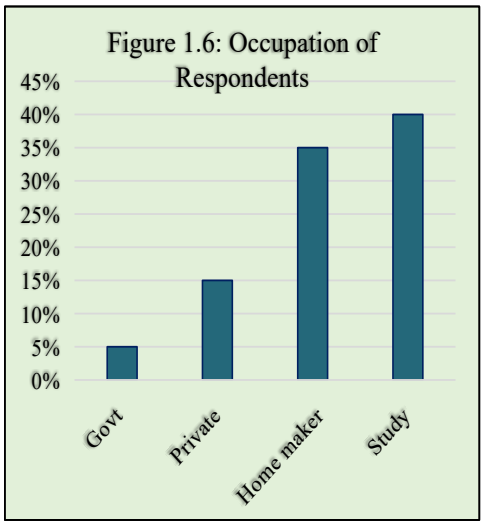
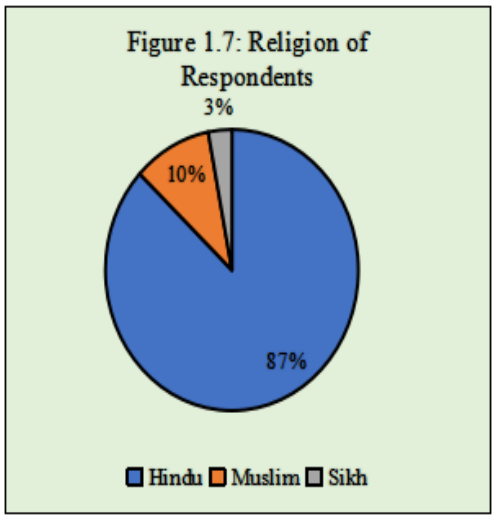
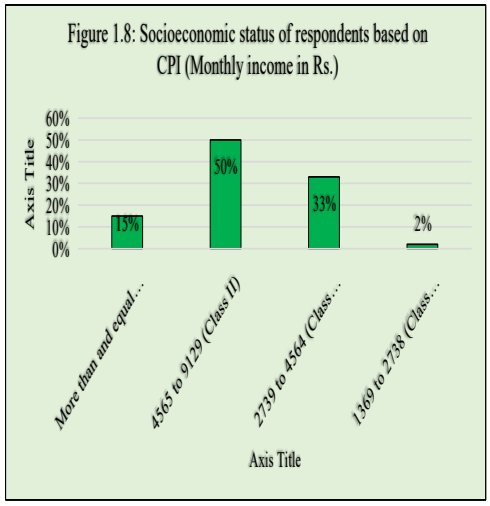
or exercise (Mishra & Saxena 2018). Most of them were Hindu (87.0%, n=261), followed by Muslims (9.7%, n=29) and Sikhs (3.3%, n=10), as shown in Fig. 1.7. None of the participants were Christian or from other religious groups; their religious diversity was narrow.

According to the modified B.G. Prasad scale (January 2024), the monthly income distribution of every respondent revealed that most of the givers were within the middle-income bracket. In particular, 50.7% (n=152) of the respondents set their monthly household income at 4,565 to 9,129 Rupees, with 32.3% (n=97) in the 2,739 to 4,564 Rupees bracket. One in five (16.0%, n=48) earned more than 9,130 Rupee, and only 1.0 percent (n=3) fell into the lowest income category of 1,369 to 2,738 Rupees, shown in Fig. 1.8. This indicates that the sample study will be lower-middle-income because other regional studies indicate economic constraints among hill and sub-hill people (Pant et al 2021). It is known that socioeconomic status is a predictor of the quality of diet, access to health care, and knowledge about non-communicable diseases, including PCOS (Sahu et al 2018). The sample size appears to be educated, as the students and homemakers belong to a Hindu background, and the respondents mainly belong to the middle-income group of households.









DISCUSSION

The current study looked at the demographic profile of 300 women with PCOS in the Sub-Himalayan region of Uttarakhand. The findings show important trends that could affect awareness, lifestyle choices, and the management of PCOS.

Urban predominance: A large majority, 93.7%, of participants were city residents. This shows that healthcare access and awareness campaigns mainly focus on urban areas. Living in the city often leads to greater exposure to lifestyle-related risk factors. These include sedentary behavior, processed foods, and irregular eating habits. All these contribute to PCOS (Kalra et al 2016).

Distribution of ages: Adults aged 18 to 33 comprised 87% of the participants. This aligns with reproductive age, when PCOS symptoms are usually identified. Due to the high percentage of women in this age range, they might be open to changes in lifestyle and educational programs that address issues related to fertility and reproductive health (Azziz et al 2004; March et al 2010).

Family structure: 83% of the sample belonged to nuclear families. This family type may shape health and lifestyle choices. People often say nuclear families offer more independence regarding food, exercise, and self-care. This autonomy might help them stick to lifestyle recommendations for managing PCOS (Desai et al 2010).

Marital status: Most participants were unmarried, making up 69.7% of the group, which reflects the younger age distribution. This may show increased awareness and worry about PCOS symptoms like hirsutism, acne, and irregular periods. These symptoms can influence social perceptions and self-esteem, especially before marriage (Teede et al 2018).

More than half of the participants (56.3%) are either graduates. Moreover, intermediate education was second, and postgraduate education was third. This suggests that the sample is reasonably well-educated. Understanding health, knowledge of PCOS, and embracing healthy habits. Educational attainment significantly influences habits (WHO 2020; Sharma et al 2020). A higher educational background may increase openness to health programs and motivate proactive management of PCOS symptoms.

Occupational status: The sample included working women, who made up 40.3%, and homemakers at 38.3%. While students and homemakers might have more flexibility to participate in health programs, their irregular schedules and less active lifestyles could make it harder to maintain regular eating and exercise routines (Mishra & Saxena 2018).

Religion and socioeconomic status: Most participants, 87% of the group, were Hindu. Moreover, middle-income households made up 50.7%. Access to healthcare, awareness of non-communicable disorders like PCOS, and nutritional quality are all impacted by socioeconomic status (Sahu et al.2018; Pant et al 2021).

Given the high percentage of middle-class women, the research group's access to lifestyle and medical services is most likely limited. Nonetheless, they might still benefit from inexpensive treatments and

instruction.

The sample comprises young, educated, middle-class Hindu women who live in cities, based on the demographic profile. This group will probably take part in diet and lifestyle programs. These traits may make it easier to carry out focused instructional programs while directing one's attention to things that need improvement concerning the idle habits of a homemaker or student.

Implications

1) **Targeted lifestyle interventions:** Targeted lifestyle interventions could be effective given the young, educated urban demographic and will involve diet, exercise, and stress management. Population. We can use universities, community centers, and online platforms to offer programs.
2) **Campaigns designed for education and awareness:** The high levels of education and literacy suggest that the teaching materials can be increasingly complex, interactive, and technological. Evidence-based information for PCOS management, routine exercise, and meal planning must be included.
3) **The day-to-day order observed in nuclear families and single women may alter their Health Behaviour.** This means exercising and being careful about their food without having a family.
4) **Social and economic factors:** Middle-income households may respond well to affordable lifestyle strategies and home-based interventions. Programs targeting lower-income groups may need extra support or financial aid.
5) **Policy and healthcare planning:** These findings can help policymakers and healthcare providers focus on urban, young, and educated women for preventive and awareness programs. They also highlight the need to address lifestyle risk factors specific to this group.

Conclusion

The baseline demographic assessment of women with PCOS in the Sub-Himalayan region shows a predominance of young, educated, metropolitan ladies from middle-class, nuclear households. These traits indicate a group highly likely to make dietary and lifestyle adjustments.

Ideal conditions for carrying out targeted awareness campaigns on stress management, physical exercise, and nutrition are indicated by education levels, urban residency, and nuclear family patterns. The significant proportion of young, unmarried women highlights the importance of acting quickly to improve reproductive health and manage PCOS symptoms, and prevent long-term metabolic issues. The demographic profile helps create practical, culturally suitable, and specific interventions. These interventions aim to increase knowledge, awareness, and healthy lifestyle habits among women with PCOS.

References

Azziz R, Woods KS, Reyna R, Key TJ, Knochenhauer ES, Yildiz BO. (2004). The prevalence and features of the polycystic ovary syndrome in an unselected population. *J Clin Endocrinol Metab*, 89(6), 2745–2749.

Desai S, Vanneman R, National Council of Applied Economic Research. (2010). Changing family structures and urbanization in India. *Popul Dev Rev*, 36(2), 239–264.

Kalra S, et al. (2016). Lifestyle and metabolic risk factors in urban Indian women: implications for PCOS. *Indian J Endocrinol Metab*, 20(4), 459–467.

Mishra A, Saxena P. (2018). Lifestyle patterns and health awareness among young women in hill regions. *J Family Med Prim Care*, 7(5), 1054–1061.

March WA, Moore VM, Willson KJ, Phillips DI, Norman RJ, Davies MJ. (2010). The prevalence of polycystic ovary syndrome in a community sample was assessed using contrasting diagnostic criteria. *Hum Reprod*, 25(2), 544–551.

Pant H, Kumar A, Pandey R. (2021). Socioeconomic factors and diet quality in sub-Himalayan populations. *J Nutr Health Sci*, 8(2), 112–120.

Sharma R, Kumar A, Singh P. (2020). Educational attainment and health awareness among urban women in North India. *Int J Community Med Public Health*, 7(9), 3542–3549.

Sahu M, Choudhury P, Singh R. (2018). Socioeconomic status and non-communicable disease awareness in North India. *Health Popul Perspect Issues*, 41(1), 23–32.

Tandon A, Singh S. (2019). Sociocultural determinants of lifestyle behaviors in young women of Uttarakhand. *Indian J Community Health*, 31(4), 456–462.

Teede HJ, Misso ML, Costello MF, Dokras A, Laven J, Moran L, et al. (2018). International PCOS guideline: Health and lifestyle management. *Hum Reprod*, 33(9), 1602–1618.

World Health Organization (WHO). (2020). Health literacy and lifestyle behaviors. Geneva: WHO Press.