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# The level of knowledge about polycystic ovary syndrome and lifestyle among female college students

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## ABSTRACT

**Introduction:** PCOS is a global reproductive health problem that often occurs in women of reproductive age. Factors that can influence the occurrence of PCOS include a lack of knowledge about PCOS disease and an unhealthy lifestyle. Knowledge can be defined as something that is known, understood, and applied about PCOS, while lifestyle includes food consumption behaviour, physical activity, sleep rest and stress management. Objective: The purpose of the study was to determine the relationship between the level of knowledge about PCOS and the lifestyle of female students.
**Methods:** The research used a quantitative method with a correlation design through a cross-sectional approach on 196 female college students. Data were collected using two questionnaires, namely the PCOS Knowledge Level questionnaire and the Lifestyle Measurement questionnaire. Data analysis used Chi-square statistical test.
**Results:** The results showed that 172 respondents (87.8%) had good knowledge about PCOS, and 99 respondents (50.5%) had an unhealthy lifestyle. The bivariate analysis's findings indicated a relationship (*P*-value=0.019) between female students' lifestyle and their degree of PCOS knowledge.
**Conclusion:** The current study offers insightful information about female students' understanding of PCOS and a healthy lifestyle, serving as a resource for further research and directing the creation of successful health promotion campaigns. There needs to be an extensive sharing of knowledge about PCOS risks and preventive actions to lessen its impact on women's health.

**Keywords:** female; knowledge; lifestyle; pcos; polycystic ovary syndrome

## INTRODUCTION

Polycystic Ovary Syndrome (PCOS) is a problem involving hormonal abnormalities in women of childbearing age that can interfere with normal menstrual cycles and can be a major factor in infertility in women (Lubis & Nurmaliza, 2019). PCOS is one of the most common reproductive health problems in women of reproductive age in the world. with common signs and symptoms being such as irregular menstrual cycle disorders, increased androgen hormone levels, and images of eggs that are shaped like small cysts (Noviasari et al., 2023). About 4-18% of women of reproductive age in the world experience PCOS (Brosens & Benagiano, 2015). In Europe, 26% of women suffer from PCOS, in America the PCOS incidence rate is 5-10% and 44.9% is found in Beijing (Mardiastuti, 2020). In Indonesia itself, there is no official data on the prevalence of PCOS, but some experts state that the prevalence of PCOS in Indonesia reaches 5-10% in women of reproductive age (Okta, 2020).

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PCOS is often diagnosed after women are 20-30 years old due to lack of knowledge about the disease (Gunning & Fauser, 2017). Many university students suffer from the symptoms of PCOS without recognising they have the illness, which is a concerning circumstance brought on by their lack of understanding (Hussin & Abd Kadir, 2020). According to studies, the majority of students only seek medical help when their health problem becomes life-threatening. Their reluctance stems from their perception that the symptoms are not severe enough to require urgent care (Abu-Taha et al., 2020).

Moreover, lifestyle and environment are also known to be factors that influence the occurrence of PCOS disease. Previous research conducted by Pramodh (2020) found that 57% of 493 Emirati University student respondents, whose average age was 19-21 years old, agreed that they knew more about PCOS after completing the questionnaire given by the researcher, and many of these students still lacked a healthy lifestyle. About 64.5% of the students said they only did physical activity for about five hours or less per week, 12% reported consuming fast food 5-10 times per week, 39.4% admitted to consuming 1-3 drinks or snacks per week and 2% of the students were smokers (Pramodh, 2020).

The results of the preliminary study showed, that 5 out of 10 female students said they did not know about PCOS and had just heard the term PCOS for the first time during the interview. Four out of 10 female students mentioned that they had only heard about PCOS but could not explain in detail its signs and symptoms and the risk factors that can cause PCOS, and only 1 out of 10 female students knew about PCOS and

could explain the signs and symptoms and risk factors. The average female students interviewed also said that they still consume fast food more often than vegetables and fruits; in a week, they can consume fast food 3-4 times even almost every day. The average of the female students also mentioned doing physical activity for only about 10 minutes per day and having less appetite when feeling stressed.

A good level of knowledge can influence a healthier lifestyle, because a person's knowledge and beliefs are the main basis in shaping an optimal lifestyle (Ukat et al., 2018). The results of research conducted in 2020 found that respondents with good knowledge had two times the chance of having a healthier lifestyle compared to respondents with less knowledge. Lifestyle is one of the main factors that play an important role in general health and reproductive health (Sulastriningsih et al., 2020). A healthy lifestyle is defined as a series of physical activity behaviours and a person's mental health. Healthy lifestyle includes food consumption behaviour, physical activity, rest and sleep, while the quality of mental health is the quality of life related to social, such as stress management and spirituality (Khosrorad et al., 2015).

As previously stated, it is crucial for female students to have awareness about PCOS and have healthy lifestyles in order to prevent PCOS; therefore, researchers are interested in examining how is the relationship between the level of knowledge about PCOS with the lifestyle of female students.

# METHODS

## Study Design

This study uses a cross-sectional method, a descriptive design and a quantitative methodology. The cross-sectional approach is a study methodology that tries to collect information from observations made in a single unit and apply it to all variables at once; specifically, level of understanding regarding PCOS and lifestyle. Identifying potential sources of bias in research design involves clearly defining study objectives and hypotheses, as well as selecting a representative sample by random stratification. By combining these techniques, researchers expect to reduce bias in the study.

## Sample and Setting

The study's population consists of 385 current students at Private University. Using Slovin sample calculation based on population and tolerance errors by 0.05, a minimum sample of 196 students was obtained, with the inclusion criterion of regular active students from the college of health sciences and the exclusion criterion of students who refused to be respondents. This study utilised stratified random sampling; the Spin The Wheel website provides assistance in randomly selecting sample calculations. The names were gathered from the college presentations, which were then fed onto the website to determine the names of the respondents, and the sample chosen as responders was signed on the form. After selecting students, the researcher added them to a WhatsApp group discussion. Clearly defining the study's objectives and hypotheses and employing random stratified selection to generate a representative sample will help detect potential sources of bias in research design. Researchers intend to reduce study bias by combining these techniques. Finally, this study's analysis included 196 persons who provided informed consent to participate in the investigation.

## Instruments

Two research instruments were used to measure PCOS knowledge and lifestyle. The PCOS knowledge level questionnaire was adopted from previous research (Goh et al., 2022), consisting of 20 questions about PCOS. The questionnaire has been tested for validity with a range of results r = 0.400-0.704, and reliability test of 0.854, so the instrument is valid and reliable for use in research. Knowledge with a score of 0 to 10 was categorised as poor knowledge, and a score of 11 to 20 was categorised as good knowledge. Measurement of lifestyle was by using a questionnaire developed by Ambarwati (2019), consisting of 19 statements regarding lifestyle with validity results 0.382-0.706 and reliability test 0.853. Lifestyle assessment was divided into two categories, which are unhealthy lifestyles score 49.76 and unhealthy lifestyles score 49.76.

## Data Collection

The present study was conducted using primary data by distributing questionnaires to respondents by Google Forms. Data collection spanned June to July 2023 at the private university in Bandung Barat, Indonesia. After approval by the Institutional Review Board, eligible participants were given a yes-no question to confirm their willingness to participate voluntarily. After reviewing the question, eligible participants were asked to complete a self-assessment questionnaire; the participants completed the questionnaire in about thirty to forty minutes. The researcher then entered the respondents' data into computer software for processing and analysis.

## Data Analysis

Descriptive statistics (frequency distribution and percentages) were used to describe the demographic data, and measures for samples included level of knowledge of PCOS and lifestyle. This study's data collection was categorical. In the current study, relationships between two categorical variables can be analysed using the Chi-square test. Hence, the relationship of knowledge and lifestyle profiles was determined using a Chi-square test with a significance level of $p < 0.05$. Statistical analysis was conducted using the statistical software package SPSS version 24.

## Ethical Consideration

Data were collected with the approval of the Ethics Review Boards Santo Borromeus University (No. 009/USTB/Etik/Has./V/2023), approval was obtained on May 19, 2023. Eligible participants who consented to participate received the yes or no question (as a signed declaration of consent) and were guaranteed confidentiality and data protection.

# RESULTS

Based on Table 1, 97 respondents (49.5%) had a healthy lifestyle and 99 respondents (50.5%) had an unhealthy lifestyle. The results of the questionnaire found that respondents who had the healthiest lifestyle were in the physical activity component; as many as 118 respondents (60.2%). Among respondents having an unhealthy lifestyle, most are in the component of rest and sleep, with as many as 106 respondents (54.1%). The data obtained showed that 172 respondents (87.8%) had good knowledge about PCOS.

**Table 1.** Frequency distribution of lifestyle and knowledge among female college students (n=196)

| Category | n | % |
|---|---|---|
| **Lifestyle** | | |
| Healthy | 97 | 49.5 |
| Unhealthy | 99 | 50.5 |
| **Lifestyle Profile: Food Consumption Behaviour** | | |
| Healthy | 92 | 46.9 |
| Unhealthy | 104 | 53.1 |
| **Physical Activity** | | |
| Healthy | 118 | 60.2 |
| Unhealthy | 78 | 39.8 |
| **Sleep** | | |
| Healthy | 90 | 45.9 |
| Unhealthy | 106 | 54.1 |
| **Stress Management** | | |
| Healthy | 96 | 49.0 |
| Unhealthy | 100 | 51.0 |
| **Knowledge** | | |
| Good | 172 | 87.8 |
| Poor | 24 | 12.2 |

**Table 2.** Relationship between the level of knowledge about PCOS and the lifestyle among female college students

| Knowledge | Lifestyle | | | | | | *P*-value |
|---|---|---|---|---|---|---|---|
| | Healthy | | Unhealthy | | Total | | |
| | n | % | n | % | n | % | |
| Good | 91 | 52.9 | 81 | 47.1 | 172 | 100.0 | 0.019 |
| Poor | 6 | 25.0 | 18 | 75.0 | 24 | 100.0 | |
| Total | 97 | | 99 | | 196 | 100.0 | |

Based on Table 2, it was found that female students with good knowledge had a healthy lifestyle as many as 91 respondents (52.9%). College students with good knowledge had a lifestyle with an unhealthy category as many as 81 respondents (47.1%). College students who have poor knowledge have a lifestyle with a healthy category as many as six respondents (25.0%), and college students with poor knowledge have a lifestyle with an unhealthy category as many as 18 respondents (75.0%). The results of the Chi-square test obtained *P*-value = 0.019, so it can be concluded that there is a relationship between the level of knowledge about PCOS with lifestyle in female students.

# DISCUSSION

Knowledge is the result of knowing that occurs after someone senses a certain object. Knowledge in this study is everything that is known including information owned by female students about PCOS, such as: having heard and received information about PCOS, having heard about hormones, knowing the signs and symptoms of PCOS, and knowing how to prevent and treat PCOS. Out of the 196 respondents, only 172 (87.8%) had a good level of knowledge, according to the study's findings. The results of this study are supported by research on the level of knowledge, attitudes and behaviour of female students of the Faculty of Medicine, University of North Sumatra about the signs and symptoms of PCOS; it was found that the level of knowledge of FK USU students was categorised as good with 68.42% of respondents (Nathaniel, 2021).

Factors that affect a person's knowledge are age, gender, education, experience, work, source of information, interests, environment and social culture (Darsini et al., 2019). The results of this study found that 158 respondents (80.6%) of female students were in the age range of 19-21 years. In this age range, students usually already have a broad knowledge (Sulastriningsih et al., 2020). A person's knowledge can also be influenced by age factors, the more mature a person is, the more mature they will be in thinking and working, as well as their capacity to catch and think, so it will be easier to receive information (Rohani, 2013).

A person's knowledge comes from the sensing they have (eyes, nose, ears and so forth) and is based to a large proportion n a person's knowledge acquired through the sense of hearing and vision (Prasetya et al., 2019). The researchers found that the vast majority of respondents on this study had good knowledge, as 106 respondents (54.0%) had already received information about PCOS and the average of those getting information on PCOS most was from social media such as Instagram, TikTok, etc., 63 (32.1%). This is supported by previous study regarding the positive impact of using social media; social media is a media that contains a lot of information, news, science and current news that is easily accessed by its users. Information spread through social media is received faster than through electronic media such as television and radio (Oktaviani, 2019).

A healthy lifestyle is a way of life aimed at completely changing previous habits related to food, physical activity and rest (Mamurov et al., 2020). This study found that 99

respondents (50.5%) had an unhealthy lifestyle, although there were 97 respondents (49.5%) who had implemented a healthy lifestyle. The results of the research questionnaire found that respondents who had the healthiest lifestyle were in the physical activity category, as many as 118 respondents (60.2%). The physical activity on which the respondents applied included sweeping, washing, mopping, walking and so forth for about 30 minutes three times a week. Physical activity is the type of motion that requires energy produced by skeletal muscles such as activity done during housework, work and other activities. Regular physical activity can be beneficial in a person's health, such as by preventing the onset of disease and helping with mental health (Bull et al., 2020).

Respondents who had the unhealthiest lifestyle were in the rest and sleep category, as many as 106 respondents (54.1%), the bedtime of the respondents was largely less than 7-9 hours a day. The causes of sleep deprivation are mostly because the respondents still do their jobs before going to bed, such as on the phone or still doing their work when in bed, so it can make it difficult for the respondents to fall back asleep for more than 30 minutes, thus reducing sleep quality and causing the respondents to have poor sleep quality. Sleep is a factor that plays a vital role in all areas of health, since sleep can have a positive effect both mentally and physically (Aminuddin, 2020). Hypotenuse sleep will increase the inflammation that leads to immune systems and antioxidant systems in the body, and short duration of sleep will also promote emotional reactivity and reduce concentration, memory and cognitive function (Doherty et al., 2019).

Based on bivariate analysis between the level of knowledge about PCOS and lifestyle, it was found that there was a relationship between the level of knowledge about PCOS and the lifestyle of female students with a *P*-value = 0.019. Analysis from 196 respondents who have good knowledge found 91 respondents (52.9%) who have a lifestyle with a healthy category. When knowledge improved, lifestyle improved; a life-style based on knowledge and a positive attitude will serve a long time (Jelita et al., 2023). Factors that support respondents' knowledge in this study are good because most respondents have received information about PCOS, as many as 106 respondents. A person's knowledge will increase with the acquisition of certain information, so that there will be an increase in knowledge which will result in an increase in the degree of health in a person based on individual awareness and willingness to prevent disease (Manurung, 2018).

This study also found that there were still female students with good knowledge, but from the results of measuring their lifestyle they were found to be in the unhealthy category, as many as 81 respondents (47.1%). This is probably because knowledge alone does not have as much of an impact on female students' behaviour as other factors do. It is believed that one of the primary variables in this field is the attitude that society has towards the awareness of a healthy lifestyle. The social component plays a huge role in the formation of person and consciousness. If the environment surrounding the student is based on the values of health, the formation of a healthy lifestyle consciousness in it is much easier and more effective, and, if not, then the result will be corresponding (Mamurov et al., 2020). Previous study stated that knowledge can, however, influence health-related behaviours when mediated by attitudes, belief, self-efficacy and an effective call to action (Green & Kreuter, 1993). Assessment of these variables related to the students' lifestyle behaviours warrant further attention. Another factor is that a healthy lifestyle is usually overlooked in spite of the responsibilities of student life.

The current study has several limitations. The fact that this study was only carried out at one university is one of its disadvantages. This could restrict how broadly the results can be used in different academic settings. It is recommended to conduct future research with larger sample and to include multiple universities to enhance the generalisability of the findings to the entire population.

# CONCLUSION

The lifestyle profile is influenced by level of knowledge. The present study provides information that almost a half of the respondents had a good knowledge about PCOS and a half of respondents had an unhealthy lifestyle. The findings suggest that students will be able to adopt healthy lifestyle, thus avoiding of PCOS. Furthermore, other variables related to lifestyle such as attitudes, beliefs or self-efficacy need to be assessed further.

## *Declaration of Interest*

The authors declare no conflicts of interest.


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## *Data Availability*

*The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.*

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