

# Knowledge of General Practitioners about Polycystic Ovarian Syndrome at the Primary Health Care in Surabaya, Indonesia

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## Abstract

**Introduction:** Early detection to diagnose PCOS as a promotive and preventive effort is needed in PHC.

**Method:** By using a descriptive research design that was conducted on one of the general practitioners in the Maternal and Child Health Polyclinic (MCH) in 30 PHC was targeted by PCOS from August - October 2019.

**Result:** Thirty general practitioners participated in filling out the questionnaire. Obtained results based on risk factors divided into three categories 33.33% good, 50% sufficient and 16.67% deficient, for causes 6.67% good, 40% sufficient and 53.33% deficient and clinical symptoms 6.67% good%, 40% sufficient and 53.33% deficient.

**Conclusion:** General practitioners at the PHC had a sufficient level of knowledge for risk factors categorized, causes were lacking and symptoms of clinics were lacking. This was an important finding so that it was necessary to increase the specific knowledge of PCOS for the main steps of early detection in PHC.

**Keywords:** Knowledge of general practitioners, PCOS, Primary Health Care.

## Pengetahuan Dokter Umum tentang Sindroma Ovarium Polikistik di Puskesmas Surabaya, Indonesia

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### Abstrak

**Pendahuluan:** Pendeteksian dini untuk mendiagnosis SOPK sebagai upaya promotif dan preventif diperlukan pada pelayanan kesehatan primer.

**Metode:** Dengan menggunakan desain penelitian deskriptif yang dilakukan pada salah satu dokter umum yang terdapat di poli Kesehatan Ibu dan Anak (KIA) di 30 puskesmas menjadi sasaran kuisioner dari SOPK dari Agustus – Oktober 2019.

**Hasil:** Tiga puluh dokter umum berpartisipasi dalam mengisi kuisioner. Didapatkan hasil berdasarkan faktor risiko yang dibagi menjadi tiga kategori tersebut didapatkan 33,33% baik, 50% cukup dan 16,67% kurang, untuk penyebab 6,67% baik, 40% cukup dan 53,33% kurang serta gejala klinis 6,67% baik, 40% cukup dan 53,33% kurang.

**Kesimpulan:** Dokter umum di Puskesmas memiliki tingkat pengetahuan untuk faktor risiko dikategorikan cukup, penyebab kurang dan gejala klinik kurang. Ini merupakan temuan penting sehingga perlunya peningkatan pengetahuan khusus SOPK untuk langkah utama pendeteksian dini di pelayanan kesehatan primer.

**Kata kunci:** Pengetahuan dokter umum, SOPK, Puskesmas

## Introduction

Polycystic Ovary Syndrome (PCOS) in women was one of the most common endocrine disorders. The prevalence of PCOS in the world ranged from 5-10% in women of reproductive age in the southwestern United States found 4% and in India ranged up to 9.13%. According to the National Institute of Health (NIH), the prevalence of PCOS increased from 6.5% to 6.8%.<sup>1</sup> In 5-10% women of reproductive age had complete symptoms. In Indonesia in 2000, 7.419.468 women were found to have PCOS.<sup>2</sup> At present, 4-6% of reproductive women with PCOS and the population of infertility women with anovulation cause were 75%, caused by PCOS based on the PCOS criteria. Surabaya City was one of the cities with a prevalence of reproductive age and suffered from PCOS at 4.5% and this number continued to increase by 8-10%.<sup>3</sup>

The prevalence of PCOS by NIH criteria showed that the effect of PCOS in women at 4-8% at reproductive age was generalized endrokrinopathy. Estimation of prevalence using Rotterdam criteria showed two or three

times greater, namely 14-19%.<sup>4</sup> In addition to the increasing prevalence of PCOS, general practitioners in PHC as medical personnel were at the forefront in dealing with health problems in the community. PHC was a center located at the first level.

Often in medical practice, a person suffering from PCOS came to the hospital in a late phase because they did not consider PCOS as an illness so that promotive and preventive steps were needed as a first step in handling health, especially PCOS. Based on the explanation above promotive and preventive efforts were needed especially in primary health services such as health centers. Judging from the increasing prevalence of PCOS cases and the role of general practitioners in PHC as the front line.

This provided information that it was important to conduct early detection in order to determine the diagnosis of PCOS in the forefront. This study aimed to assess the knowledge of general practitioners in PHC in Surabaya about PCOS regarding causes, risk factors and clinical symptoms that arise. The results of this study were expected to provide

benefits to supplement knowledge, insights and awareness not only for general practitioners but other medical personnel as well as the Indonesian public about the importance of health related to PCOS.

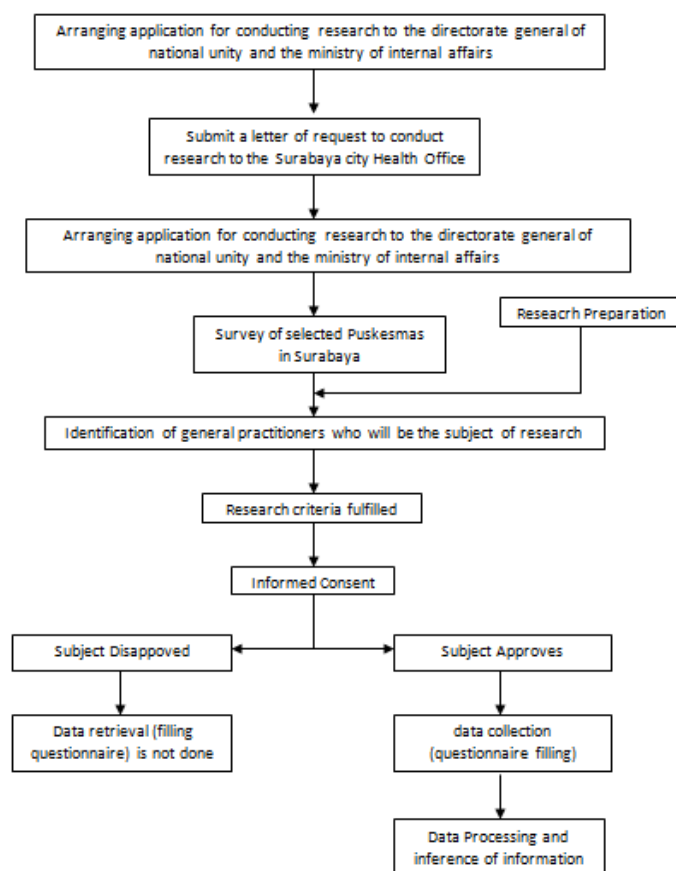
**Method**

This study used descriptive research design using primary data in the form of questionnaire. The primary data source was obtained from a questionnaire distributed to one of the general practitioners from the selected PHC located in Surabaya, Indonesia. The subjects of the study were all general practitioners in the MCH Polyclinic from selected PHC located in Surabaya, Indonesia. Study subjects were one of the general practitioners at the 30 MCH polyclinics in Surabaya, Indonesia. The size of this subject was taken based on the inclusion and exclusion criteria determined by the researcher.<sup>5</sup> The method used for sampling was simple random sampling. By using the lottery method written on a list of all members of the population. After registration, the population members were given a number in a small piece of paper that it has been rolled up. Then, it was stirred evenly and taken randomly until a number of samples were needed. The inclusion criterion for this study was that one of the general practitioners present at the MCH polyclinic from a selected PHC in Surabaya who was working or resting during a visit and agreed to take data.

The variable in this study was the knowledge of one of the general practitioners from selected PHC in Surabaya, Indonesia based on the causes, risk factors and clinical symptoms that appeared in PCOS patients. Data processed and analyzed using descriptive statistics would display the percentage. Data processing included 1) Editing by checking the completeness, clarity and continuity of data 2) Coding by scoring data 3) Entry by entering data in a computer program for analysis. Data on the causes, risk factors and clinical symptoms that arose in patients with PCOS using this level of knowledge questionnaire there were 18 questions and the formula used was the percentage = number of correct questions: total number of questions x 100%.<sup>6</sup> Category level of knowledge of a person into three levels a) Good if the value was ≥ 76-100%, b) sufficient if the value was 56-75%, c) deficient if the value was ≤ 55%.

This study was approved by the Health Research Ethics Committee of the Faculty of

Medicine, Airlangga University with reference number 204 / EC / KEPK / FKUA / 2019, Surabaya City Health Office with reference number 072 / 20593 / 436.7.2 / 2019 and the National Unity, Politics and Community Protection Agency with a reference number 070 / 7700 / 436.8.5 / 2019. Before collecting data, the sample was informed by the researcher of approval for data collection. Subject rights were guaranteed by using an informed consent sheet signed by the research subject.



**Diagram 1. Research Procedure**

**Result**

**Characteristics of Participants**

The research subjects taken for this study were one of the general practitioners found in MCH polyclinics in 30 PHC in Surabaya City conducted during August to October 2019. From the two months of research it was found that there were 30 general practitioners who had handled MCH cases in 30 PHC in Surabaya city. From the 30 general practitioners, all included in the inclusion criteria and the data obtained can be used for analysis.

**Table 1. The Characteristics of the Participants**

Variables	N	%
<b>Age</b>		
< 40	15	50
40 - 60	15	50
<b>Gender</b>		
Men	4	13,3
Women	26	86,7
<b>Origin of Medical Education Institutions</b>		
State university	18	60
Private university	12	40
<b>Long Working as a Doctor</b>		
< 11 years	13	43,3
≥ 11 years	17	56,7
<b>Duration of Work at the Primary Health Care</b>		
< 9 years	16	53,3
≥ 9 years	14	46,7

**Level of General Practitioner Knowledge Regarding Polycystic Ovary Syndrome**

There were 30 respondents who studied the level of knowledge about PCOS and obtained results based on risk factors divided into three categories obtained 10 respondents (33.33%) could answer well, 15 respondents (50%) sufficient categories and 5 respondents (16, 67%) included in the deficient category. For causes divided into three categories, there were 2 respondents (6.67%) with good grades,

**Table 2. Level of General Practitioner Knowledge regarding Polycystic Ovary Syndrome**

Variabel	Category	Total Responden	
		(n)	(%)
<b>Risk Factor</b>	Good (≥ 76-100 %)	10	33,33
	Sufficient(56-75 %)	15	50
	Deficient (≤ 55 %)	5	16,67
<b>Cause</b>	Good (≥ 76-100 %)	2	6,67
	Sufficient (56-75 %)	12	40
	Deficient (≤ 55 %)	16	53,33
<b>Clinical</b>	Good (≥ 76-100 %)	2	6,67
<b>Symptoms</b>	Sufficient (56-75 %)	12	40
	Deficient (≤ 55 %)	16	53,33

there were 12 respondents (40%) included in the sufficient category and there were 16 respondents (53.33%) who were included in the deficient category. Finally, clinical symptoms were divided into three categories, found 2 respondents (6.67%) with good grades, there were 12 respondents (40%) included in the sufficient category and there were 16 respondents (53.33%) who were included in the deficient category.

**Discussions**

Syndrome was a collection of signs or symptoms that appear together and as a sign of abnormalities and form an identifiable pattern.<sup>7</sup> PCOS was a hyperandrogen disorder associated with chronic ovarian dysfunction and morphological disorders such as polycystic ovaries, often associated with metabolic disorders, especially insulin resistance and hyperinsulinemia compensation as the main factors responsible for the production and altered metabolism of androgens.<sup>8</sup> PCOS could be characterized by hyperandrogenism, ovulation dysfunction and polycystic ovary morphological features. The National Institutes of Health diagnostic criteria defined PCOS as hyperandrogenism plus ovulation dysfunction.

Classic PCOS affects 6 to 10% of women of reproductive age. Manifestations of androgen excess such as hirsutism (there were female coarse hair growth that follows the pattern of coarse hair growth in men) could cause substantial pressure on a person. PCOS was the most common cause of anovulation infertility. Other complex disorders that contribute, such as obesity.<sup>9</sup> Hyperandrogenism was related to hyperinsulinemia. Insulin as a gonadotropin hormone could increase LH activity through stimulation of ovarian receptors and in the presence of factors that resemble insulin indirectly could also increase serum LH. Starting with the cross reaction of insulin with IGF-I receptors in ovarian cells, these receptors worked in increasing the response of theca androgen cells to LH. Activation of the IGF-I receptor causes increased androgen production in cells because the affinity of insulin in binding to the IGF-I receptor was used to increase insulin concentration.<sup>10</sup> Insulin could also increase ovarian steroidogenesis and stimulated activity in the ovarian and adrenal glands. Conversion of testosterone to reduced estrogen could cause a collection of circulating androgens that continued to increase. In addition, theca cells which continued to show a significant increase in enzymatic activity

also played a role in causing hyperandrogenism.<sup>11</sup> Cyst formation was caused by high FSH which stimulated the emergence of new follicular waves from a selected dominant follicle when deviations occurred through positive feedback from estradiol which stimulated GnRH and LH and supported the formation and development of dominant follicles.<sup>12</sup> Oligo- or anovulation occurred because of an increase in persistent LH levels and apparent capture at the stage of development of the antral follicle (approximately 5-10 mm) and resulted in the failure of the follicle to enter the preovulation cycle phase. In addition, the achievement of inadequate estrogen levels could also inhibit ovulation through a disruption of the mechanism that caused an increase in LH so that to achieve appropriate changes in the cycle, estradiol levels had to rise and fall appropriately.<sup>13</sup> PCOS was a heterogeneous condition with various signs and symptoms that vary based on the reproductive phase or the age of the individual. Symptoms started from mild to severe.<sup>14</sup> Collection of clinical symptoms found in PCOS was known as Stein Leventhal Syndrome. These symptoms include oligomenorrhea/amenorrhea was the occurrence of abnormal uterine bleeding, ovulation disorders characterized by infertility and menstrual disorders, hirsutism which was defined as coarse hair growth in women in male patterns such as in the upper lip, chin, chest, upper abdomen and upper abdomen back. In addition, there were also acne or pimples associated with hyperandrogenism.<sup>15</sup> According to the Rotterdam 2003 criteria which could be used as PCOS, they were oligo- or anovulation, clinical and biochemical markers of polycystic hyperandrogenism and ovaries.<sup>16</sup>

Surabaya City was one of the cities with a prevalence of reproductive age and suffered from PCOS at 4.5% and this number continued to increase by 8-10%.<sup>3</sup> Related to PCOS problems that had an increasing prevalence, general practitioners in PHC as medical personnel who were at the forefront in dealing with public health problems and also were a PHC center located at the first level. Often in medical practice, a person suffering from PCOS came to the hospital in a late phase because they did not consider PCOS as a disease so that promotive and preventive steps were needed as a first step in handling health, especially PCOS.

Through this study also found as many as 2 people have the highest score with 16 correct points, or with a value of 89 (6.7%) and as many as 2 people had 5 correct points,

or with a value of 28 (6.7%). Based on the question elaboration category there were three categories of questions contained in the questionnaire namely risk factors, causes and clinical symptoms. The results of the study were obtained from the three categories, namely for a matter of risk factors consisting of 10 questions and given a code for questions FR (risk factor) with each question answered by 30 respondents and the distribution of values based on risk factors divided into three categories obtained 10 respondents could answer with a good value  $\geq 76-100\%$ , 15 respondents with a value of 56-75% and 5 respondents who fell into the category of deficient with a value of  $\leq 55\%$ . The problem consists of 3 questions with a question code P (cause) with each question answered by 30 respondents and obtained the results of the distribution of values about the causes divided into three categories obtained 2 respondents could answer well the value  $\geq 76-100\%$ , 12 respondents sufficient with a value of 56-75% and 16 respondents included in the category of deficient with a value of  $\leq 55\%$ . For the final question, namely the category of clinical symptom questions consisting of 5 questions with a code G (clinical symptoms) obtained value distribution was divided into three categories and obtained 2 respondents could answer well the value  $\geq 76-100\%$ , 12 respondents with a value of 56-75% and 16 respondents included in the category of deficient with a value  $\leq 55\%$ .

Researchers conducted interviews before or after filling in the questionnaire answers with the medical and paramedical staff at the study site. Cases from PCOS usually had symptoms that were not visible making it very difficult to diagnose and for a referral system to hospitals or advanced health facilities, it was also very difficult if there was no specific diagnosis. From the explanation above, it could be seen that rarely the exposure to PCOS cases of human memory would increasingly wear out. If it was never repeated again, it could lead to forgetting someone. This was in line with the theory of decay.<sup>17</sup> There were also various other factors that could affect one's knowledge such as comprehension, intelligence, motivation, memory and so on.<sup>18</sup> The researcher gave 18 questions in the questionnaire used. In this study, there were 3 questions in which more than 50% of respondents answered incorrectly. These questions were related to (1) "hypoandrogenism was one of the clinical symptoms found in people with PCOS", (2) "fat distribution in PCOS was associated with decreased androgen production"

and (3) "hyperinsulinemia, decreased androgen secretion and diabetes mellitus associated with fat distribution in PCOS." It could be seen from this question all related to hypoandrogenism or decreased androgen secretion which should be an incorrect statement in the questionnaire answers and for the correct discussion was hyperandrogenism which was one of the clinical manifestations of PCOS that could be seen visually in the form of acne.<sup>15</sup> There were 4 questions that could be answered correctly by respondents above 90% namely questions relating to (1) "risk factors for PCOS, one of which was genetic influence",<sup>4</sup> (2) "lifestyle related to a history of weight gain or obesity which could cause insulin resistance",<sup>4</sup> (3) "PCOS included resistance to the effects of insulin on target tissue glucose metabolism such as in muscles",<sup>19</sup> and (4) "android obesity was the result of fat deposits found in the abdominal wall and viscera mesenteric".<sup>3</sup> From the explanation above, it could be seen that there were many things that influence the learning process such as learning equipment, learning facilitators and teaching methods and learning curriculum.<sup>18</sup> In accordance with the ideal competence of a doctor in Indonesian primary care that has been set by the Indonesian Doctors Competency Standards. The importance ability of the doctor's understanding of the clinical scope. World Health Organization 2004 stated that health was a basic right of every human being. PHC involved essential care that had to be carried out practically, scientifically in order to be accepted by everyone. PHC was often the first contact and stepped in establishing sustainable and comprehensive health. Continuity of relationships and treatments centered on a person was comprehensively analyzed starting from needs such as clinical symptoms and risk factors found in the individual.<sup>20</sup>

Thus, various efforts were needed to improve the knowledge of general practitioners about PCOS, especially for all general practitioners in the city of Surabaya, Indonesia so that the implementation of health efforts was expected to produce results and could also run well. These efforts could be given in the form of delivering PCOS specific material in a seminar, the delivery or delivery of material through communication media could be in the form of posters or other graphic designs and so on.

## Conclusions

Based on the results of the study, it

could be concluded that the level of knowledge of general practitioners practicing at the PHC in Surabaya regarding risk factors for PCOS was included in the sufficient category and the causes for PCOS was included in the category of deficient as well as clinical symptoms for the occurrence of PCOS included in the category of deficient.

## Conflicts of Interest

The authors confirmed no conflict of interest.

## Acknowledgment

All authors have seen and approved the final manuscript. JE designed the outline concept of the research and wrote the initial draft. BS, B and S revised and expanded the manuscript.

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