



Original Research



## The Influence of Video-Based Health Education in Modifying Early Screening Efforts for Polycystic Ovary Syndrome (PCOS)

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### ARTICLE HISTORY

Received: 19 August 2022  
Revised: 12 September 2022  
Accepted: 16 October 2022

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### KEYWORD

Health Promotion; PCOS; Video-based learning



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### ABSTRACT

**Introduction:** Polycystic Ovary Syndrome (PCOS) is the most common causes of infertility in reproductive age women. The lack of knowledge about this disease causes PCOS is often late diagnosed. This study aims to determine the influence of health promotion in video-based learning form on young women's knowledge, attitudes and behaviors in early screening efforts for PCOS.

**Methods:** This is a pre-experimental study with one-group pretest-posttest design. The sample used was 261 female students in one of the senior high schools in Denpasar with a simple random sampling technique. The research instrument used is a questionnaire in which each variable, namely the knowledge, attitude, and the behavioral. The data was analyzed by using the Wilcoxon Rank Test.

**Results:** There was a significant change between the provision of health promotion in the form of video-based learning form on young women's knowledge, attitudes and behaviors related to the PCOS early screening in each variable, i.e. the knowledge variable p-value = 0.001, the attitude variable p-value <0.001, and the behavior variable p-value <0.001.

**Conclusion:** There was an influence of health promotion in video-based learning form on young women's knowledge, attitudes and behaviors related to the PCOS early screening.

### Cite this as:

Ariani NKS, Susanti NLPD, Parwati NWM, Haryati NPS (2022) The Influence of Health Promotion in Video-Based Learning in Early Screening Efforts for Polycystic Ovary Syndrome (PCOS). *Asian J Heal Res.* 1 (3): 24–30. doi: <https://doi.org/10.55561/ajhr.v1i3.54>

## INTRODUCTION

Polycystic Ovary Syndrome (PCOS) is a common health problem that is becoming more prevalent among adolescents and young women during their productive years. Unbalanced hormones cause menstrual irregularities, male-pattern hair growth, increased androgen production, and multiple abnormal cysts on the enlarged ovaries, thus being unable to produce normal eggs and can cause difficulties in getting pregnant [1]. According to the number of instances reported between 1990 and 2010, around 116 million women worldwide have PCOS. According to the National Institute of Health (NIH), the prevalence of PCOS increased from 6.5% to 6.8% and 5-10% in women of childbearing age who have complete symptoms. Up to 2016 in Indonesia, 7,419,468 women were diagnosed with PCOS. Currently, 4-6% of

productive women and 75% of the female population have infertility due to PCOS [2].

Polycystic Ovary Syndrome (PCOS) is often diagnosed after women are 20 – 30 years old [3]. This stem often from a lack of information, understanding and awareness to carry out reproductive health behaviors. Educating adolescent girls about PCOS helps them to acquire knowledge, attitudes and behaviors in an effort to detect and prevent PCOS, enabling them to take responsibility for their health, too. In Widyasari et al., 2019 study, stated that in Indonesia there is no specific educational instrument to reduce the risk of PCOS [4].

The etiology of PCOS is not known with certainty, but genetic, environmental and hormonal factors are known to be associated with PCOS [5,6]. High concentrations of estradiol have been found in adolescent girls with PCOS [7]. The diagnosis or

management of PCOS in adolescent girls is complicated because of the characteristics and developmental stages of adolescent girls that differ from adults. Treatment strategies in adolescent girls with PCOS should be based on lifestyle and/or diet modifications, use of hormonal therapy, and other strategies. Thus, a multidisciplinary approach is recommended [8,9]. Emerging research suggests that there are a variety of intrinsic factors that influence the management of PCOS, although this evidence is limited and currently inconsistent [10].

Through education, adolescents can gain knowledge about the disease and the available treatment options. They will also feel empowered to make informed health care decisions to protect themselves. Video-based learning is one method that has become a trend in e-learning for a decade. Because the human brain is wired to track and be attracted to movement, videos can make things more interesting than presenting text. Video-based learning works with handling data quicker, holding information and recalling that it precisely [11].

Regarding the background above, the author was interested in conducting study by differentiating the results of the presentation on young women's knowledge, attitudes and behavior before and after health promotion program in PCOS early screening. These findings can be used as a reference in making health education programs, especially in the field of midwife in order to increase the level of knowledge about PCOS in adolescent girls.

## MATERIAL AND METHODS

This study uses a seven minute original PCOS educational video containing material on definitions, causes, risk factors, clinical symptoms, especially related to PCOS screening. Before the educational video was applied to the research sample, a validity test was conducted on the promotion model involving several validators who have expertise in reproductive health, health promotion, information technology, and language. The approach method of this study was a one-group pretest-posttest design. The approach used one study sample group, but two measurements were carried out before and after the intervention [12].

This study was conducted at Senior High School in Denpasar within the data collection started in February 2022 with a population of 752 female students.

The sampling technique i.e simple random sampling using the Slovin formula so that a sample of 261 respondents is obtained. The questionnaire in this study was adopted and carried out from previous research [13]. The questionnaire was tested to obtain valid data from the validity test. In the respondent's knowledge level questionnaire, 10 statements are given which can be answered with the following responses: true and false answers. In the attitude questionnaire respondents were

given 10 statements that could be answered with the following responses: Agree, Doubtful and Disagree. In the behavioral questionnaire respondents were given 10 questions which could be answered with the following responses: Always, Sometimes and Never.

The results of the questionnaire are given a score good if the score: 76%-100%, sufficient if the score: 56%-75% and less if the score: <56%. Data collection was carried out by researchers creating whatsapp groups consisting of researchers, students and homeroom teachers. Filling out the questionnaire was done independently by the respondent without the intervention of others and the procedure for giving the intervention required students to watch one health promotion video that had been provided by the researcher for a duration of 7 minutes to avoid misunderstandings related to the material provided.

The behavioral questionnaire respondents were given 10 questions which could be answered with the following responses: Always, Sometimes and Never. The results of the questionnaire are given a score good if the score: 76%-100%, sufficient if the score: 56%-75% and less if the score: <56%. Data collection was carried out by researchers creating whatsapp groups consisting of researchers, students and homeroom teachers. Filling out the questionnaire was done independently by the respondent without the intervention of others and the procedure for giving the intervention required students to watch one health promotion video that had been provided by the researcher for a duration of 7 minutes to avoid misunderstandings related to the material provided.

Previously, the validity of the questionnaire has been tested and has obtained an ethics permit from the Bali ITEKES Ethics Commission with letter number 03.0014/KEPITEKES-BALI/II/2022 on February 8, 2022. Before the respondent fills out the questionnaire related to the variables of knowledge, attitude and behavior, the respondent is required to fill out a question regarding the respondent's characteristics which contains information related to PCOS and menstruation.

## RESULTS

### 1. Characteristics of Respondents

Table 1 presented the sources of information related to PCOS and menstruation obtained by the respondents. Based on the sources of information obtained regarding PCOS, most of the respondents have received information related to PCOS. Most of the information obtained from the internet/social media was 117 respondents (44.8%) out of 261 respondents. The age of menarche in most respondents occurred at the age of i.e. 13-15 years as much as 52.5% of 100% of respondents. Most of the respondents experienced irregular menstrual

**Table 1.** Frequency Distribution of Information Sources Related to PCOS and Female Adolescent's Menstruation in PCOS Early Screening Efforts (n=261)

Data Source	Frequency (n)	Percentage (%)
<b>Receive Information</b>		
Yes	147	56.3
No	114	43.7
<b>Where To Get Information</b>		
Book	9	3.4
Parents/Family	99	37.9
Internet/Social Media	117	44.8
Friend	23	8.8
Others	13	5.0
<b>Menarche Age</b>		
<10 Years	2	0.8
10-12 Years	111	42.5
13-15 Years	137	52.5
>15 Years	11	4.2
<b>Regular Menstrual Cycle</b>		
Yes	58	22.2
No	203	77.8
<b>Cramps During Menstruation</b>		
Yes	101	38.7
No	160	61.3

cycles as many as 203 respondents (77.8%) of 261 respondents. And those who experienced cramps during menstruation were 38.7% of 100% of the respondents.

## 2. Knowledge, Attitudes and Behavior of Adolescent Girls: Health Promotion through Polycystic Ovary Syndrome (PCOS) Early Screening Educational Video

This study assumes that health promotion such as the use of PCOS educational videos can improve the knowledge, attitudes and behavior of adolescent girls compared to before being given the intervention. Prior to the intervention, respondents were asked to fill out a questionnaire (pretest) followed by providing PCOS education via video as described in the method. After the video ends, the respondent is asked to return to fill out the questionnaire (posttest). The results of the Wilcoxon Signed Rank Test prove that there is a difference in the results of the pre-posttest for each variable, which is indicated by the p value < 0.05 (Table 2). The mean score of knowledge, attitude and behavior showed an increase in the posttest, thus indicating the effect of providing health promotion through PCOS educational videos.

To determine the success of health promotion carried out by researchers, it is necessary to calculate the percentage of success using the formula:

$$\text{Percentage of success} = \frac{\text{Difference in mean pretest - posttest}}{\text{Mean pretest}} \times 100\%$$

The percentage of success in health promotion for each indicator is shown in Table 3. Although statistically there is a difference between the pretest and posttest scores, the percentage of success is still low.

## DISCUSSION

### Adolescent Girl's Knowledge before Video Showing in PCOS Early Screening Efforts

Based on the information obtained by the writer related to health problems, especially PCOS from schools, it was revealed that so far, the school has only provided general health education that is included in biology subjects so no specific explanation is given regarding what can be done in an early PCOS screening effort, but with the activeness of female students so that they can find information on their own about health problems in their environment.

Based on the writer assumptions, age is one of the factors that influence the capture of information which in turn affects the increase of one's knowledge, including knowledge about PCOS early screening. In this study, most of the respondents aged 16 years amounted to 33.7%. Which at the age of 15-18 years, adolescents are very productive in finding information about health problems in their environment. Although the study by Kamboj shows the percentage of adolescent girls who are aware of PCOS is more than those who are not aware but the level of knowledge about the causes, signs

**Table 2.** Wilcoxon Signed Rank Test Results on Knowledge, Attitudes and Behavior (n=261)

Variable	Data	Mean	Std. deviation	Z	p value
Knowledge	Pretest	16.63	1.681	-3.209	0.001
	Posttest	16.77	1.627		
Attitude	Pretest	23.38	2.576	-3.541	0.000
	Posttest	23.66	2.678		
Behavior	Pretest	20.73	3.158	-4.476	0.000
	Posttest	21.37	3.454		

**Table 3.** Health Promotion Success Rate based on Pretest and Posttest Mean

Indicator	Difference in Mean Pretest - Posttest	Percentage (%)
Knowledge	0.14	0.84
Attitude	0.28	1.20
Behavior	0.64	3.08

and PCOS symptoms are not enough so it is necessary to increase knowledge about PCOS [14].

This assumption was supported by the study of reasoned that there was a statistically significant relationship between the time of understudies and the degree of information in the pre-test [1]. In addition, another supporting study conducted on young women in Cengklik RW 19 Nusukan Banjarsari Surakarta in May 2017, stated that there was a significant relationship between age and knowledge of young women regarding Breast Self-Examination (BSE) in Cengklik RW 19 Nusukan Banjarsari Surakarta [15].

#### Adolescent Girl's Attitudes before Video Showing in PCOS Early Screening Efforts

Based on the author's assumptions, it can be said that the young women's attitude is influenced by various factors, including age and sources of information that are closely related to the level of knowledge of these adolescents. Most of the respondents get their information from the internet/social media. Thus, it can be concluded that adolescents who are knowledgeable about PCOS will tend to have good attitudes to conduct the early screening for PCOS.

This assumption was in accordance with the results of study conducted at SMA Negeri 1 Manado, those adolescents have good knowledge because from the 10th grade, they have received sexual education in school even though it was not in one special curriculum but through the biology subject [16]. In addition, another supporting study said a teenager who has a good level of knowledge will tend to have a positive attitude in experiencing physical changes in themselves [17]. The better a person's knowledge of the physical changes of puberty, the more positive attitude of that person in

dealing with the various physical changes that occur to them.

#### Adolescent Girl's Behavior before Video Showing in PCOS Early Screening Efforts

In this study, good knowledge and good attitude do not guarantee someone has good behavior. This is in accordance with the theory of behavior formation which is motivated by a stimulus. The stimulus produces a response that arises from within the individual as an inner drive. Knowledge and attitudes are one of the stimuli in the formation of these behaviors.

The results of this study are not in line with research which says that knowledge determines each individual so that it greatly affects behavior and habits in daily life and will increase public awareness [18]. Because the higher a person's level of knowledge, the easier it is to determine what to do or choose in their life.

#### Adolescent Girl's Knowledge after Video Showing in PCOS Early Screening Efforts

Based on the author's assumptions, the increase in scores before and after the intervention was given in video-based learning form because learning media plays an important role in the intelligence of students. Utilization of technology that develops without creating obstacles in the learning process, free access to video-based learning, and easy to be arranged according to the needs of learning make the female students can find out and learn about various diseases easily, especially in the implementation of PCOS early screening.

The assumption was in accordance with the study which stated that the benefits of video as a learning media in the 4.0 era are very large, such as in learning foreign languages which are popular by the community



as an important communication tool, then the video can be used as a media of communication on learning the language [19]. The same thing as described in the study regarding the selection of the right health promotion method is needed to increase knowledge of reproductive health, especially in adolescents [20]. Reproductive health needs to be given to adolescents so that they have the right knowledge and information they are expected to have responsible attitudes and behavior.

### **Adolescent Girl's Attitudes after Video Showing in PCOS Early Screening Efforts**

Based on the writer's assumptions, the selection of health promotion media in video-based learning form was the right alternative in increasing the value of young women's attitudes regarding the PCOS early screening. The number of physical changes that occur in adolescent girls will be accompanied by a good level of their knowledge. This media can affect the stability of attitudes and open up opportunities for the attitude change they want, according to their characteristics.

This assumption was in accordance with the study who stated that in the process of changing attitudes, communication aspects play an important role in the process of delivering messages [21]. Communication using video will convey the messages in the form of symbols that are meaningful as a guide for thoughts and feelings of ideas, information and beliefs, hopes and appeals. The utilization of video intends to change mentalities, perspectives and conduct with the goal that it can build the information and perspectives of young people about the effect of early sexual way of behaving contrasted with utilizing the talk technique. Similar as mentioned in the study which said that the adolescents are an assessment for themselves, when there is a physical change during puberty in them, they will show an attitude of acceptance or rejection of it [17]. The acceptance or rejection of the physical changes of puberty will be the basis for the formation of attitudes, both positive and negative attitudes.

### **Young Women's Behavior after Video Showing in PCOS Early Screening Efforts**

Based on the results of this study, the author assumed that most respondents still get a sufficient score because the trigger for good and persistent behavior is the laziness of oneself in carrying out activities outside of their daily. In which, adolescent girls especially high school students have many activities at schools such as assignments and many of them who prioritize studying to get the school or university they want. Previous studies have shown that providing education can improve PCOS prevention behavior in adolescent girls [22].

This is in accordance with study which stated that learning motivation is a driving force that exists and arises from students to learn or increase knowledge [15]. Motivation can be interpreted as an effort so that someone can complete their work with enthusiasm because there is a goal to be achieved. If the need to achieve a goal is felt very urgent, then at that time motivation will become active, so that the behavior in carrying out a healthy lifestyle is reduced. Syatiawati et al. argued that motivation is a boost or consolation or power generator possessed by an individual or gathering who believe should accomplish something and work together ideally in completing something wanted to accomplish the objectives set [20].

### **The Influence of Health Promotion Implementation in Video-Based Learning Form on Adolescent Girl.**

There was a significant influence between the provision of health promotion in video-based learning on young women's knowledge, attitudes and behavior related to PCOS early screening. This is in line with a study that have done which stated that health education is an intervention that seeks to make the behavior of individuals, groups or communities have a positive influence on improving health [23]. Education can reinforce information about lifestyle modification and ongoing adherence that can help with PCOS treatment [24]. Audio-visual media is a media for delivering information that has audio (sound) and visual (image) characteristics. This type of media has better capabilities because it includes both of these characteristics. Audio-visual media is also able to improve individual abilities both in terms of cognitive, affective and motoric. The nature of messages that can be channelled through this media can be in the form of verbal messages and nonverbal messages. One kind of audio-visual media is video.

There is an opportunity to raise awareness of women and health professionals to improve the timely diagnosis of PCOS. Currently, information needs are not met by existing educational resources, and there is a lack of awareness, accessibility, and resource suitability [25]. Based on the information obtained related to health problems, especially PCOS from the study site, it was revealed that so far, the school has only provided general health education that is included in biology subjects so no specific explanation is given regarding what can be done in an effort to early screen PCOS. However, with the activeness of female students, they can find information on their own about health problems in their environment. The provision of health education in schools is often given using the lecture method and rarely uses the audio-visual method of providing education.

## CONCLUSION

There was an influence of health promotion in the form of video-based learning on young women's knowledge, attitudes and behaviors related to PCOS early screening. This study has limitation: (1) not exploring the medical condition of the respondents, hence in its implementation there were 2 respondents, who experienced manarce at the age of less than 10 years and researchers do not know the cause; (2) The posttest was carried out right after the education was given so that it had not been able to be optimal in increasing knowledge, attitudes, and behavior. Therefore, the writer suggests for further study should be carried out on the same problem but with different variables, such as emphasizing the factors that cause young women's behavior are still lacking in PCOS early screening.

## ACKNOWLEDGMENT

We want to express our gratitude to everyone who contributed to this research and assisted with data collection.

## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest in this study.

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