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Assess the effectiveness of video assisted teaching on knowledge regarding polycystic ovarian syndrome among female computer engineering students

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Abstract
Gynecological problems of adolescents occupy a special in the spectrum of gynecological disorders of all ages. Although PCOS is a common disorder, the diagnosis may be overlooked during adolescence, as irregular menses with anovulatory cycles, obesity and acne are frequent in adolescent women. The incidence of PCOS among adolescents is estimated to be between 11 and 26% and about 50% are overweight. A study was conducted to determine the effectiveness of video assisted teaching on knowledge regarding polycystic ovarian syndrome among female computer engineering students at selected colleges of metropolitan city. The Objectives were to determine the effectiveness of Video Assisted Teaching Programme on knowledge regrading students to associate the demographic variables with level of knowledge regarding polycystic ovarian syndrome among female computer engineering students. The video assisted teaching program on knowledge regarding polycystic ovarian syndrome was given by the investigator to the study participants, pre and post test was done by using structured multiple-choice questionnaire. Data analysis done by using descriptive statistics i.e. frequency, percentage and central tendency and inferential statistics i.e. Non-Parametric test and chi-square test. The result revealed that there was a statistically significant difference between pre and post-test knowledge regarding polycystic ovarian syndrome among young women at level $p<0.001$. This study implied that creating awareness on PCOS will prevent the occurrence of PCOS among female computer engineering students.
Method: A quantitative approach of pre-experimental research design with one group pre and post-test design was chosen for this study. A total of 60 samples were recruited by using non-probability sampling technique.
Discussion: Here, it was found that the study participants in pre-test 54 (95%) was poor knowledge, 3 (5%) was good knowledge and in Post-test 60 (100%) had excellent knowledge.
Conclusion: The video assisted teaching was an effective tool to raise the knowledge of female engineering students regarding polycystic ovarian syndrome.

Keywords: Effectiveness, knowledge, polycystic ovarian syndrome, video assisted teaching and students

Introduction
Polycystic Ovarian syndrome is affecting as much as 20% of women between the ages of 18 and 44, polycystic ovarian syndrome is one of the leading causes of poor fertility, and while there currently no known cure, treatment can significantly reduce the risk of long-term complications such was type 2 diabetes, heart disease and endometrial disease. Polycystic ovarian syndrome is a serious genetic, hormone, metabolic and reproductive disorder that affects women. It is the leading infertility. Polycystic ovarian syndrome can lead to lifelong complications and other serious conditions including severe anxiety and depression. Obesity, endometrial cancer, type 2 diabetes, liver disease and cardiovascular disease. polycystic ovarian syndrome affects 1 in 10 women are 10-15% women estimated to have polycystic ovarian syndrome, 50% of women with polycystic ovarian syndrome going undiagnosed, 50% of women with polycystic ovarian syndrome who will develop type 2 diabetes or pre-diabetes before age 40, 13.8 billion of estimated annual cost to the American healthcare system to diagnose and treat women with polycystic ovarian syndrome.
Polycystic ovarian syndrome is a prevalent hormonal disorder among premenopausal women worldwide, with reproductive, endocrine, and metabolic abnormalities.

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The polycystic ovarian syndrome prevalence ranges from 2.2% to 26% globally and is highly variable. In China, the figures range between 2% to 7.5%, and 6.3% in Sri Lanka, 9.13% in in south India and 22.5% in Maharashtra. The rise in genetic and hormonal disorders globally is expected to increase the growth of the polycystic ovarian syndrome treatment market. Recent research has shown that childhood conditions such as low birth weight and premature adrenarche are risk factors for PCOS. The manifestations of PCOS begin to appear with the onset of puberty and may adversely affect body image and self-esteem. Early diagnosis and treatment can help control the physical manifestations during adolescence and decrease clinical sequelae in adulthood.

Need of the study
According to The Hindu Report, an estimated one in five (20%) Indian women suffer from polycystic ovarian syndrome. If not monitored in time, the condition can have serious health impacts. Gynaecologist Dr. Duru Shah who is also the founder of the polycystic ovarian syndrome society of India said PCOS not a disease, but a condition that can present itself in different ways. "While younger women may suffer from irregular periods, experience hirsutism and obesity, in the slightly older age group, it may lead to infertility, risk of miscarriages and more. Conceiving a bay can be difficult with PCOS," said Dr. Shah, adding that there is nearly a 40% chance that a female child may develop PCOS if the mother has it. Almost 80% of the PCOS patients are obese, said Dr. Shah, adding that urban Indian women may be at a higher risk due to their poor lifestyle, eating habits and lack of physical activity.

The World Health Organization estimates that it affects 116 million women Worldwide as of 2010 (3.4% of women). Another estimate indicates that 7% of women of reproductive age are affected. Another study using the Rotterdam criteria found that about 18% of women had polycystic ovarian syndrome, and that 70% of them were previously undiagnosed. Prevalence also varies across countries due to lack of large-scale scientific studies; India, for example, has a reported rate of 1 in 5 women suffering from polycystic ovarian syndrome.

Researcher felt to do this study because engineering students are less familiar to this topic compare to medical students as well as the research studies are very less on female computer engineering students and as they have more desk work which leads to obesity and have more chances of polycystic ovarian syndrome so the researcher thought to improve the knowledge of female computer engineering students by providing knowledge on polycystic ovarian syndrome through video assisted teaching.

Aim of the study
To increase the knowledge regarding polycystic ovarian syndrome among female computer engineering students that they can be aware and prevent the further complications related health.

Research methodology
60 female computer engineering students of metropolitan city were selected by using non-Probability convenient sampling technique method. The objective was to assess the effectiveness of video assisted teaching on knowledge regarding polycystic ovarian syndrome among female computer engineering students in selected colleges of metropolitan city.

Structured multiple-choice questionnaire was used in 2 sections
Data related to demographic variables such as Age, Types of family, Dietary Pattern, Sleeping pattern, Nature of menstruation, Age of menarche, Duration of Menstrual Cycle, Junk Food, Experience pain during menstruation and Intensity of pain during menstruation. It contains knowledge regarding PCOS such as Anatomy and physiology of Female ovary and fallopian tube, Definition, Risk factors & causes, signs and symptoms, Investigation, Management, Prevention and Complication.

In this study reliability was tested on 6 samples by test-retest method it was calculated by Cronbach's alpha using SPSS (Statistical Package of Social Sciences) software. A correlation coefficient of 0.9650 which shows excellent, was obtained indicating that the tool was reliable. A pilot study was conducted for one week on 6 Female computer engineering students. Consent was taken from them. Pre-test was completed on Knowledge regarding PCOS and Video assisted teaching done. On 7th day Post-test was given to compare the effectiveness of video assisted teaching. The researcher used semi structured questionnaire to assess knowledge regarding polycystic ovarian syndrome.

Result
The data has been tabulated and organized as follows
The section was deals with the analysis of the demographic data of the samples under study. It is analyzed and represented in the form of percentage table.
This section deals with assessment of pre-test and post-test knowledge of the female computer engineering students regarding polycystic ovarian syndrome in selected colleges of metropolitan city. It is presented in terms of frequency and percentage.
It is divided into:

Part I: Distribution of knowledge regarding polycystic ovarian syndrome among female computer engineering students regarding polycystic ovarian syndrome.

Part II: Domain wise distribution of Knowledge regarding polycystic ovarian syndrome among female computer Engineering students after video assisted teaching.

Part III: Comparison of pre and post-test knowledge regarding polycystic ovarian syndrome among female computer engineering students.

Part IV: Association of knowledge regarding polycystic ovarian syndrome among female computer Engineering students with Demographic Variables in Pre- test Study.

Table 1: Knowledge questionnaire

| Q.NO.	Questionnaires	Max. Score	Pre-Test		Post Test	
			N	%	N	%
Anatomy						
Q1	The shape of the normal ovary is	60	9	15.0	58	96.7
Q2	The female reproductive hormones are	60	7	11.7	58	96.7
Definition						
Q3	Polycystic ovarian syndrome is	60	10	16.7	59	98.3
Incidence						
Q4	The percentage of women affected by polycystic ovarian syndrome	60	8	13.3	57	95.0
Q5.	Common age group for polycystic ovarian syndrome is	60	6	10.0	55	91.7
Causes						
Q6	Causes of Polycystic ovarian syndrome are EXCEPT	60	9	15.0	55	91.7
Q7	Polycystic ovarian disease can cause	60	3	5.0	55	91.7
Q8	Hormone that is responsible to cause PCOS	60	6	10.0	52	86.7
Sign and Symptom						
Q9	The following are the common signs and symptoms of PCOS	60	12	20.0	57	95.0
Q10	Androgenic alopecia is	60	10	16.7	55	91.7
Q11	Hirsutism is	60	8	13.3	55	91.7
Q12	Menstrual problem in PCOS include	60	17	28.3	60	100.0
Investigation						
Q13	Confirmation of PCOS can be done by 'EXCEPT'	60	14	23.3	57	95.0
Q14	Blood test in PCOS is done to detect	60	13	21.7	55	91.7
Q15	In ultrasound ovaries look like	60	15	25.0	56	93.3
Management & Prevention						
Q16	Water requirement in PCOS is	60	12	20.0	58	96.7
Q17	Stress in women can be relieved by	60	7	11.7	59	98.3
Q18	The recommended food items for women are	60	10	16.7	57	95.0
Q19	High glycaemic diet includes	60	9	15.0	54	90.0
Q20	Lean protein contains	60	17	28.3	59	98.3
Q21	The food to avoid for PCOS women	60	26	43.3	57	95.0
Q22	High fibre is obtained from	60	16	26.7	57	95.0
Treatment						
Q23	Oral medications is the most common treatment in pcos which is used to	60	9	15.0	56	93.3
Q24	Anti-androgen drug is	60	18	30.0	54	90.0
Q25	Oral contraceptives are taken to maintain	60	18	30.0	55	91.7
Q26	Second line of treatment is	60	14	23.3	54	90.0
Q27	Removing part of the ovary is called	60	14	23.3	55	91.7
Complication						
Q28	High blood pressure leads to	60	16	26.7	57	95.0
Q29	Overweight can lead to	60	16	26.7	54	90.0
Q30	Complications of PCOS are 'EXCEPT'	60	15	25.0	55	91.7
Grand Total (Q1 – Q30)		1800	364	20.2	1685	93.6
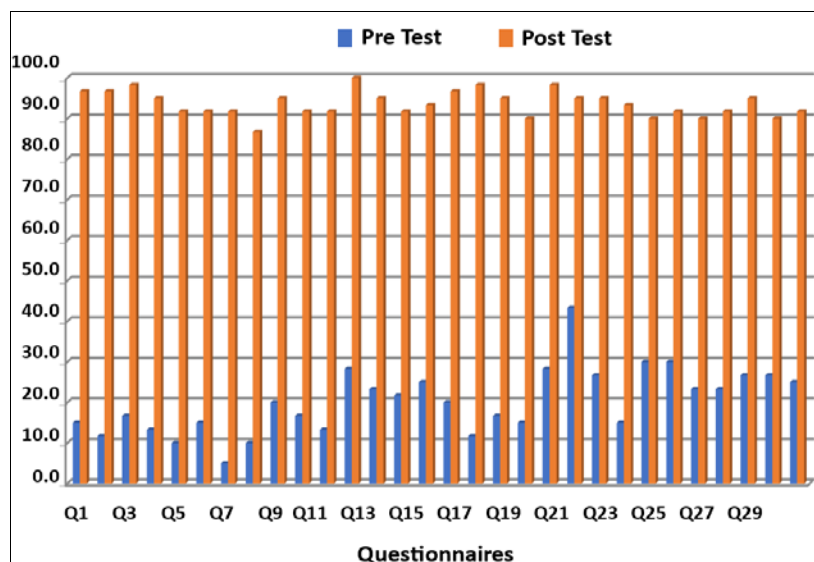
Fig 1: Knowledge regarding polycystic ovarian syndrome among female computer Engineering students after video assisted teaching.

Part II: Domain wise distribution of Knowledge regarding polycystic ovarian syndrome among female computer Engineering students after video assisted teaching.

According to domain wise from Q1 and Q2 (Anatomy) had score 16(13.3%) in pre-test and 116(96.7%) in post-test out of score 120. From Q3 (definition) had score 10(16.7%) in pre-test and 59(98.3%) in post-test out of score 60. From Q4 and Q5 (Incidence) had score 14(11.7%) in pre-test and 112(93.3%) in post-test out of score 120. From Q6 to Q8 (causes) had score 18(10.0%) in pre-test and 162(90%) in post-test out of score 180. From Q9 to Q12 (Sign and symptoms) had score 47(19.6%) in pre-test and 227(94.6%) in post-test out of score 240. From Q13 to Q15 (Investigation) had score 42 (23.3%) in pre-test and 168(93.3%) in post-test out of score 180. From Q16 to Q22 (Management and prevention) had score 97(23.1%) in pre-test and 401(95.5%) in post-test out of score 420.

From Q23 to Q27 (Treatment) had score 73(24.3%) in pre-test and 274(91.3%) in post-test out of score 300. From Q28 to Q30 (complication) had score 47(26.1%) in pre-test and 166(92.2%) in post-test out of score 180. Out of total score 1800 and pre-test score is 364 (20.2%) and post test score 1685 (93.6%).

Part III: Comparison of pre and post-test knowledge regarding polycystic ovarian syndrome among female computer engineering students.

Table 2: Domain wise distribution of Knowledge regarding polycystic ovarian syndrome among female computer Engineering students

Test Overall	N	Max Score	Mean	Stdev	Median	Wilcoxon Sign rank test	P-Value	Sig. at 5% level
Pre Test	60	30	6.0667	2.2912	5.50	6.752**	0.000	Yes
Post Test	60	30	28.0833	1.2795	28.00			
Domain wise								
Anatomy								
Pre Test	60	2	0.2667	0.5164	0.00	6.958**	0.000	Yes
Post Test	60	2	1.9333	0.3117	2.00			
Definition								
Pre Test	60	1	0.1667	0.3758	0.00	7.000**	0.000	Yes
Post Test	60	1	0.9833	0.1291	1.00			
Incidence								
Pre Test	60	2	0.2333	0.4265	0.00	6.964**	0.000	Yes
Post Test	60	2	1.8667	0.3428	2.00			
Causes								
Pre Test	60	3	0.3000	0.4975	0.00	6.854**	0.000	Yes
Post Test	60	3	2.7000	0.5304	3.00			
Sign and Symptom								
Pre Test	60	4	0.7833	0.9037	1.00	6.769**	0.000	Yes
Post Test	60	4	3.7833	0.4544	4.00			
Investigation								
Pre Test	60	3	0.7000	0.7433	1.00	6.687**	0.000	Yes
Post Test	60	3	2.8000	0.4034	3.00			
Management & Prevention								
Pre Test	60	7	1.6167	1.0430	1.00	6.806**	0.000	Yes
Post Test	60	7	6.6833	0.6241	7.00			
Treatment								
Pre Test	60	5	1.2167	1.2363	1.00	6.773**	0.000	Yes
Post Test	60	5	4.5667	0.6475	5.00			
Complication								
Pre Test	60	3	0.7833	1.0100	0.00	6.503**	0.000	Yes
Post Test	60	3	2.7667	0.5326	3.00			

*Statistically Significant at 5% level i.e., $p<0.05$

Table 3: Level of knowledge regarding polycystic ovarian syndrome among female computer Engineering students

Test	Level of Knowledge				Chi square test	P-Value	Sig. at 5% level
	Poor (0 – 10)	Good (11 – 20)	Excellent (21 – 30)	Total			
Pre Test (%)	57(95.0)	3(5.0)	0(0.0)	60			
Post Test (%)	0(0.0)	0(0.0)	60(100.0)	60	120.00**	0.000	Yes
Total	57	3	60	120			

**Statistically highly Significant at 0.1% level i.e. $p<0.001$.
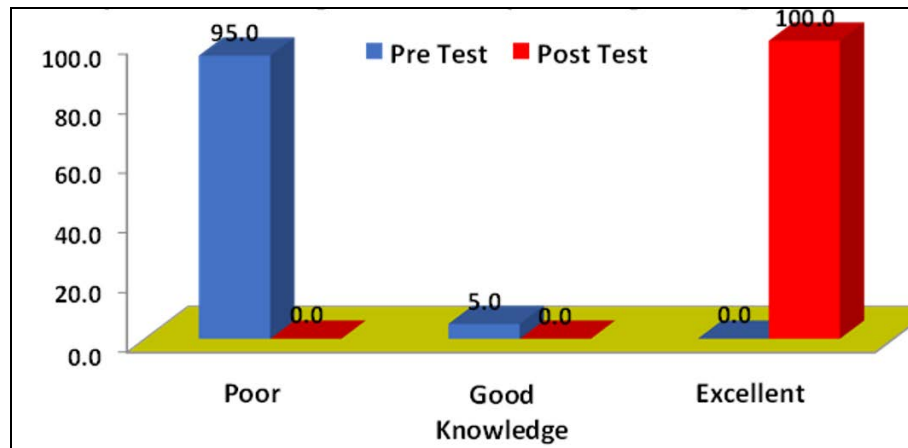
*Statistically Significant at 5% level i.e. *p*<0.05.

Fig 2: Level of knowledge regarding polycysctic ovarian syndrome among female computer Engineering students.

The knowledge has improved after distribution of video assisted teaching in post-test this suggested that video assisted teaching is an effective tool to delivered knowledge regarding polycystic ovarian syndrome. Thus, a null hypothesis(H_{01}) is rejected and research hypothesis(H_1) is accepted that there will be statistically significant difference between the pre-test and post-test knowledge regarding polycystic ovarian syndrome among computer female engineering students.

Association of pre-test knowledge regarding polycystic ovarian syndrome among female computer Engineering students with Demographic Variables.

Comparison between pre-test and post test
Evaluation of the effectiveness of video assisted teaching by comparing pre-test and post-test knowledge scores of samples analyzed in terms of Wilcoxon Signed-Rank Test using SPSS Statistics to find out the level of significance and proving of hypothesis.

There was an association between pre-test knowledge in the nature of menstruation regarding polycystic ovarian syndrome among female computer engineering students with selected demographic variables. Thus, the null hypothesis is rejected and the research hypothesis is accepted i.e.H_2.

Discussion
PCOS is a condition leading to enormous health problems and affects the reproductive health if it not treated well. Increase awareness of girls about PCOS can helps them to gain knowledge, early detect and prevent the PCOS. The aim of the present study was to assess the effectiveness of Video assisted teaching on level of knowledge regarding polycystic ovarian syndrome among female computer engineering students. The study was conducted by using pre-experimental one group pre-test post-test design. The total sample size was 60. This result is supported by, B. Tamilaasi, V Vathana, conducted a pre-experimental one group pre-test post design done in Chennai Tamil Nadu to assess the effectiveness of structured teaching programme on knowledge regarding polycystic ovarian syndrome among 30 adolescent girls. The study revealed that the mean level of knowledge was 11 with standard deviation of 3.549 in pre-test and 17.5 with standard deviation of 4.88 in post-test there was a statistically high significant difference with paired 't' value of 8.45. The study concluded that there was

an increase in the level of knowledge after providing teaching programme based on statistical findings.

The result is supported by Chitra Varghese conducted A Quasi-experimental study to evaluate the effectiveness of video assisted teaching on knowledge regarding polycystic ovarian syndrome, its early diagnosis and management among the nursing students of m.v.p. samaj's institute of nursing education, Nashik. Non probability Convenient sampling technique was used. Sample size was 100 nursing students. The study result shows mean post-test knowledge score ($x2=13.56$) was higher than mean pre-test knowledge score ($x2=8.08$) and thus calculated 't' value (11.78) is greater than the table value (1.66) at 0.5 level of significance. Thus, the study conducted that there was significant improvement in the knowledge of nursing students related to polycystic ovarian syndrome, its early diagnosis and management.

Conclusion
The knowledge of female computer engineering students regarding polycystic ovarian syndrome and preventive measures for reducing the development of polycystic ovarian syndrome was satisfactory. Based on various literature reviews, researcher decided to involve female computer engineering students in his/her study. There was need to improve the knowledge of these samples. Thus, researcher chose the video assisted teaching programme to educate them by using video. The video assisted teaching programme gave the comprehensible knowledge about polycystic ovarian syndrome. The post test scores of knowledges had improved after delivering video assisted teaching programme. Moreover, when association of demographic variables were done with pre-test knowledge reading polycystic ovarian syndrome. It gave the significant association with the nature of menstruation. All participants under study properly responded to semi-structured questionnaire in both pre-test and post test phase with attentive behaviors which was explicated by them while listening video of the researcher. Lastly, it gave good exposure to researcher to understand research methodology and transformed his/her into empirical entities by statistical analysis and interpretation.

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