
GYNAECOLOGY

Can Viewing a Video of Colposcopic Examination Improve Patient Knowledge and Satisfaction with the Procedure? A Prospective Randomized Controlled Trial

Sasiwan Suthasmalee, MD*,
Teera Siwadune, MD*.

Department of Obstetrics and Gynecology, Chonburi Hospital, Chonburi 20000, Thailand

ABSTRACT

Objective: To evaluate whether viewing a video of a colposcopic examination can improve patient knowledge of the procedures involved. The secondary objectives involved evaluations of satisfaction with the procedure and of follow-up data when comparing the study group and the control group.

Materials and Methods: In the prospective randomized controlled trial, 172 patients all referred for colposcopy for the first time were randomly split into two groups. Seven patients were excluded from further analyses, leaving 165 patients for evaluation. The control group (n=75) received the conventional information brochure, while the study group (n=90) also viewed the video. Each patient completed a questionnaire to evaluate patient knowledge and satisfaction both before and after treatment.

Results: Viewing a video of colposcopy treatment can improve patient health education of the procedure. The study group had higher significant difference post-colposcopy knowledge scores than the control group (17.28 and 16.22, $p < 0.05$). However, after colposcopy the patients showed in averagely high satisfaction scores (> 8) and high follow up rate ($> 87\%$), with no statistical significance in both groups.

Conclusion: Viewing a video before colposcopy treatment increased patient knowledge scores but failed to significantly increase satisfaction and follow-up data.

Keywords: Colposcopic examination, VDO-health education, patient knowledge, satisfaction

Introduction

Cervical carcinoma is one of the most common gynecologic cancers. The American Cancer Society reported that 12,360 new cases of invasive cervical cancer resulting in 4,020 deaths were diagnosed in 2014 in the United States⁽¹⁾. The Thailand National Cancer Institute reported 340 new cases of cervical

cancer in 2012. This is the second most common cancer in Thailand representing 14.39 percent of all cancers⁽²⁾.

Cervical carcinoma is a preventable disease. Human papilloma virus vaccination, early detection techniques and diagnostic procedures including Papanicolaou smear tests, colposcopy directed biopsy and excisional biopsy all assist in timely detection and

cure⁽³⁾.

Abnormal cervical cytology screening (Papanicolaou smear) is used for cervical investigation. Colposcopy examinations are performed on patients with abnormal cervical cytology. A previous study reported that a colposcopic examination induced increased stress and anxiety for the patients because of their limited understanding of the technique and results⁽⁴⁻⁶⁾. Increased information prior to treatment may assist in improving patient knowledge, relieve anxiety and improve overall satisfaction^(7, 8). Previous studies suggested that a visual information presentation was more effective than verbal or written text instructions in improving knowledge and reducing anxiety^(9,10). Can watching a colposcopy examination video prior to treatment improve patient knowledge of the procedures followed and also satisfaction of the results?

Objective

The primary objective was to evaluate whether viewing a video of a colposcopic examination can improve patient knowledge of the procedures involved. The secondary objectives involved evaluations of satisfaction with the procedure and of follow-up data when comparing the study group and the control group.

Materials and Methods

Study design

The study was conducted at the outpatient gynecologic department of Chonburi Hospital and designed to be a prospective randomized controlled study. The research was approved by The Institutional Review Board of the hospital. The waiting time for the colposcopic examination, after an abnormal smear test, was generally about one month.

Participants

Participants were randomly selected from appointment date into control and study groups. Systematic randomization was done by block-of-four technique by the researcher that divided participants into control and study groups. The colposcopic examination was performed by gynecologic staff, who were blinded to the study, at the outpatient department.

To reduce bias for satisfactory evaluation, this study design used the same environment, nurses and operators. Patients had to be literate in Thai and aged between 18 and 60 years; this was also their first colposcopy examination. Exclusion criteria were previous experience of the examination, Thai language illiteracy and mental retardation.

Procedure

On the day of the examination both groups were given a two part questionnaire. Part 1 required baseline characteristics such as age, education, occupation and income. Part 2 asked questions about knowledge of the colposcopic examination, patient understanding of the reason for the procedure and the preparation required beforehand. For example:

- Is a colposcopic examination a procedure that visualizes cervical lesions by magnification?
- Is the most suitable time for colposcopy during days 10-21 of menstruation?

Questions also covered the description procedure, post colposcopy management, importance of the appointment and satisfaction. For example:

- Is a directed biopsy of lesions suggestive of preinvasive or invasive disease done by a colposcopist?
- After the examination, can you undertake heavy exercise or sexual intercourse?
- Do you need to follow up the results of pathology?

The questionnaire was approved as valid by three gynecological experts. The reliability was assessed by the Test-Retest method that recruited 10 patients to complete the questionnaires at 2 week intervals. Reliability was analyzed by Pearson correlation, with a calculated score of 0.8. There were 20 true-false questions in part 2. Overall colposcopy satisfaction was rated on a ten-point scale, ranging from very dissatisfied to most satisfied (1 to 10). Part 2 of the questionnaire was completed by both groups before and after colposcopic examination. All patients were separated from each other for privacy and to prevent collusion.

The control group was given the usual information

brochure before the examination. Study group participants were taken to a room to watch the video. The video lasted six minutes and explained the preparation before the examination, the definition of colposcopy, purpose, indication, contraindication and procedure of the examination and post-colposcopy management. The contents of the video and brochure were similar and covered the answers of the questionnaire. Then, both groups underwent the same colposcopy examination and were asked to complete part 2 of the questionnaire. Patient attendance was recorded when they returned for follow-up and review.

Statistical analysis

Sample sizes of 96 patients per group were calculated with a power of 80% and 5% significance level. Refer to previous study Y.M. Chan et al. 2004⁽¹¹⁾ mean of knowledge score after precolposcopy session in study (n=112) and control groups (n=108) were 11.02 (SD=2.05) and 9.65 (SD=4.37) respectively.

$$n = \frac{2[(a+b)^2\sigma^2]}{(\mu_1 - \mu_2)^2}$$

n= the sample size in each of the groups

μ_1 = population mean in treatment group 1

μ_2 = population mean in treatment group 2

δ^2 = population variance (SD)

$$\sigma^2 = \frac{(n_1 - 1) SD_1^2 + (n_2 - 1) SD_2^2}{n_1 + n_2 - 2}$$

a = conventional multiplier for alpha 0.05 = 1.96

b= conventional multiplier for power 0.80= 0.84

Statistical analysis was calculated by SPSS for windows version 17 (Statistical Package for the Social Sciences Benelux BV, Gorinchem, The Netherlands). Baseline categorical data was analyzed through frequency distribution, and compared by chi-square analysis. Baseline numerical data and both pre-colposcopy and post-colposcopy scores were analyzed

by mean. Comparison between groups was performed using unpaired Student's t-tests. A comparison of pre- and post-colposcopy knowledge scores in the same group was also carried out using paired Student's t-tests. The factors that influenced knowledge scores were assessed with a linear regression model. P-values of < 0.05 were considered statistically significant.

Results

The new referral colposcopy patients were collected between March 2013 and January 2014 at the outpatient gynecological department of Chonburi Hospital. Two hundred and seven patients were assessed for eligibility and 35 were excluded, as they did not meet the inclusion criteria or refused to participate. One hundred and seventy two patients were randomized into two groups; 78 in the control group and 94 in the study group. After treatment, 75 and 90 patients completely fulfilled questionnaires in the control and study groups respectively. Seven participants provided incomplete data. A participant flow diagram is shown as Fig. 1.

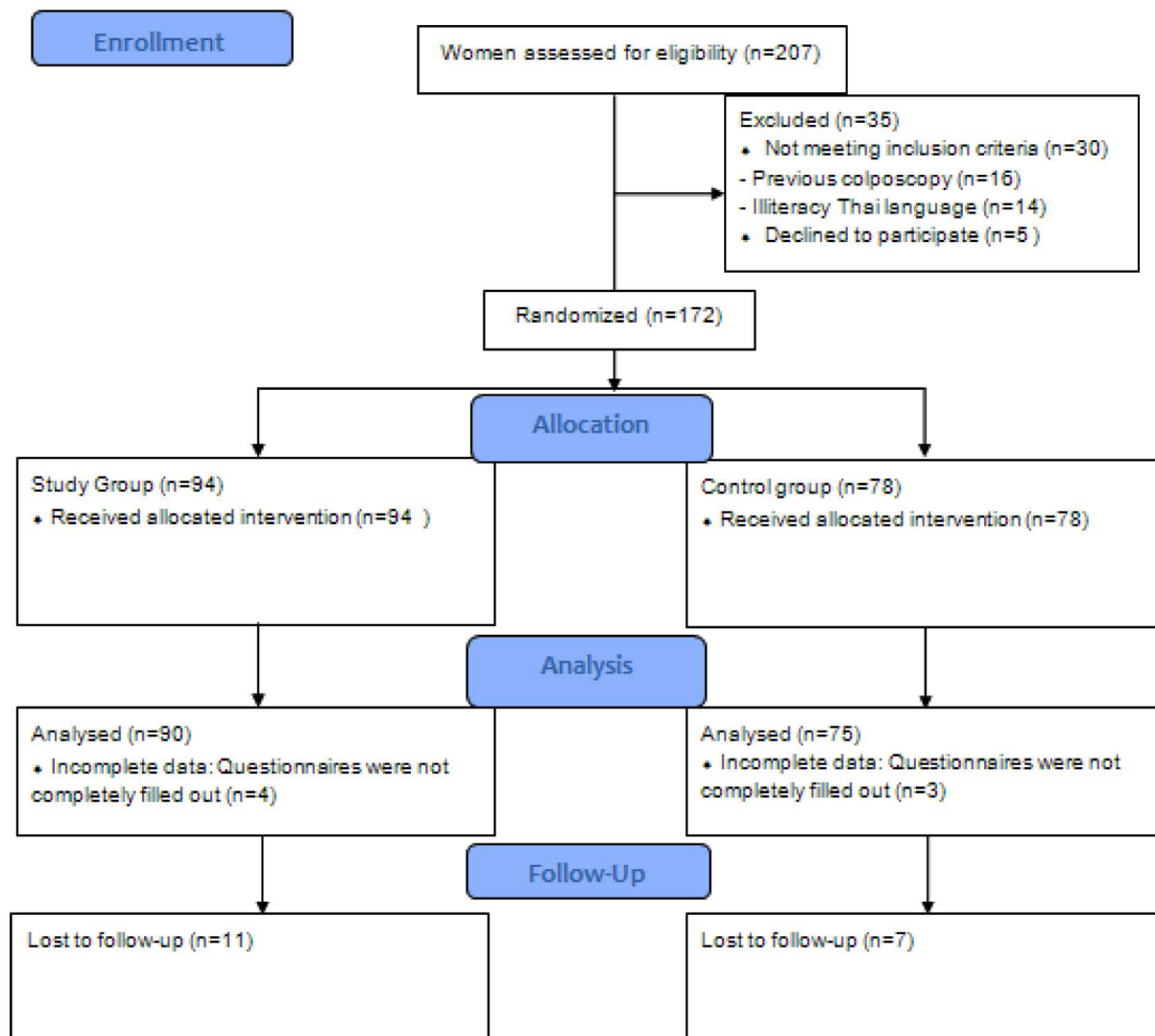


Fig. 1. Participant flow diagram.

Baseline characteristics

Table 1. below presents the patient baseline characteristics of age, marital status, education level, occupation and income. The mean age of the control and study groups was 38.68 and 37.34 years respectively.

There was no statistical significance of the mean age between the two groups. There was also no statistical significance in marital status, education level, occupation and income.

Table 1. Patient baseline characteristics.

	Study group (n=90)	Control group (n = 75)	P
Age (years)			
Mean (range)	37.3 (18-55)	38.7 (18-60)	0.42
Marital status			
Single	21 (23.4%)	13 (17.3%)	0.42
Married	55 (61.1%)	43 (57.3%)	
Divorced	7 (7.8%)	9 (12%)	
Widowed	7 (7.8%)	10 (13.3%)	
Education level			
Nil	2 (2.2%)	1 (1.3%)	0.22
Primary	24 (26.7%)	27 (36%)	
Secondary	40 (44.4%)	32 (42.7%)	
Diploma	6 (6.7%)	9 (12%)	
Bachelor	17 (18.9%)	6 (8%)	
Master	1 (1.1%)	0 (0%)	
Occupation			
Employee	47 (52.2%)	41 (54.7%)	0.59
Government officer	8 (8.9%)	2 (2.7%)	
Private practice	13 (14.4%)	13 (17.3%)	
Housewife	11 (12.2%)	12 (16%)	
Unemployed	10 (11%)	6 (8%)	
Other	1 (1.1%)	1 (1.3%)	
Income (Baht)			
0-5,000	29 (32.2%)	21 (28%)	0.28
5,000-10,000	29 (32.2%)	31 (41.3%)	
10,000-20,000	23 (25.6%)	17 (22.7%)	
20,000-30,000	3 (3.3%)	5 (6.7%)	
> 30,000	6 (6.7%)	1 (1.3%)	

Table 2. shows the mean and standard deviation of pre- and post-colposcopy knowledge scores in the two groups. The pre-colposcopy knowledge scores in both groups were not statistically significant (mean scores of 16.16 study group and 15.78 control group, $p = 0.28$). Patients in the study group had a higher post-colposcopy knowledge score than the control

group (mean scores 17.28 and 16.22, $p = 0.003$). Within the same group, both groups showed a statistically significant difference between pre- and post- colposcopy knowledge scores (mean scores 16.16 and 17.28, $p < 0.05$ in study group and 15.78 and 16.22, $p = 0.02$ in control group).

Table 2. Pre- and post-colposcopy knowledge scores.

	Study group (n=90)	Control group (n=75)	P [95%CI]
Pre-colposcopy knowledge score Mean (SD)	16.16 (2.19)	15.78 (2.2)	0.28 [(-1.0)-0.3]
Post-colposcopy knowledge score Mean (SD)	17.28 (2.15)	16.22 (2.19)	0.003 [(-1.7)-(-0.3)]

P-value of pre- and post-colposcopy knowledge scores in study group < 0.05

P-value of pre- and post-colposcopy knowledge scores in control group = 0.02

Table 3. shows the satisfaction level and follow-up data. Satisfaction levels in both groups were not statistically significant and results showed that participants were very satisfied (mean scores 8.64 and 8.17, $p = 0.08$). The follow-up data was evaluated

according to whether or not the patients followed the attendance schedule. The follow-up data also showed no statistical significance between groups (87.8% and 90.7%, $p = 0.6$).

Table 3. Satisfaction level and follow-up data scores.

	Study group (n=90)	Control group (n=75)	P
Satisfaction level (1-10) Mean (SD)	8.64 (1.6)	8.17 (1.7)	0.08
Follow-up data	79 (87.8%)	68 (90.7%)	0.6

Discussion

The prospective randomized controlled study was conducted at the outpatient gynecological department of Chonburi Hospital.

There are nowadays new screening programs for cervical cancer such as Cotesting and HPV DNA typing and these can be used instead of the conventional cytology. However, if the test results are abnormal, colposcopic examination is required to confirm cervical lesions, so colposcopy is still an important process in cervical cancer screening. Previous studies showed that only 38% of women knew the meaning of colposcopy⁽¹²⁾. This lack of knowledge resulted in poor patient compliance, and misunderstanding. This project was conducted to prove that viewing a video of

colposcopy treatment before examination can improve patient knowledge and satisfaction of the procedure.

Baseline characteristics showed non-statistically significant differences in both groups. The study did not show the number of colposcopies with or without a biopsy. Tissue biopsy may result in pain and interfere with satisfaction levels. However, almost all patients underwent colposcopy with directed biopsy in both groups so they should not differ in pain sensation.

Pre-colposcopy knowledge scores for both groups were not significantly different. An educational video was shown to the study group before their examination while the control group only had the usual brochure to read. Post-colposcopy knowledge scores in the study group were significantly increased

compared with the control group. Results were consistent with previous studies and found that extra information can significantly increase subject knowledge⁽¹³⁾. Although post-colposcopy knowledge scores showed statistical significance, clinical significance should be further evaluated.

Some studies have shown that patients with more knowledge about surgery may have fewer worries and become less anxious^(14,15). In this study satisfaction was not shown to be significantly different. This result agreed with Chan YM 2004⁽¹¹⁾ that anxiety is not related to knowledge level.

The low rate of follow up after colposcopy treatment has been associated with lack of communication⁽¹⁰⁾. Women who have not fully understood the meaning of their smear results may not understand the need for follow-up⁽¹⁶⁾. Increasing the knowledge levels or information regarding diagnosis and procedure will result in a better attendance rate^(11,17). In this study, the follow-up data for the study and control groups was not significantly different; estimated at 89 percent. Some studies reported anxiety and fear about the diagnosis as the most common barrier to colposcopy⁽¹⁸⁾. Difficult scheduling appointments and inadequate communication was cited as the major system barrier to colposcopy among Latina women⁽¹⁹⁾. To improve the cervical screening program, the colposcopy clinic at Chonburi Hospital has telephone call appointment access to all colposcopy sessions.

There are several limitations of this study. Firstly, the sample size was calculated for 94 patients per group but the actual collected sample sizes were 90 patients in the study group and 75 patients in the control group. At the end of the study, the author calculated the power after study. The power after study achieved 88% and detected a difference of 1.1 between the null hypotheses that both group means are 17.3 in the study group and 16.2 in the control group with known group standard deviations of 2.15 and 2.19 respectively with a significance level (alpha) of 0.05. The sample sizes were accepted with 88 percent of power.

Secondly, the colposcopy treatment video may not be appropriate in all cases and is still only one way

communication to the patient. Further study may look at two way communication interventions, such as group counseling and discussion. Thirdly, satisfaction evaluation is a subjective measurement and does not relate directly to anxiety and stress levels. Further studies should include an anxiety and stress level score. Fourthly, in follow up data analysis there may be a selection bias. The follow-up rate in this study was high at 89%, possibly because the data was collected from patients who attended colposcopy. These patients may have more health awareness than others.

Lastly, the knowledge score did not analyze specific categories of colposcopy knowledge; we cannot therefore use the results of the study to improve the quality of the colposcopy video directly. It is recommended that future studies separate the categories of the questions and analyze each category accordingly. When the results are reported, it might then be possible to improve the education media in certain parts that patients do not understand.

Conclusion

A colposcopy video presentation improves patient knowledge but does not affect satisfaction and follow-up data.

Acknowledgements

The authors would like to thank Mrs. Nichakorn Chuenarom, the colposcopy clinic nurse, for her assistance with the recruitment of patients for the study.

Disclosure of interests

The authors declare that they have no conflicts of interest with regard to any of the material presented in the study.

Funding

The authors received no funding for the study.

References

1. Siegel R, Ma J, Zou Z, Jemal A. Cancer statistics, 2014. *CA Cancer J Clin* 2014; 64:9-29.
2. National Cancer Institute Department of Medical

- Services Ministry of Public Health Thailand. Hospital-based cancer registry annual report 2012. Bangkok: Eastern printing public company limited, 2014.
3. Caela M, John CE. Cervical and vaginal cancer. In: Jonathan SB, editor. Berek and Novak's Gynecology. 15th ed. Philadelphia: Lippincott Williams and Wilkins, 2012: 1304-6.
 4. McDonald TW, Neutens JJ, Fisher LM, Jessee D. Impact of cervical intraepithelial neoplasia diagnosis and treatment on self-esteem and body image. *Gynecol Oncol* 1989;34:345-9.
 5. Marteau TM, Walker P, Giles J, Smail M. Anxieties in women undergoing colposcopy. *Br J Obstet Gynaecol* 1990;22:23-6.
 6. Swancutt DR, Greenfield SM, Luesley DM, Wilson S. Women's experience of colposcopy: a qualitative investigation. *BMC Women's Health* 2011;11:11.
 7. Nugent LS, Tamlyn-Leaman K, Isa N, Reardon E, Crumley J. Anxiety and the colposcopy experience. *Clin Nurs Res* 1993;2:267-77.
 8. Olamijulo JA, Duncan ID. Patient based evaluation of a colposcopy information leaflet. *J Obstet Gynaecol* 1997;17:394-8.
 9. Greimel ER, Gappmayer-Locker E, Girardi FL, Huber HP. Increasing women's knowledge and satisfaction with cervical cancer screening. *J Psychosom Obstet Gynaecol* 1997;18:273-9.
 10. Kavanagh AM, Broom DH. Women's understanding of abnormal cervical smear test results: a qualitative interview study. *Br Med J* 1997;314:1388-91.
 11. Chan YM, Lee PW, Ng TY, Ngan HY. Could precolposcopy information and counseling reduce women's anxiety and improve knowledge and compliance to follow-up? *Gynecol Oncol* 2004;95:341-6.
 12. Tomaino-Brunner C, Freda MC, Runowicz CD. "I hope I don't have cancer": Colposcopy and minority women. *Oncol Nurs Forum* 1996;23:39-44.
 13. De Bie R, Massuger L, Lenselink C, Derksen Y, Prins J, Bekkers R. The role of individually targeted information to reduce anxiety before colposcopy: a randomized controlled trial. *BJOG* 2011;118:945-50.
 14. Wallace LM. Communication variables in the design of pre-surgical preparatory information. *Br J Clin Psychol* 1986;25:111-8.
 15. Elsass B, Eikard B, Junge J, Lykke J, Staun P, Feldt-Rasmussen M. Psychological effect of detailed preanaesthetic information. *Acta Anaesthesiol Scand* 1987;31:579-83.
 16. Mckee MD, Lurio J, Marantz P, Burton W, Mukvihill M. Barriers to follow-up of abnormal Papanicolaou smears in an urban community health center. *Arch Fam Med* 1999;8:129-34.
 17. Tomlinson A, Kyrgiou M, Paraskevaidis E, Kitchener H, Martin-Hirsch P. Does improving communication and information for women increase attendance at colposcopy in an inner city clinic? A randomised controlled trial. *Eur J Gynaecol Oncol* 2004;25:445-8.
 18. Khanna N, Phillips MD. Adherence to care plan in women with abnormal Papanicolaou smears: a review of barriers and interventions. *J Am Board Fam Pract* 2011;14:123-30.
 19. Percac-Lima S, Aldrich LS, Gamba GB, Bearse AM, Atlas SJ. Barriers to follow-up of an abnormal pap smear in Latina women referred for colposcopy. *J Gen Intern Med* 2010 July;25:1198-204.

การศึกษาว่าการรับชมสื่อวีดีทัศน์ก่อนการตรวจปากมดลูกโดยกล้องส่องขยาย (Colposcopy) สามารถเพิ่มความรู้อและความพึงพอใจของผู้ป่วยที่เข้ารับการตรวจปากมดลูกโดยกล้องส่องขยายได้หรือไม่ การวิจัยเชิงทดลองแบบสุ่มและมีกลุ่มควบคุม

ศศิวรรณ สุทัศนมาลี, ธีระ ศิวดุลย์

วัตถุประสงค์: เพื่อศึกษาว่าสื่อวีดีทัศน์ก่อนการตรวจปากมดลูกโดยกล้องส่องขยาย (Colposcopy) สามารถเพิ่มความรู้อ ความพึงพอใจในการเข้ารับการตรวจของผู้ป่วยที่เข้ารับการตรวจปากมดลูกโดยกล้องส่องขยายได้หรือไม่ และติดตามเรื่องการมาตรวจติดตามต่อเนื่องของผู้ป่วยเปรียบเทียบระหว่างสองกลุ่ม

วิธีการดำเนินวิจัย: งานวิจัยนี้เป็นงานวิจัยเชิงทดลองแบบสุ่มและมีกลุ่มควบคุม (prospective randomized controlled trial) มีผู้เข้าร่วมงานวิจัยทั้งหมด 172 คน เป็นผู้ป่วยที่กำลังจะได้รับการตรวจปากมดลูกโดยกล้องส่องขยาย คัดออก 7 คน เหลือ 165 คนที่นำมาคำนวณ โดยสุ่มเป็นกลุ่มทดลองทั้งหมด 90 คน และกลุ่มควบคุม 75 คน จากนั้นศึกษาความรู้ก่อนและหลังการตรวจและความพึงพอใจของผู้ป่วย กลุ่มควบคุมจะได้รับการอบรมก่อนตรวจแบบเดิมคือได้รับแผ่นพับความรู้ เปรียบเทียบกับกลุ่มทดลอง ได้รับการอบรมโดยรับสื่อวีดีทัศน์อย่างเดียว วัดผลโดยการให้ผู้เข้าร่วมงานวิจัยตอบแบบสอบถามก่อนและหลังเข้ารับการตรวจปากมดลูกโดยกล้องส่องขยายเพื่อทดสอบความรู้และความพึงพอใจ

ผลการศึกษา: จากการศึกษาพบว่า สื่อวีดีทัศน์อธิบายก่อนการตรวจปากมดลูกโดยกล้องส่องขยาย สามารถเพิ่มความรู้อผู้เข้าร่วมวิจัยในกลุ่มทดลองมากกว่ากลุ่มควบคุม อย่างมีนัยสำคัญทางสถิติ ($p = 0.003$) อย่างไรก็ตาม หลังรับชมสื่อวีดีทัศน์ผู้เข้าร่วมงานวิจัยทั้งสองกลุ่ม มีความพึงพอใจระดับสูง (ระดับคะแนนมากกว่า 8) และให้ความสนใจการตรวจติดตามอย่างต่อเนื่อง (มากกว่า 87 เปอร์เซ็นต์) ไม่ต่างกันอย่างมีนัยสำคัญทางสถิติ

สรุป: การให้สื่อวีดีทัศน์กับผู้ป่วยก่อนการตรวจปากมดลูกโดยกล้องส่องขยายสามารถเพิ่มระดับความรู้เกี่ยวกับการตรวจ แต่ไม่มีผลต่อระดับความพึงพอใจและการให้ความร่วมมือในการนัดตรวจติดตาม
