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Effectiveness of using an online instructional video for preventing infections among Thai patients with cancer: A quasi-experimental study

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Abstract

Background: Patients with cancer are more likely to develop infections from several factors, and an infectious complication is the leading cause of death in this population. Therefore, nurses should provide educational media to these patients for infection prevention.

Objective: This study aimed to examine the effectiveness of using an online instructional video to prevent infections among patients with cancer in Thailand.

Methods: A quasi-experimental design was conducted from May 2020 to March 2021 at a cancer hospital in northeast Thailand. The participants consisted of 54 patients with cancer (27 each in the experimental and control group). The experimental group participants received four weeks of online video instruction at home, while the control group received the usual education from nurses. The data collection instruments included a demographic data questionnaire, a knowledge test, an infection prevention practice questionnaire, and a video media satisfaction questionnaire. Statistical analyses included descriptive statistics, chi-square test, Fisher's exact test, paired *t*-test, and independent *t*-test.

Results: After receiving the online instruction video, the experimental group had a significantly higher score for infection prevention knowledge, increasing from 17.52 to 20.93 (t = -6.575, p <0.001), and infection prevention practice, rising from 52.07 to 61.33 (t = -3.954, p = 0.001). The control group had no significant increase in the knowledge score (17.04 to 18.04) (t = -1.328, p = 0.100) or practice score (53.41 to 54.44) (t = -0.797, p = 0.217). The experimental group showed a significantly higher mean knowledge score (t = 4.473, p <0.001, large effect size with a Cohen's d of 1.22) and practice score (t = 3.121, p = 0.002, large effect size with a Cohen's d of 0.85) during post-intervention than the control group.

Conclusion: The findings support the use of online video as instructional media to enhance knowledge and practices regarding infection prevention among patients with cancer. This online video should be implemented for nurses and healthcare providers to promote knowledge and practices in the prevention of infections among patients with cancer in other hospitals.

Trial Registry Number: Thai Clinical Trials Registry (TCTR20241030009)

Keywords

Thailand; cancer; infection prevention practice; instructional media; knowledge; online video; patients; quasi-experiment

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Background

Cancer is a significant health problem worldwide. According to the GLOBOCAN 2020 database, compiled and disseminated by the International Agency for Research on Cancer (IARC), and the World Health Organization mortality database, there were approximately 19.3 million new cases of cancer, and 10 million deaths caused by cancer (Ferlay et al., 2021). In the United States, it was estimated that in 2019, there were 1,762,450 new cancer cases and 606,880 deaths (Siegel et al., 2019). Regarding the cancer situation in Thailand, statistical data from the National Cancer Institute revealed 3,190 new cancer cases in 2022. The five most reported cancer types were classified according to gender with the five most common for males being colon and rectum cancer; liver and bile duct cancer; trachea, bronchus, and lung cancer;

prostate cancer; and oral cavity cancer. For female patients, the five most common types were breast cancer; cervix uteri cancer; colon and rectum cancer; trachea, bronchus, and lung cancer; and corpus uteri cancer (National Cancer Institute, 2024).

Infections are frequent complications and significant causes of mortality among patients with cancer. Furthermore, these patients require a diverse range of treatments including surgery, radiation therapy, and chemotherapy, as well as other treatments which may result in side effects such as immunodeficiency or neutropenia. During treatment, patients with cancer often have fever along with neutropenia or febrile neutropenia (FN), and infection is encountered in 20-30% of these febrile neutropenic patients (Delgado & Guddati, 2021; Özdemir et al., 2019; Sausville & Longo, 2022). Neutropenia/FN mortality rates have been reported at 2.6% to 7.0% for adults with solid tumors, and 7.4% for adults with hematologic malignancies (Boccia et al., 2022). One study demonstrated that about 56% of patients with hematological malignancies were associated with infections at 30 days of mortality (Qian et al., 2023). In addition, according to one US study, 56% of patients with hematological malignancies who were diagnosed with respiratory syncytial virus (RSV) infection presented with an upper respiratory tract infection (URTI) while the overall lower respiratory tract infection (LRTI) rate was 44%, with a 90-day RSV-associated mortality rate of 15% (Azzi et al., 2018). Another study by Teh et al. (2015) in Australia indicated that 66.7% of patients with multiple myeloma who were infected with the influenza virus respiratory tract infection needed hospitalization, and 41.6% had to be admitted to an intensive care unit (ICU), with a 33.3% mortality rate. Additionally, it was found that patients with multiple myeloma and RSV respiratory tract infection had a hospitalization rate of 40% with a median hospital stay of 18 days and an ICU admission rate of 6.7%. Significant complications resulting from FN and the higher risk of developing life-threatening infections have an impact on the use of broad-spectrum antimicrobial therapy and treatment plans, and increase morbidity, mortality, and therapy costs among patients with cancer (Ba et al., 2020; Delgado & Guddati, 2021; Kubecek et al., 2021).

For immunocompromised patients with cancer, nurses are pivotal in preventing infection through nursing practice and patient education, which engages them in optimal infection prevention self-care knowledge and behaviors (Ariza Heredia & Chemaly, 2018; Castro & la Riva, 2020). The provision of instruction for adult patients should be based on adult learning concepts that focus on the needs and interests of the learners, relevant experiences, and the ability to self-learn to increase the effectiveness of learning among this patient group (Knowles et al., 2005). Furthermore, knowledge has been found to be a strong predictor of attitude and infection prevention practices among patients with cancer undergoing chemotherapy (Suwan et al., 2024). However, in terms of health care service at present, nurses are still experiencing limitations in providing health education to patients, which originated with the recent COVID-19 pandemic, but continues to affect healthcare (Lawrie et al., 2023). As a result, providing knowledge to patients through various types of media has played a more prominent role. Online instructional video is convenient, has consistent content, and features videos and images that make the concepts easier for learners to understand. Moreover, online video media is appropriate for instruction because it utilizes pictures that present learners with still or animated images, together with narratives that allow patients to hear audio consistent with the content. This can stimulate interest in the material and promote learning among patients receiving instruction (Feeley et al., 2023; Govender et al., 2019; Viseskul, 2019). Additionally, quality instructional material allows patients to view slow-motion illustrations that can be paused. Online video media is generally convenient for learners and provides easy access to material for self-review (Bastable, 2019). According to Gagné (1985), media with pictures, lights, sounds, and animations that have content consistent with learners' topics of interest can directly influence these learners' interests. This kind of media can attract and stimulate higher interest among learners, contributing to more effective learning.

According to the literature review, instructional video media has been used to educate and provide information to increase knowledge and promote practices among patients. For example, a one-group pretest-posttest design study by Chotnipat and Oo-puthinan (2019) among patients with colorectal cancer who received chemotherapy demonstrated that the patients had statistically significantly higher knowledge scores about chemotherapy, side effect management, self-care practice, and self-care behaviors after an instructional video intervention. Another study by Islam et al. (2021) on the effect of video health education among newly diagnosed patients with breast cancer revealed that there was a significant improvement in mean scores regarding knowledge about treatment options, types of operation, information on chemotherapy, radiotherapy, hormone therapy, healthy diet, physical activity and exercise after treatments, and care of the arm after operation. Similarly, a study by Molek et al. (2018) conducted among patients with liver cancer who received their first trans-arterial chemoembolization illustrated that the knowledge scores of a group using a video-watching learning method were significantly greater than those of a group using a handbook learning method.

Therefore, it is essential to educate patients with cancer using effective online instructional videos to provide information on infection prevention that can be further applied to these patients when visiting hospitals. The media should include new innovative methods for nurses to disseminate knowledge and practices in infection prevention. This quasi-experimental study aimed to examine the effects of online instructional videos on knowledge and practices for preventing infections among patients with cancer and examined patients' satisfaction with video media.

Methods

Study Design

A quasi-experimental research approach with a two-group pretest-posttest design was used in this study. The study was registered with the Thai Clinical Trials Registry: Registration ID number TCTR20241030009.

Sample/Participants

The participants were patients with cancer who visited the outpatient department and received treatment at a cancer

hospital in northeast Thailand. The researcher selected participants using purposive sampling based on inclusion criteria, as follows: a) aged 18-60 years; b) newly diagnosed with cancer; c) able to communicate in Thai language; d) no auditory, speech, or visual problems; e) able to perform activities by oneself; and f) able to decide on one's own and willing to participate in this study. On the other hand, participants were excluded from participation if they had a) serious complications/symptoms; b) terminal illness; or c) visual or hearing impairment.

Sample size was determined using a power analysis table with a power of 0.80, a significance level of 0.05, and an effect size of 0.50 (Burns & Grove, 2009), resulting in a sample size of at least 22 participants. The researcher added 20% to the sample size to compensate for potential missing participants. Therefore, 54 participants were randomly assigned to an experimental or a control group with 27 participants per group. The randomization of participants to the intervention or control group was performed with a statistical test, and no differences in demographic characteristics or cancer types between groups were found.

Instruments

The study used four parts of instruments:

Part 1: The demographic data questionnaire, derived from Pholdee et al. (2021), consisted of close-ended and open-ended questions about gender, age, education level, type of cancer, treatment regimen, and history of receiving education about infection prevention. Permission was obtained to use this demographic data questionnaire in the current study.

Part 2: The knowledge test on preventing infections among patients with cancer, developed by Pholdee et al. (2021), was comprised of 25 items about the factors contributing to infections among patients with cancer, the effects of infections among these patients, infectious agents, modes of transmission of infections, and practices for preventing infections among this group. The scale included true-false items, with a score of 1 for a correct answer and 0 for an incorrect answer, and a total score of 25. Permission was obtained to use the knowledge test for this study. The content validity index (CVI) of the knowledge test was 1.00 while the reliability of the test, using Kuder-Richardson 20, was 0.83.

Part 3: The infection prevention practice questionnaire was developed by the researchers by adapting the scale development process proposed by Streiner et al. (2014). Firstly, a comprehensive review of relevant literature in medical, nursing, and healthcare disciplines was conducted to generate draft items for the questionnaire. Database searches were performed, using the keywords cancer, nursing, infection prevention, chemotherapy, and cancer treatment, on MEDLINE, PubMed, Scopus, CINAHL, and ProQuest, as well as the websites of the Centers for Disease Control and Prevention (CDC), the World Health Organization (WHO), the National Cancer Institute, and the American Cancer Society. The selection of articles to be included in the review included those outlining new guidelines and recommendations for preventing infection in patients with cancer. The following steps involved defining the construct of the questionnaire, generating items, and refining the items, which was also done based on the comprehensive review. The resulting questionnaire's 25 items were revised following the researchers' consensus discussion. The final version of the items covered infection prevention practices through contact precautions (8 items), droplet precautions (2 items), airborne precautions (3 items), food and water-borne precautions (4 items), and animal to human transmission precautions (2 items), in addition to observation of abnormal symptoms (3 items), and hand hygiene (3 items). The 25 items comprised positive and negative statements rated on a 4-point scale ranging from 0-3. Regarding the positive statements about practices that should be performed, items were rated as 0 = not practiced, 1 = sometimes practiced, 2 = frequently practiced, and 3 = always practiced. For the negative statements about practices to be avoided, items were reverse scored: 0 = always practiced, 1 = frequently practiced, 2 = sometimes practiced, and 3 = not practiced. The total score ranged from 0 to 75. Content validity was determined by six experts specializing in infection prevention and control, as well as cancer. These included highly skilled and experienced oncologists and infectious disease physicians, as well as oncology nurses and infection control nurses (ICN) who were experienced and well-trained in providing nursing care for patients with cancer. The total scale of 25 items was accepted by the experts' consensus after the first round, with a content validity index (CVI) of 0.95. Subsequently, face validity was appraised through one-by-one, face-to-face interviews with 10 patients with cancer. During the interviews, the patients were allowed to express their opinions and provide feedback about scale appearance in terms of the readability, consistency, and clarity of the language. Patient feedback demonstrated that they clearly comprehended each item; therefore, no revisions were required. Following the face validity appraisal, 20 patients with cancer were recruited to pilot the questionnaire to assess reliability. These patients fulfilled the study inclusion criteria and had been newly diagnosed with cancer, for example breast cancer, colorectal cancer, cervical cancer, stomach cancer, and lung cancer. This round of testing yielded a Cronbach's alpha coefficient of 0.91.

Part 4: The video media satisfaction questionnaire, developed by Pholdee et al. (2021), was used to assess satisfaction with the video media among the experimental group participants. The instrument comprised 16 items about content, design, presentation, and usability. A 5-point Likert scale was used, with responses of very dissatisfied (1 point), dissatisfied (2 points), neutral (3 points), satisfied (4 points), and very satisfied (5 points). The content validity index (CVI) of the questionnaire was 1.00, and the reliability, using Cronbach's alpha coefficient, was 0.97.

Intervention

The experimental group received education via an online instructional video about the prevention of infections among patients with cancer in a health education room arranged by the hospital. After the participants individually watched the video in the hospital, the researcher asked them to review the knowledge by themselves when returning home using the online instructional video for four weeks. The researcher also provided a manual for using the online instructional video to explain to the experimental group participants how to understand the content and the presentation duration. Moreover, the researcher provided a QR code in the manual, allowing participants easier access to the online instructional

video and the ability to watch the video via their cellphones or any other devices that could accommodate the system. There were two parts of the online instructional video (totaling 17 minutes 21 seconds). These included Part 1 on infections among cancer patients, including the factors contributing to infections among patients with cancer, the effects of infections among patients with cancer, infectious agents, and modes of transmission of infections; and Part 2 on practices in preventing infections, including contact precautions, droplet precautions, airborne precautions, food and water-borne precautions, animals to human transmission precautions, observation of abnormal symptoms, and hand hygiene (Pholdee et al., 2021). The content about preventing infections among patients with cancer was derived from the literature review and was examined for content validity by five experts specializing in infection prevention for this patient group. Three experts in media examined the online instructional video, which included still pictures, motion pictures, cartoons, animations, subtitles, sounds, and music. The development of the online instructional video consisted of five steps (Viseskul, 2019): 1) preparing content, 2) designing the lesson, 3) creating a storyboard, 4) producing supporting materials, and 5) evaluating and revising the online instructional video. The development process and main components of the online instructional video are outlined in **Figure 1**.

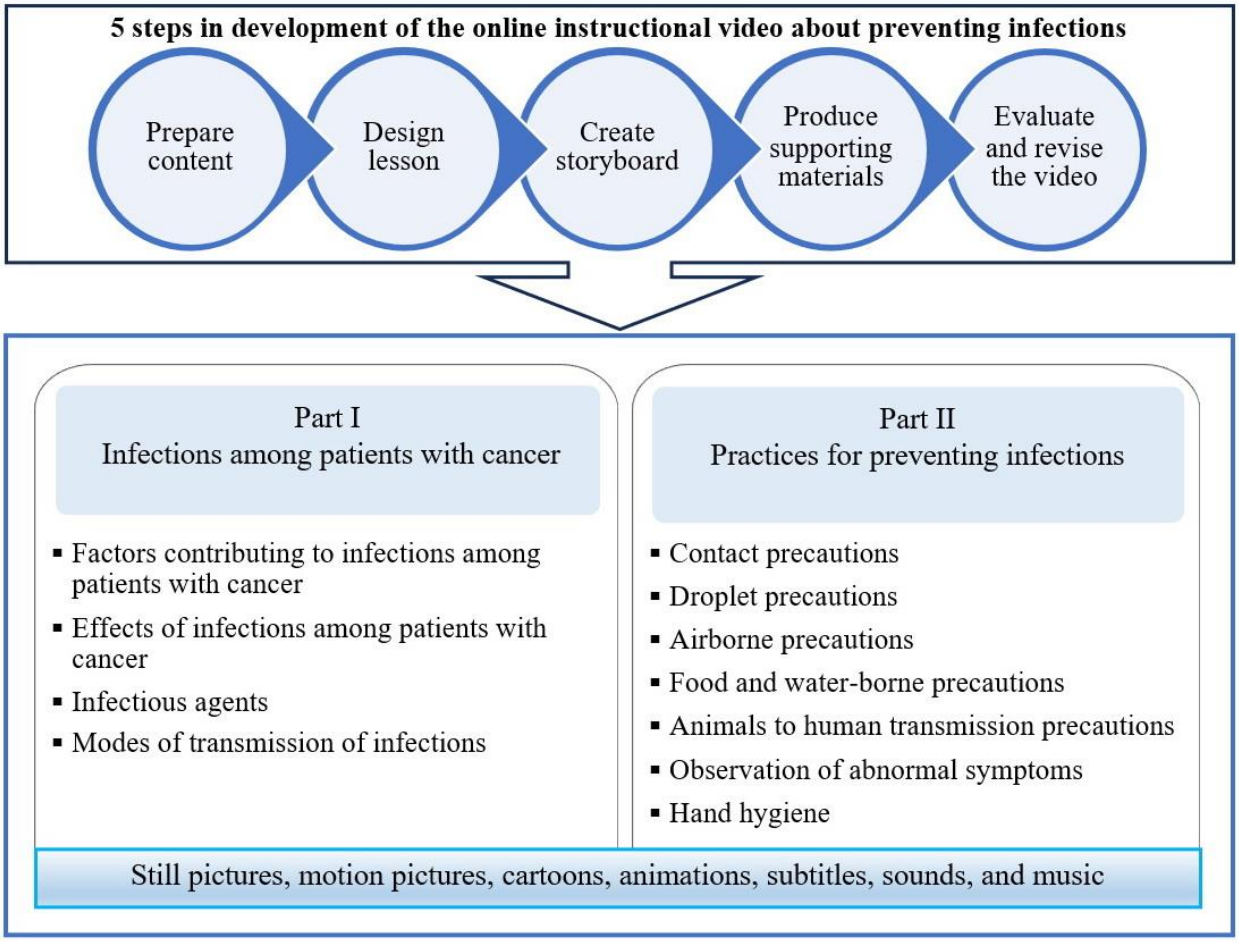

Figure 1 The development process and main components of the online instructional video

Data Collection

The researchers collected data from May 2020 to March 2021. After receiving approval from the ethics committee, the researcher selected patients based on the inclusion criteria by reviewing the patient's history in the outpatient registration. Then, the participants were randomly assigned to a control or an experimental group. All the enrolled participants were provided with verbal and written information regarding the study, and they provided their written informed consent. The researcher asked the participants in both groups to answer the knowledge test and the infection prevention practice questionnaire. Subsequently, the experimental group received four weeks of online video instruction at home, while the control care group received the usual education from nurses regarding health education and received leaflets. The researcher measured the outcomes of both groups after four weeks of treatment.

Data Analysis

Data were analyzed using SPSS version 29.0. Chi-square, Fisher's exact, and independent *t*-tests were used to compare the differences between the demographic data of the control and experimental groups. Shapiro-Wilk test was employed to determine normality and indicated a normal distribution. Paired *t*-test and independent *t*-test were used to compare the different mean scores for knowledge and practices of patients with cancer in preventing infections, within and between the control and experimental groups, respectively. Data on the experimental group's satisfaction with the video media were analyzed using descriptive statistics.

Ethical Considerations

This study was approved by the Research Ethics Committee of the Faculty of Nursing, Chiang Mai University (Certificate of Approval No. 043/2020, date: March 13, 2020) and the Ethics Committee on Human Research, a cancer hospital (Certificate of Approval No. UCH 6/2563, date: April 27, 2020). The researchers protected the rights of participants throughout the study. Participants could withdraw from the study at any time. They were assured of confidentiality and anonymity. Moreover, data were gathered by the researchers without any identifiers.

Results

Demographic Characteristics of the Participants

There were 54 participants, with 27 participants each in the experimental and the control group. The mean age of those in the experimental group was 48.07 ± 11.32 years while the mean age of those in the control group was 45.33 ± 8.31 years. The experimental group had 40.74% male and 59.26% female patients. The control group had 37.00% male and 63.00% female patients. Approximately 80% of the participants in both groups had primary and secondary education. The four most common types of cancer found among participants in both groups were breast cancer, colorectal cancer, cervical cancer, and nasopharyngeal cancer. Concerning the treatment regimen, around half of the participants in both groups received a combination of surgery and chemotherapy. Almost three-quarters of the participants in both groups reported receiving prior infection prevention education. There were no statistically significant differences in age, gender, education level, types of cancer, treatment regimen, or history of receiving education about infection prevention between the two groups (**Table 1**).

Table 1 Comparison of participants' characteristics between the control and experimental groups (*N* = 54)

Variables	Control group (*n* = 27)		Experimental group (*n* = 27)		*p*-value
	n	%	*n*	%	
Age (Years) (x̄ ± SD)	45.33 ± 8.31		48.07 ± 11.32		0.876[b]
21–30	3	11.11	2	7.41	
31–40	4	14.82	5	18.52	
41–50	3	11.11	3	11.11	
51–60	17	62.96	17	62.96	
Gender					
Male	10	37.00	11	40.74	0.780[a]
Female	17	63.00	16	59.26	
Level of education					
Primary school	12	44.44	13	48.15	0.955[a]
Secondary school	10	37.04	9	33.33	
Bachelor's degree	5	18.52	5	18.52	
Types of cancer					
Breast cancer	8	29.63	9	33.33	0.993[c]
Colorectal cancer	5	18.52	4	14.81	
Cervical cancer	4	14.81	3	11.11	
Nasopharyngeal cancer	4	14.81	3	11.11	
Tongue cancer	2	7.41	2	7.41	
Pancreatic, bile duct, and gallbladder cancer	2	7.41	2	7.41	
Stomach cancer	1	3.70	3	11.11	
Lung cancer	1	3.70	1	3.70	
Treatment regimen					
Surgery + Chemotherapy	13	48.10	14	51.90	1.000[d]
Radiation therapy + Chemotherapy	6	22.20	6	22.20	
Surgery + Radiation therapy + Chemotherapy	7	25.90	6	22.20	
Surgery + Radiation therapy + Chemotherapy + Brachytherapy	1	3.70	1	3.70	
History of receiving education about infection prevention					
No	7	25.90	8	29.60	0.761[a]
Yes (health care personnel, internet, handouts)	20	74.10	19	70.40	

Note: [a] Chi-Square test, [b] independent *t*-test, [c] Fisher's exact test, [d] Fisher-Freeman-Halton exact test

Comparison of Knowledge and Practices of Patients with Cancer in Preventing Infections, Before and After the Intervention

From the results of the comparison of knowledge and practices of patients with cancer in preventing infections, before and after the intervention, the mean score for knowledge in the experimental group post-intervention (x̄ = 20.93, SD = 2.25) was higher than pre-intervention (x̄ = 17.52, SD = 3.25) with statistical significance (p <0.001) while the mean score for practices in the same group post-intervention (x̄ = 61.33, SD = 9.50) was higher than that before the intervention (x̄ = 52.07, SD = 8.22) with statistical significance (p = 0.001). There were no differences in the mean scores for knowledge and practices in preventing infections of patients with cancer in the control group before and after the intervention (**Table 2**).

Table 2 Comparison of mean scores of patients with cancer for knowledge and practices in preventing infections, before and after the intervention

Score	Before intervention (n = 27)		After intervention (n = 27)		t	df	p-value
	$\bar{X}$	SD	$\bar{X}$	SD			
Knowledge in preventing infections (Total score = 25)							
Experimental group	17.52	3.25	20.93	2.25	-6.575	26	<0.001
Control group	17.04	2.36	18.04	2.49	-1.328	26	0.100
Practices in preventing infections (Total score = 75)							
Experimental group	52.07	8.22	61.33	9.50	-3.954	26	0.001
Control group	53.41	7.32	54.44	6.42	-0.797	26	0.217

After the intervention, the experimental group had a significantly higher knowledge score ($\bar{x}$ = 20.93, SD = 2.25) than the control group ($\bar{x}$ = 18.04, SD = 2.49, p <0.001), with a large effect size (Cohen's d = 1.22). Similarly, practice scores were higher in the experimental group ($\bar{x}$ = 61.33, SD = 9.50) than in the control group ($\bar{x}$ = 54.44, SD = 6.42, p = 0.002), with a large effect size (Cohen's d = 0.85). No differences were observed between groups before the intervention (**Table 3**).

Table 3 Comparison of mean scores of patients with cancer for knowledge and practices in preventing infections between the experimental and control groups

Score	Experimental group (n = 27)		Control group (n = 27)		t	df	p-value	Effect size (Cohen's d)
	$\bar{X}$	SD	$\bar{X}$	SD				
Knowledge in preventing infections (Total score = 25)								
Before intervention	17.52	3.25	17.04	2.36	0.623	26	0.268	
After intervention	20.93	2.25	18.04	2.49	4.473	26	<0.001	1.22
Practices in preventing infections (Total score = 75)								
Before intervention	52.07	8.22	53.41	7.32	0.629	26	0.266	
After intervention	61.33	9.50	54.44	6.42	3.121	26	0.002	0.85

User Satisfaction with the Video Media Among the Experimental Group Participants

Overall, most participants (77.80%) were very satisfied with the video media, with an average satisfaction score of 4.78 out of 5 points. The mean scores for video media satisfaction were high across all domains of the content ($\bar{x}$ = 4.56-4.78), the design and presentation ($\bar{x}$ = 4.67-4.74), and the usability ($\bar{x}$ = 4.74-4.78) (**Table 4**).

Table 4 User satisfaction with the video media among the experimental group participants (n = 27)

Items	User satisfaction		$\bar{X}$	SD
	Very satisfied	Satisfied		
	n (%)	n (%)		
1. Content				
1.1 Content is interesting	21 (77.80)	6 (22.20)	4.78	0.42
1.2 Content is easy to understand	15 (55.60)	12 (44.40)	4.56	0.51
1.3 Using a clear summary of the content	19 (70.40)	8 (29.60)	4.70	0.47
1.4 Using language appropriately	19 (70.40)	8 (29.60)	4.70	0.47
1.5 Using clear words	18 (66.70)	9 (33.30)	4.67	0.48
1.6 Pictures are appropriate to the content	16 (59.30)	11 (40.70)	4.59	0.50
1.7 Duration of time is appropriate to each content	18 (66.70)	9 (33.30)	4.67	0.48
2. Design and presentation				
2.1 The font size is clear and easy to read	19 (70.40)	8 (29.60)	4.70	0.47
2.2 Pictures can convey meaning well and are easy to understand	19 (70.40)	8 (29.60)	4.70	0.47
2.3 The sequence of the pictures is easy to understand	20 (74.10)	7 (25.90)	4.74	0.45
2.4 Has appropriate, clear and beautiful pictures	20 (74.10)	7 (25.90)	4.74	0.45
2.5 Has appropriate and clear sound	20 (74.10)	7 (25.90)	4.74	0.45
2.6 Has appropriate music	20 (74.10)	7 (25.90)	4.74	0.45
2.7 Has appropriate and interesting presentation	18 (66.70)	9 (33.30)	4.67	0.48
3. Usability				
3.1 Having useful knowledge of preventing infections in patients with cancer	21 (77.80)	6 (22.20)	4.78	0.42
3.2 The knowledge can be practically used in everyday life	20 (74.10)	7 (25.90)	4.74	0.45
Overall satisfaction	21 (77.80)	6 (22.20)	4.78	0.42

Discussion

Summary of the Findings

In this study, the patients with cancer in the experimental group who received instruction via online video had higher scores for knowledge and practices in preventing infections than before the intervention with statistical significance. Additionally, it was found that, for the experimental group, these scores, post-intervention, were statistically significantly higher than those of the control group. This was consistent with previous research on the impact of video-based educational interventions on cervical cancer, pap smear, and HPV vaccines, demonstrating statistically significant increases in mean knowledge scores following video media education (Drokow et al., 2021). Moreover, a study on the effectiveness of edutainment video teaching standard precautions shown that the scores for knowledge about standard precautionary procedures increased with statistical significance (Wolfensberger et al., 2019) after using video media. Another study examined the effect of using video and spot media about pulmonary tuberculosis infection prevention on the knowledge of Myanmar workers who showed an increase in mean scores for knowledge after watching video media and listening to spot media, with statistical significance (Buadaeng et al., 2021). Similarly, a study on the effect of preoperative health education, delivered by animation and recorded video and including information on postoperative anxiety and pain in femoral fractures, found that anxiety scores were significantly lower for a group watching animation and recorded video than for an oral instruction group. The visual analog scale (VAS) of pain levels for the animation and recorded video group was lower compared with the oral instruction group (Wang et al., 2022). Furthermore, the results of this study are in line with those of Suwan et al. (2024) which offered evidence that knowledge was a significant predictor of infection prevention practices among patients with cancer undergoing chemotherapy.

The research participants ranked themselves as having 'high' and 'highest' levels of satisfaction with the content, design, presentation, and benefits of the developed online media demonstrating that participants thought that the online instructional video for preventing infections in patients with cancer had interesting content and was easy to understand while being appropriate for the learners' level with images that were consistent with the content, making the concepts easier to understand. The duration was suitable for learning and memorization. Furthermore, the online video presented useful knowledge that could be applied to common situations encountered by patients to prevent infections. Since all patients were adults, the video media was generally consistent with adult learning theory in which adults can learn well if the learning is consistent with their interests and needs. Learning will be effective if the media is related to the prior experiences and situations of an adult's life (Knowles et al., 2005). If the instruction responds to learners' needs, learning can occur, and patients are equipped to seek out answers on their own. Moreover, video media can be used to transmit knowledge content that records both still and motion pictures, as well as sounds, and viewers would be able to see the pictures and hear the sounds at the same time. In addition, it was convenient to access, especially for self-review of the content covered in the video media (Drokow et al., 2021; Viseskul, 2019).

Implications for Nursing Practice

Patients with cancer are at greater risk of developing infections due to immunosuppression from disease and cancer therapy. Compliance with infection prevention practices is recognized as a desirable outcome. Oncology nurses in various settings, including surgical and medical oncology, radiation oncology, and gynecologic oncology, play a crucial role in preventing infection through nursing intervention and patient education. Online instructional video is one of the most powerful forms of media for providing patients with cancer with appropriate knowledge and promoting compliance with infection prevention practices. Integrating video-based education into patient care ensures standardized, accessible learning that complements face-to-face instruction. Videos improve comprehension, retention, and self-efficacy, allowing patients to revisit content as needed. Nurses should advocate for video education within hospital policies and electronic health records, ensuring timely access and assessment of its impact.

Limitations and Recommendations

One limitation of this study concerned the use of the infection preventive practice questionnaire, which uses self-report measures, introducing the potential for response bias. Another limitation was that the data for this study were collected from only one hospital. Further studies should recruit a more diverse sample from multiple hospitals to improve the generalizability. Moreover, future research should also examine the long-term effects of using online instructional videos for preventing infections and measure the incidence of infections among patients with cancer.

Conclusion

In summary, the findings of this study indicate that nurses can use an online instructional video to promote infection prevention practices among patients with cancer, which could improve nursing care quality and reduce adverse effects from infections. This will allow individuals in this population to receive beneficial information that can contribute to correct practices for infection prevention and lower infection rates. Therefore, nurses should consider promoting health education among patients by using online instructional videos. The potential for patients to have online access to medically directed home care strategies on demand is especially important during events such as the recent COVID-19 pandemic, where social distancing and in-person meeting restrictions reduce the potential for face-to-face instruction with a nursing professional.

Declaration of Conflicting Interest

There is no conflict of interest to declare.

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Authors' Contributions

NV contributed to the literature review, research design, sample selection, data collection, data analysis, and manuscript writing. NK, NS, YC, and NP contributed to the study design, data collection, data analysis and wrote the manuscript. All authors approved the article's final version to be published and were accountable for each step of the study.

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Data Availability

The dataset generated during and analyzed during the current study is available from the corresponding author upon reasonable request.

Declaration of Use of AI in Scientific Writing

There is nothing to declare.

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