Comparative Effectiveness of Video and Face-to-Face Sessions to Educate Hospitalized Patients on Cancer Pain Management

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ABSTRACT

Objective: Patients' lack of knowledge of cancer pain management affects pain outcomes. This study compared the effectiveness of cancer pain management achieved in a previous retrospective study ("P-group"), in which hospitalized cancer pain individuals received no pain education, with the pain management achieved by 2 study groups. One group received pain management information via video sessions ("V-group") and the other via face-to-face coaching ("F-group"). The study's secondary aims were to compare the 2 interventions' psychological, quality-of-life, and opioid-consumption impacts.

Materials and Methods: This single-blinded, randomized, controlled trial enrolled hospitalized cancer pain patients aged between 18 and 70 with an Eastern Clinical Oncology Group performance status < 4. They were assigned to V- and F-groups to receive information on managing cancer pain. "Successful pain control" was defined as "no to mild pain" or a numerical rating scale score < 4 on Day 6. Pain intensity and opioid consumption (morphine-equivalent daily dosage) were recorded daily from baseline to Day 6. Psychological status (Hospital Anxiety and Depression Scale) and quality of life (Functional Assessment of Cancer Therapy–General) were assessed at baseline and Day 6.

Results: Fifty-nine participants were analyzed (V-group: 31; F-group: 28). Both groups had significantly higher successful pain outcomes than the P-group ($P < .001$). The V- and F-groups had no significant differences in successful pain control (20 [65%] vs 19 [68%]; $P = .787$), psychological effects, quality of life, or opioid consumption.

Conclusion: Video sessions are an alternative means of educating hospitalized cancer pain patients and reducing healthcare providers' workloads.

Keywords: Cancer pain; hospitalization; humans; neoplasm; pain management; patient education; randomized controlled trial (Siriraj Med J 2023; 75: 306-315)

INTRODUCTION

Pain remains a prevalent symptom in patients with cancer despite the availability of opioids and current guidelines.[1–3] Cancer-related pain is common across the cancer spectrum, with reported incidences between 40% and 75% of patients.[4,5] The risk factors are disease stage, comorbidities, treatment regimen, and efficacy of pain treatment.[2,4,6] Despite guidelines for managing cancer pain, pain control in cancer patients and survivors is underperformed. Fifty-five percent of all patients with cancer are undertreated for their pain, as are 66% of patients with advanced, metastatic, or terminal diseases.[5] Decreasing the pain and suffering of cancer individuals is fundamental to delivering quality care. Pain experienced

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by adults with cancer affects their physical functioning, social functioning, concentration, and mental health.[2] If the pain is compounded by anxiety, the deleterious effects on quality of life and disability are exacerbated.[2]

In Thailand, many factors are associated with inadequate cancer pain management. They include hospital remoteness, limited healthcare providers, and insufficient understanding by patients and healthcare providers of cancer pain management. In 2014, research by Wangnamthip et al revealed that only 35% of hospitalized patients at Siriraj Hospital given no pain education had excellent pain responses.[1] Patients' negative attitudes toward opioid use are one of the barriers to managing cancer pain. A study examined factors influencing nonadherence to potent opioids by Thai cancer individuals. The authors reported that 39.6% of patients were nonadherent to opioid therapy. The barriers to compliance were fear of the possible long-term outcomes, concern about opioid side effects, and a poor understanding of their illness.[7]

A meta-analysis by Bennett showed that educational interventions on cancer pain improve patients' knowledge of and attitudes toward pain and analgesia. It was also found that the interventions increased medication adherence, thereby minimizing pain intensity.[8] Educational support has therefore become a standard component of cancer care to enhance pain management.[9,10] Many interventions have been employed to overcome barriers to patient understanding of cancer pain management.[11] Among them are face-to-face coaching, video sessions, audiotapes, information sheets, booklets, and web-based information.[12,13] The traditional approach is face-to-face coaching, usually for 30 to 60 minutes. Video presentations are an interesting alternative. They are more flexible, cost-effective, and time-efficient than face-to-face coaching.[14]

Due to the unsatisfactory prevalence of poor cancer pain management at Siriraj Hospital, the authors conducted a single-blinded, randomized, controlled trial. Its primary aim was to compare the efficacy of providing hospitalized cancer pain individuals with no pain education (the historical approach) and with pain education. Two educational interventions were separately tested: video sessions ("V-group") and face-to-face coaching ("F-group"). The secondary aims were to evaluate the psychological, quality-of-life, and opioid-consumption impacts of the 2 interventions.

MATERIALS AND METHODS

Study design and setting

A single-blinded, randomized, controlled trial was conducted from August 2017 to April 2022 at Siriraj Hospital, Bangkok, Thailand. Before this research began, the Human Research Protection Unit, Faculty of Medicine Siriraj Hospital, Mahidol University, approved the study protocol (COA no. Si 231/2017). The clinical trial registration number was NCT03205579.

Participants

Participants were recruited from patients assigned to receive pain control during their hospital stay. The inclusion criteria were an age of 18 through 70 years, an Eastern Clinical Oncology Group (ECOG) performance status of < 4, and fluency in Thai. The exclusion criteria were patients with cognitive dysfunction or clinical instability, and denial of consent to participate in the study.

Interventions

During the study, all participants received standard care from pain physicians. The educational interventions were provided within 24 hours after a pain specialist prescribed pain management therapy. Each participant in the F-group was given 30 minutes of face-to-face pain education with a trained nurse, while participants in the V-group received 14 minutes of video education. The video was developed by the hospital's medical education technology center under the close supervision of pain specialists. The information provided to both groups was drawn from the WHO analgesic ladder. It encompassed the causes and effects of cancer pain, using a numerical rating scale (NRS) to estimate pain intensity, pain treatment goals, truths and myths about opioids, opioid side effects, and pain management.

This study had 2 primary objectives. The first was to compare the efficacy of face-to-face and video educational interventions for controlling pain as of Day 6 with historical data ("P-group"). To this end, the finding of the 2014 study by Wangnamthip et al was used: only 35% of hospitalized patients given no pain education had excellent pain responses. The other primary objective was to compare the efficacy of the 2 trial methods (face-to-face approach and video). The secondary objectives were to evaluate the following:

- psychological status, including anxiety and depression, via the Thai version of the Hospital Anxiety and Depression Scale (HADS)
- quality of life via the Thai version of the Functional Assessment of Cancer Therapy–General (FACT-G)
- opioid consumption via the 2 groups' morphine-equivalent daily dosages (MEDD)[15]

Data collection and outcome measures

Data were collected at baseline and on the following

6 consecutive days (7 full days). Records were made of baseline demographic data (age, sex, marital status, and education level) and clinical characteristics (body mass index, functional status [ECOG score], cancer diagnosis, primary tumor, cancer stage and grade, and pre-existing comorbidities). Other variables (pain intensity [NRS score], opioid consumption [MEDD], and analgesic usage) were evaluated before the interventions and every day from baseline to Day 6. Emotional status (HADs) and quality of life (FACT-G) were assessed before and after the intervention (baseline and Day 6). Data were collected by nurses and physicians and entered onto paper case report forms.

Functional status

ECOG performance status scores are typically used to identify patients' functional status. The scores range from 0 (fully active; able to carry on all pre-disease performance without restrictions) to 5 (deceased).[16]

Primary outcome

The NRS for pain uses an 11-point scale (0–10), with 0 signifying "no pain" and 10 denoting "the worst pain imaginable."[17] The daily patient-reported scores were combined to determine the maximum, average, and minimum experienced by each intervention group during each preceding 24-hour period. "Successful pain control" was defined as patients with a pain intensity of less than 4 (no to mild pain) on Day 6. The proportions of patients in the V-group, F-group, and P-group who achieved successful pain control were compared.

Secondary outcomes

Psychological status

The HADS uses a 14-item scale, with 7 items relating to anxiety and 7 to depression. Each item is scored from 0 to 3. Scores of 0 to 7 determined a "normal" psychological status, and scores of 8 to 10 indicated a "borderline abnormal" status. The cut point for clinical anxiety or depression was a score of 11.[18]

Quality of life

The FACT-G consists of 27 items covering 4 domains: physical well-being (7 items), social/family well-being (7 items), emotional well-being (6 items), and functional well-being (7 items). Each of the 27 items is scored from 0 ("not at all") to 4 ("very much"). Negatively worded items are reverse-scored prior to summing. Each domain score was calculated, and the FACT-G total score was determined by summing the 4 domain scores. Higher scores indicated a better quality of life.[19]

Opioid consumption

Opioid consumption levels were calculated as the MEDD.[15] The consumption included the maintenance dosage and the total breakthrough dose.

Sample size calculation and statistical analysis

One of the 2 primary objectives of this study was to establish the degree of successful pain outcomes following video-based and face-to-face-based educational interventions on pain management. We theorized that the successful pain control level resulting from each intervention strategy would be 60%, which is higher than the historical value achieved without pain education (35%, as reported by Wangnamthip et al in 2014[1]). The sample size was determined using nQuery Advisor (version 6.0; Statistical Solutions, Saugus, MA, USA). With a type 1 error of .05 (1-tailed) and a statistical power of 80%, the estimated sample size was 30 participants per intervention group (one group of tests in which the proportion equals a user-specified value [normal approximation]). The second primary objective of the current investigation was to compare the efficacy of the video-based and face-to-face-based educational interventions. We assumed that the degree of successful pain control achieved with the face-to-face approach would be 1.5-fold higher than that of the video-based intervention. According to the formula for 2 groups of tests of equal proportion, F-group's proportion was 0.9 (p1 = .90), and V-group's proportion was 0.6 (p2 = .60). Considering a type 1 error of .05 and a statistical power of 80%, the sample size was increased to 32 participants per group. After allowing for a 10% dropout rate, the final sample size was calculated as 35 participants per intervention group.

Randomization and allocation

The participants were randomly allocated to the 2 intervention groups using simple randomization. First, 70 slips of paper were divided equally among the F-group and V-group. Each slip was placed in separate sealed envelopes, which were then stored in an enclosed box. Only research assistants who were not involved in any other aspect of the study were notified by the research team that a patient had consented to participate in the trial. The same research assistant randomly selected an envelope from the storage box, thereby determining the intervention group to place the patient in. A suitably trained nurse subsequently arranged the appropriate intervention for the patient. The other trial staff and outcome assessors were blinded to the intervention group allocations.

Statistical analysis

Data analyses were performed with PASW Statistics for Windows, version 18 (SPSS Inc, Chicago, IL, USA) and Number Cruncher Statistical Software (NCSS version 10.0.19; NCSS, Kaysville, Utah, USA). Descriptive statistics were used to summarize the baseline characteristics (age, sex, education, ECOG score, cancer type and stage, reason for admission, baseline pain intensity, quality of life [FACT-G], and psychological status [HADS]). A Shapiro–Wilk normality test was used to evaluate skewness, with $P = .05$. Due to the skewness of the data, continuous variables are presented as medians (IQRs), and categorical variables are reported as numbers (percentages). The Mann–Whitney U test was used to evaluate the differences in the continuous data of the groups. Pearson's chi-square or Fisher's exact test was used for categorical group comparisons.

The exact binomial test was used to evaluate the improvement in cancer pain management achieved by each intervention relative to the previous historical study (P- vs V-group; P- vs F-group). Next, pre-post testing of the HADS and FACT-G scores within groups was undertaken using a marginal homogeneity test and the Wilcoxon signed-rank test, respectively. Finally, the repeated measure variables, including average pain intensity and MEDD, were analyzed, and imbalanced baseline variables were adjusted using repeated ANOVA. A P value < .05 determined a statistically significant difference.

RESULTS

Study population

Seventy hospitalized patients with cancer pain were enrolled. They were randomly allocated to 2 groups: 35 to the V-group and another 35 to the F-group. Eleven patients dropped out, primarily due to functional decline and a resulting inability to focus on the protocol (Fig 1). Consequently, 59 participants (31 in the V-group and 28 in the F-group) were analyzed.

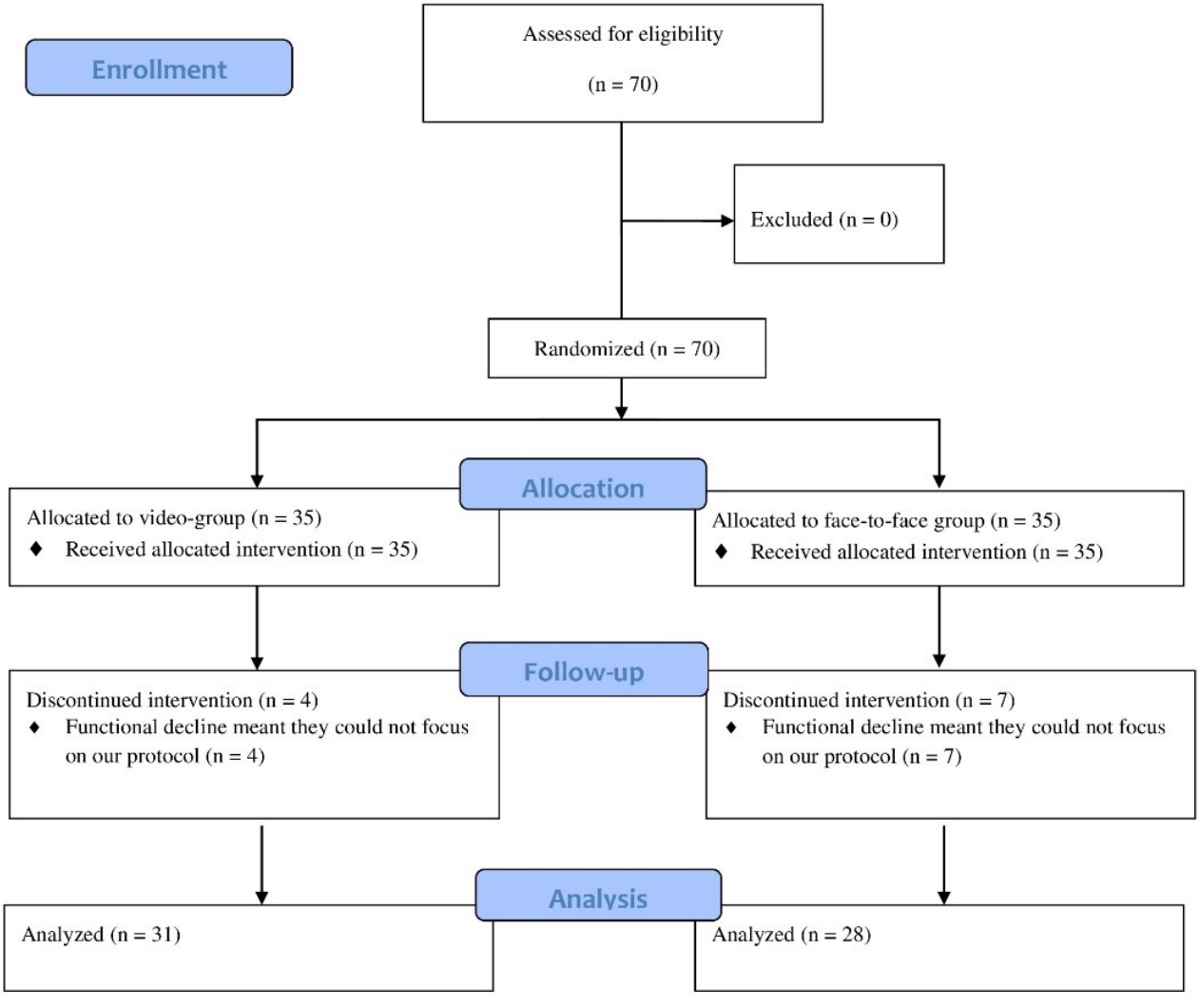


Fig 1. CONSORT 2010 Flow Diagram.

Baseline characteristics

The baseline characteristics of the study groups are detailed in Table 1. The groups had no significant differences in age, body mass index, marital status, education level, comorbidities, cancer status, primary cancer, or baseline pain intensity ($P > .05$). However, the sex profiles and ECOG scores of the groups differed significantly. The F-group had a higher proportion of females than the V-group (78.6% vs 41.9%; $P = .004$), and the distribution of the ECOG scores showed a significant difference ($P = .008$). The frequency of ECOG score 3 in the V-group was significantly lower than that in the F-group (6 patients [19.4%] vs 17 patients [60.7%]; $P = .001$). Conversely, the frequency of ECOG score 2 in the V-group was significantly greater than that in the F-group (12 patients [38.7%] vs 3 patients [10.7%]; $P = .014$).

Primary outcome

The exact binomial test evaluated the variations in the proportion of patients achieving successful pain control in the historical group (P-group) and the 2 educational intervention groups. A statistically higher proportion of patients achieved pain control in the V-group than in the P-group (65% [95% CI, 45%–81%] vs 35% [95% CI, 27%–0.43%]; $P < .001$). Similarly, there was a higher proportion in the F group than in the P-group (68% [95% CI, 48%–84%] vs 35% (95% CI, 27%–0.43%]; $P < .001$). The successful pain control levels achieved by the 2 educational interventions as of Day 6 were similar but without statistical significance (V-group, 20 patients [65%]; F-group, 19 patients (68%); $P = .787$).

Secondary outcomes

Pain intensity (maximum, average, and minimum) decreased from baseline to Day 6 in both intervention groups. There were no significant differences in the values for the 2 groups at any time point (Table 2).

Depression, anxiety, and quality of life were assessed by the HADS and FACT-G (Table 3). The 2 study groups had no significant differences in their psychological statuses (anxiety and depression) or quality of life on Day 6 ($P = .594$, .278, and .461, respectively). Moreover, there were no significant differences in the pre-post test results of the groups for psychological status or quality of life. The 2 groups had comparable levels of use of analgesics, including anticonvulsants, antidepressants, and NSAID/COX-2 inhibitors, during the trial period.

Repeated ANOVA was applied to the repeating variables (average pain intensity and MEDD). Imbalanced baseline data (sex and ECOG scores) were also adjusted. There were different average pain intensities over time ($P = .348$; no interaction between time points and factors). However, there was an interaction between ECOG scores and intervention ($P = .023$). Therefore, we analyzed the pain education groups' effects on pain intensity for each ECOG score. We found that the F-group had a significantly lower average pain intensity than the V-group for ECOG score 2 ($P = .015$; Fig 2). Repeated ANOVA for MEDD found no effect of pain education group, time, sex, or ECOG score on MEDD; nevertheless, only baseline MEDD found a significant difference (Fig 3).

DISCUSSION

Our study demonstrated that pain control improved after pain education through video and face-to-face sessions compared to a historical-conventional method without pain education. Moreover, there were no differences between the video and face-to-face methods regarding pain improvement, psychological status, quality of life, or opioid consumption.

Advancing pain education in cancer pain

Although pain treatment has become more diverse, cancer pain control remains an important issue. The main barriers to effective pain management include concerns about using pain medications, knowledge deficits, negative beliefs and attitudes, an unsupportive ambiance, and psychological distress.[20] Other research on healthcare providers revealed that nurses fear administering opioids because of the potential for patient addiction and harmful side effects. Moreover, healthcare staff may have inadequate knowledge and training on opioids, may not follow guidelines, and may focus on cancer treatment rather than pain management. Patients' opioid phobias are related to a fear of becoming addicted and a concern about possible opioid-induced side effects. Myths about the management of cancer pain and the associated symptoms contribute markedly to patients' opioid phobias.[21]

A meta-analysis by Oldenmenger et al showed that education statistically affected pain in 31% of the studies and that 66% reported a significant improvement in participants' knowledge. However, due to the heterogeneity of the studies, no recommendation on intervention types could be endorsed.[14] Capewell et al investigated a DVD-based educational intervention for palliative care patients and their caregivers. They found benefits for the participants and the caregivers within a short period. There was a median reduction in pain scores of 18% based on the Patient Pain Questionnaire and 9.4% based on the Brief Pain Inventory.[22] Additionally, participants

TABLE 1. Demographic data.

	Video group (n = 31)	Face to face group (n = 28)	*P* value	*P* group (n = 231)
Age (years), median (IQR)	54.0 (50.0–60.5)	49.0 (37.0–59.5)	.058	52.0 (40.0–61.0)
Sex, n (%)			**.004**	
Male	18 (58.1)	6 (21.4)		120 (51.9)
Female	13 (41.9)	22 (78.6)		111 (48.1)
BMI (kg/m^2), median (IQR)	19.2 (18.4–23.6)	20.9 (18.8–23.1)	.818	22.0 (19.0–24.0)
Marital status, n (%)			.583	
Married	22 (71.0)	18 (64.3)		159 (68.8)
Single/divorced/widowed	9 (29.0)	10 (35.7)		72 (31.2)
Education, n (%)			.055	
Below high school	10 (32.3)	16 (57.1)		–
High school and higher	21 (67.7)	12 (42.9)		–
Comorbidities, yes n (%)	11 (34.4)	6 (21.4)	.267	64 (27.7)
ECOG, n (%)			**.008**	–
0	2 (6.5)	1 (3.6)		–
1	11 (35.5)	7 (25.0)		–
2	12 (38.7)	3 (10.7)		–
3	6 (19.4)	17 (60.7)		–
Cancer site, n (%)			.245	
GI	9 (29.0)	4 (14.3)		–
Bronchus &Lung	4 (12.9)	1 (3.6)		–
Breast	2 (6.5)	1 (3.6)		–
Head & neck	5 (16.1)	3 (10.7)		–
Hematological	2 (6.5)	3 (10.7)		–
Gynecological	2 (6.5)	10 (35.7)		–
Urological	2 (6.5)	2 (7.1)		–
Musculoskeletal	3 (9.7)	3 (10.7)		–
Other	2 (6.5)	1 (3.6)		–
Cancer staging, n (%)			.539	
Local	10 (32.3)	7 (25.0)		48 (20.8)
Advanced	21 (67.7)	21 (75.0)		183 (79.2)
Reason to admission, n (%)			.774	
Pain control	4 (12.9)	2 (7.1)		–
Chemotherapy	5 (16.1)	8 (28.6)		–
Surgery	14 (45.2)	12 (42.9)		–
Radiation therapy	6 (19.4)	5 (17.9)		–
Others	2 (6.5)	1 (3.6)		–
Baseline pain intensity, median (IQR)				
Minimum pain score	2.0 (0.0–3.0)	2.0 (0.0–3.0)	.688	
Average pain score	4.0 (2.8–5.0)	4.5 (3.0–5.0)	.976	7.0 (6.0–10.0)
Maximum pain score	7.0 (5.5–8.0)	7.0 (6.0–10.0)	.348	

P < .05 indicates statistical significance using the chi-square or Fisher's exact test for categorical data and the Mann–Whitney U test for continuous data.

Abbreviations: BMI: body mass index, ECOG: Eastern Clinical Oncology Group

P-group is data from the previous study by Wangnamthip S, Euasobhon P, Siriussawakul A, Jirachaipitak S, Laurujisawat J, Vimolwattanasarn K. Effective Pain Management for Inpatients at Siriraj Hospital: A Retrospective Study. J Med Assoc Thai. 2016 May;99(5):565-71. PMID: 27501612.

TABLE 2. Pain intensity.

Time	Minimum pain score			Average pain score			Maximum pain score		
	V-group	F-group	*P* value (MWU)	V-group	F-group	*P* value (MWU)	V-group	F-group	*P* value (MWU)
BL	2.0 (0.0–3.0)	2.0 (0.0–3.0)	.840	4.0 (2.8–5.0)	4.5 (3.0–5.0)	.815	7.0 (5.5–8.0)	7.0 (6.0–10.0)	.306
D1	0.0 (0.0–3.0)	1.5 (0.0–2.0)	.624	3.0 (2.0–5.0)	3.0 (2.0–4.5)	.848	6.0 (4.5–8.0)	5.0 (4.0–7.0)	.396
D2	1.0 (0.0–3.0)	2.0 (0.0–2.5)	.898	3.0 (2.0–4.0)	3.5 (1.0–5.0)	.585	6.0 (4.0–7.0)	5.5 (3.0–7.5)	.760
D3	1.0 (0.0–2.5)	0.0 (0.0–3.0)	.532	3.5 (1.0–5.0)	2.5 (1.0–4.0)	.505	6.0 (4.0–7.0)	4.0 (2.5–7.0)	.292
D4	1.0 (0.0–2.0)	0.0 (0.0–3.0)	.531	3.0 (2.0–4.5)	3.0 (1.0–4.5)	.878	6.0 (4.0–7.0)	5.0 (2.0–8.0)	.830
D5	0.0 (0.0–2.5)	0.0 (0.0–2.5)	.632	2.5 (1.0–5.0)	2.0 (2.0–3.5)	.939	5.0 (3.0–6.5)	5.0 (2.5–7.5)	.842
D6	2.0 (0.0–3.0)	0.0 (0.0–3.5)	.968	3.0 (1.0–4.0)	2.0 (1.0–5.0)	.957	5.0 (2.5–7.0)	5.0 (2.5–7.0)	.825

P < .05 indicates statistical significance using the Mann–Whitney U test (MWU)
Abbreviations: BL: baseline; D1–D6: Day 1–Day 6

TABLE 3. Psychological status and quality of life.

	Group V (n = 31)	Group F (n = 28)	*P* value (ChS)
Psychological status			
Pre-test HADS-A			.123
Normal 0–7	14 (45.2)	20 (71.4)	
Borderline 8–10	10 (32.3)	5 (17.9)	
Abnormal 11–21	7 (22.6)	3 (10.7)	
Post-test HADS-A			.594
Normal	17 (54.8)	15 (53.6)	
Borderline 8–10	7 (22.6)	9 (32.1)	
Abnormal 11–21	7 (22.6)	4 (14.3)	
P-value (MHT)	.564	.090	
Pre-test HADS-D			.170
Normal	20 (64.5)	21 (75.0)	
Borderline	2 (6.5)	4 (14.3)	
Abnormal	9 (29.0)	3 (10.7)	
Post-test HADS-D			.278
Normal	23 (74.2)	18 (64.3)	
Borderline	3 (9.7)	7 (25.0)	
Abnormal	5 (16.1)	3 (10.7)	
P-value (MHT)	.058	.257	
Quality of life			*P* value (MWU)
Pre-test for FACT-G	58.0 (53.0–66.5)	58.0 (51.5–62.0)	.600
Post-test for FACT-G	56.0 (49.5–63.0)	55.0 (49.5–60.0)	.461
P value (WSR)	.227	.122	

P < .05 indicates statistical significance using the chi-square test (ChS), Mann–Whitney U test (MWU), marginal homogeneity test (MHT), and Wilcoxon signed-rank test (WSR)
Abbreviations: HADS-A: Hospital Anxiety and Depression Scale for anxiety; HADS-D: Hospital Anxiety and Depression Scale for depression, FACT-G: Functional Assessment of Cancer Therapy–General

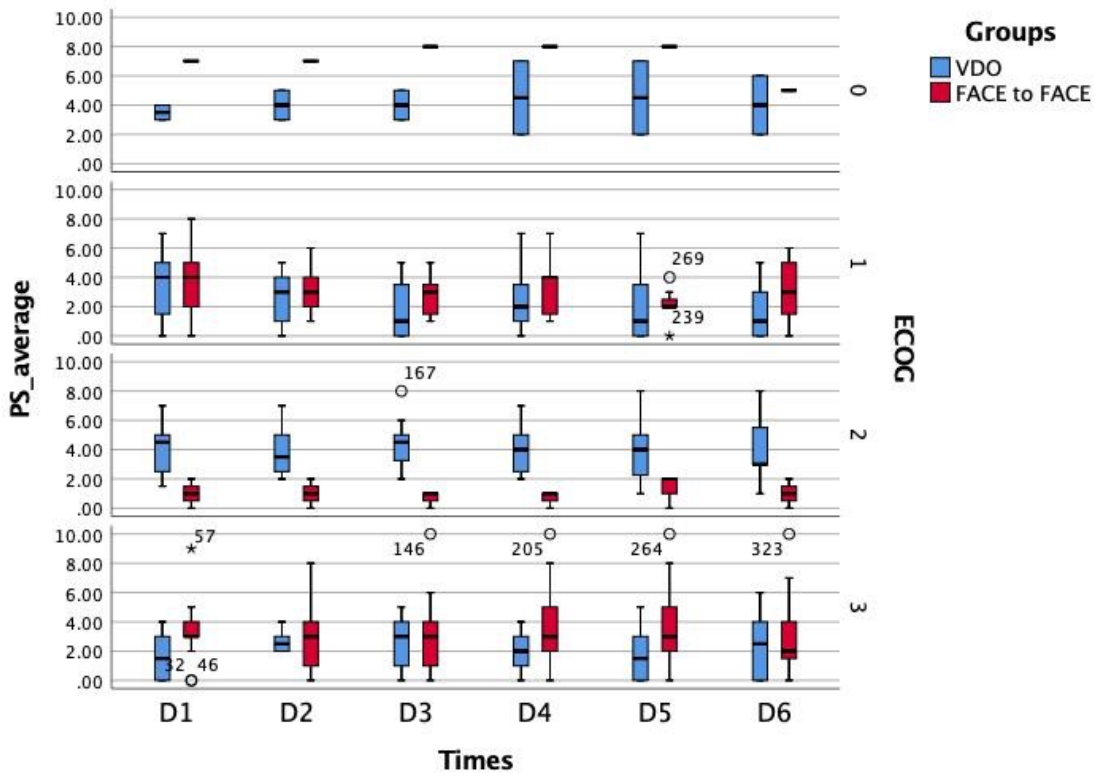


Fig 2. Demonstrates the median pain intensity on average after adjusting the baseline in repeated ANOVA.

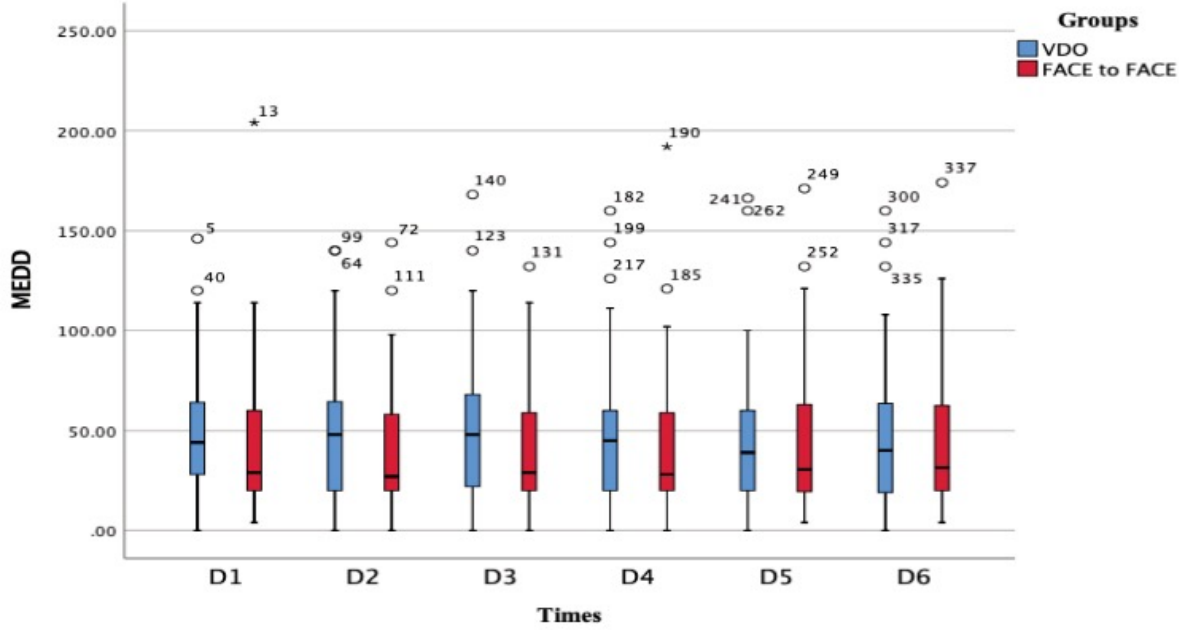


Fig 3. Demonstrates the median morphine-equivalent daily dosage (MEDD) after adjusting the baseline for sex and ECOG score with repeated ANOVA.

who received pain education reported greater degrees of pain reduction than those without pain education. Therefore, gaining knowledge through an educational intervention increases confidence in prescribed pain management medicines and heightens the likelihood of successful pain control.

Technology can assist efforts to improve care quality

Due to the limited number of healthcare personnel in Thailand, the ratios of doctors and nurses to the national population were 1:1680 and 1:353, respectively, in 2022.[23] In addition, a review reported that system factors such as the use of locums and work overloads are risk factors

for irresponsible care and medical errors.[24] A different study evaluated healthcare providers' compliance with guidelines aimed at preventing the mislabeling of blood samples in collection tubes, which results in the incorrect identification of patients. The investigation found that work overload was an independent risk factor.[25] Another qualitative review of the linkage between workplace stressors and the quality of care reported that both have negative associative factors. For example, work overloads lead to prolonged waiting times for examinations and admissions, shorter times for conversations, and fewer opportunities to explain symptoms. The researchers suggested that work-related stress prevention, such as improvements to the workplace atmosphere and culture, would positively impact the quality of patient care.[26]

Technology such as video and social media has been accepted as a tool for caring for patients, learning about diseases, and self-care. Information technology has become more critical to healthcare operators, with their mission of keeping patients safe and providing satisfying service. Nurses are responsible for giving close attention to patients. Information technology has been introduced in healthcare settings to enable nursing staff to increase patient safety and help prevent mistakes stemming from human error.[27] A review found that collaborating with relevant community groups to create educational videos with appealing content and an appropriate length can significantly impact society. This approach can be emulated to educate the public about various diseases.[28] Conversely, face-to-face coaching is a practical approach to improving cancer pain management; additionally, it enables the exploration of individual points of view, beliefs, and behaviors affecting cancer pain management. However, face-to-face coaching is time-consuming, costly, and laborious.[29] In contrast, video sessions only provide one-way communication. Nevertheless, they can lessen the time, costs, and effort needed to educate cancer patients.[30] Therefore, technology, especially videos, can be applied to educate hospitalized cancer pain patients instead of face-to-face coaching, which requires substantially more human resources.

Limitations

The generalizability of these results is subject to certain limitations. First, our population was hospitalized cancer patients. Such patients often have poor physical status, declined cognitive function, and, eventually, attention deficits. Therefore, pain education might benefit participants with greater functional levels. Second, we collected data for only 7 days. The observed outcomes might not be representative of hospitalized cancer patients with extended hospital stays. Further research is necessary to explore the longer-term effects of video and other high-technology media to determine whether they should be extended to other populations, such as patients with chronic non-cancer pain.

CONCLUSION

This study established that educating hospitalized patients about pain management via video presentations and face-to-face coaching improves the effectiveness of cancer pain management. Additionally, video sessions can be utilized to counter myths about pain management among hospitalized cancer pain patients and to decrease healthcare providers' workloads. Future research should:

- explore video educational sessions' longer-term effects;
- investigate the adoption of user-friendly technology with appealing content;
- identify new and alternative educational methods; and
- consider customizing material to enhance the application and effectiveness of video sessions in various populations.

Conflicts of interest

All authors declare that they have no conflicts of interest.

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REFERENCES

1. Wangnamthip S, Euasobhon P, Siriussawakul A, Jirachaipitak S, Laurujisawat J, Vimolwattanasarn K. Effective pain management for inpatients at Siriraj hospital: a retrospective study. J Med Assoc Thai. 2016;99(5):565-71.
2. Paice JA. Pain in Cancer Survivors: How to Manage. Curr Treat Options Oncol. 2019;20(6):48.
3. Organization WH. WHO guidelines for the pharmacological and radiotherapeutic management of cancer pain in adults and adolescents. 2018.

4. Bouhassira D, Luporsi E, Krakowski I. Prevalence and incidence of chronic pain with or without neuropathic characteristics in patients with cancer. Pain. 2017;158(6):1118-25.
5. van den Beuken-van Everdingen MH, Hochstenbach LM, Joosten EA, Tjan-Heijnen VC, Janssen DJ. Update on Prevalence of Pain in Patients With Cancer: Systematic Review and Meta-Analysis. J Pain Symptom Manage. 2016;51(6):1070-90 e9.
6. Wangnamthip S. Cancer Pain Management: Is It Still Problematic? Siriraj Med J. 2019;71(1):38-43.
7. Seangrung R, Ahuja M, Pasutharnchat K, Mahawan R. Factors influencing non-adherence to opioids in cancer patients: a mixed-methods cross-sectional study. F1000Res. 2020;9:1471.
8. Bennett MI, Bagnall AM, Jose Closs S. How effective are patient-based educational interventions in the management of cancer pain? Systematic review and meta-analysis. Pain. 2009;143(3):192-9.
9. National Comprehensive Cancer Network, NCCN Clinical Practice Guidelines in Oncology: Adult Cancer Pain, Version 3.2019.
10. Bennett MI, Eisenberg E, Ahmedzai SH, Bhaskar A, O'Brien T, Mercadante S, et al. Standards for the management of cancer-related pain across Europe-A position paper from the EFIC Task Force on Cancer Pain. Eur J Pain. 2019;23(4):660-8.
11. Koh SJ, Keam B, Hyun MK, Ju Seo J, Uk Park K, Oh SY, et al. Cancer Pain Management Education Rectifies Patients' Misconceptions of Cancer Pain, Reduces Pain, and Improves Quality of Life. Pain Med. 2018;19(12):2546-55.
12. ElMokhallalati Y, Mulvey MR, Bennett MI. Interventions to support self-management in cancer pain. Pain Rep. 2018;3(6):e690.
13. Martin MY, Pisu M, Kvale EA, Johns SA. Developing effective cancer pain education programs. Curr Pain Headache Rep. 2012;16(4):332-42.
14. Oldenmenger WH, Geerling JI, Mostovaya I, Vissers KCP, de Graeff A, Reyners AKL, et al. A systematic review of the effectiveness of patient-based educational interventions to improve cancer-related pain. Cancer Treat Rev. 2018;63:96-103.
15. Treillet E, Laurent S, Hadjiat Y. Practical management of opioid rotation and equianalgesia. J Pain Res. 2018;11:2587-601.
16. Datta SS, Ghosal N, Daruvala R, Chakraborty S, Shrimali RK, van Zanten C, et al. How do clinicians rate patient's performance status using the ECOG performance scale? A mixed-methods exploration of variability in decision-making in oncology. Ecancermedicalscience. 2019;13:913.
17. Breivik H, Borchgrevink PC, Allen SM, Rosseland LA, Romundstad L, Hals EK, et al. Assessment of pain. Br J Anaesth. 2008;101(1):17-24.
18. Nilchaikovit T. Development of Thai version of hospital anxiety and depression scale in cancer patients. J Psychiatr Assoc Thai. 1996;4:18-30.
19. Thanasilp S, Suwannapong K, Long NH. Validation of the Thai Version of the Functional Assessment of Cancer Therapy-General (FACT-G) for Persons with Terminal Cancer. Journal of Pain and Symptom Management. 2018;56(6):e137-e8.
20. Almasri BM, McDonald DD. Barriers and Facilitators of Pain Self-Management Among Patients with Cancer: An Integrative Review. Pain Manag Nurs. 2023.
21. Bashayreh A. Opioidphobia and Cancer Pain Management. Journal of Pediatric Hematology Oncology. 2011;33:60-1.
22. Lam M, Choi M, Lam HR, Agarwal A, Chow R, Chow S, et al. Use of multimedia in patient and caregiver education for cancer pain management: a literature review. Ann Palliat Med. 2017;6:66-72.
23. Information Hr. Statistics of the number of medical personnel in Thailand in National Statistical Office; 2022.
24. Harbitza MB, Stenslandb PS, Gaskic M. Rural general practice staff experiences of patient safety incidents and low quality of care in Norway: an interview study. Fam Pract. 2022;39:130-6.
25. Daurat A, Boudet E, Daurat G, Roger C, Gris J-C, Tunez V, et al. Evaluation of the non-compliance with grouping guidelines which may lead to "wrong blood in tube": an observational study and risk factor analysis. Transfusion Clinique et Biologique. 2017;24(2):47-51.
26. Karadzinska-Bislimovska J, Basarovska V, Mijakoski D, Minov J, Stoleski S, Angeleska N, et al. Linkages between workplace stressors and quality of care from health professionals' perspective - Macedonian experience. Br J Health Psychol. 2014;19(2):425-41.
27. Silapavitayatorn B, Chitpakdee B. The Use of Health Information Technology in Nursing for Patient Safety. Journal of Nursing and Health Care. 2020;38(2):6-14.
28. Jagota P, Jongsuntisuk P, Plengsri R, Chokpatcharavate M, Phokaewvarangkul O, Chirapravati V, et al. If Your Patients Were Too Embarrassed to Go Out in Public, What Would You Do? - Public Education to Break the Stigma on Parkinson's Disease Using Integrated Media. Patient Relat Outcome Meas 2020;11:143-8.
29. Thomas ML, Fahey KF, Christine Miaskowski R, editors. A randomized, clinical trial of education or motivational-interviewing-based coaching compared to usual care to improve cancer pain management. Oncology Nursing Forum; 2012: Oncology Nursing Society.
30. Syrjala KL, Abrams JR, Polissar NL, Hansberry J, Robison J, DuPen S, et al. Patient training in cancer pain management using integrated print and video materials: a multisite randomized controlled trial. Pain. 2008;135(1-2):175-86.