Original Article

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A Comparative Analysis of Interest in Advanced Care Planning and Organ Donation Following Exposure to Video or Pamphlet Media

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ABSTRACT

OBJECTIVE: To compare the increase in interest in engaging in advance care planning between two groups: those receiving information via video media and those receiving information via pamphlets.

METHODS: A randomized controlled trial was conducted with 100 participants aged 18 to 60 years, who understood Thai and had no diagnosed psychiatric disorders or neurological conditions affecting consciousness, nor were they considered legally incompetent. The participants visited the Family Medicine Clinic at Vajira Hospital in 2024. The participants were screened using inclusion and exclusion criteria. The sample was divided using simple random sampling into two groups: 50 participants receiving information through a video and 50 participants receiving information through a pamphlet. Participants were asked to complete a questionnaire regarding their interest in engaging in advance care planning and organ donation. The level of interest was assessed using a five-point Likert scale, where a score of 5 indicates "very interested" and a score of 1 indicates "not interested". The content validity of the questionnaire was evaluated by three medical experts, demonstrating an index of item objective congruence of 0.85. Afterward, they either watched the video or read the pamphlet and then immediately completed the same questionnaire.

RESULTS: There were no significant differences in the basic characteristics of both groups. The average score of interest in creating an advance directive and organ donation significantly increased in the experimental group (by 1.4 and 0.82 points, respectively) compared with the control group (by 0.38 and 0.16 points, respectively) ($p < 0.001$).

CONCLUSION: Providing information through video media was more effective in increasing interest in advance care planning and organ donation compared with providing information through pamphlets.

KEYWORDS: advance care planning, advance directives, organ donation, pamphlets, video media

INTRODUCTION

Advance care planning allows individuals to plan for future health care decisions in the event they become unable to make their own decisions[1]. It helps ensure that end-of-life care aligns with patients' needs[2], reduces patient anxiety and fear of the care team, allows patients to plan for future affairs, and prevents conflicts between family and relatives over treatment decisions. In addition, it can help reduce unnecessary health care costs and resource use[3]. Thailand's National Health Act of 2007, section 12, upholds the right of citizens to create advance directives to refuse life-sustaining treatments or

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to end suffering from illness. Since advance care planning and advance directives serve as important communication tools, Thailand has developed a tool that provides a standard form for patients or those interested in completing it[4,5]. Currently, advance care planning and advance directives are provided in different ways across institutions. At Vajira Hospital, advance care planning and advance directives are discussed with patients in the terminal stage, as well as with those who request this information.

In a study conducted among patients who received outpatient services at the Family Medicine Department, Vajira Hospital, only 3% of patients had engaged in advance care planning[6]. Research conducted by Canny and colleagues on public awareness of advance care planning worldwide from 2015 to 2021 consistently showed that a lack of knowledge was the main factor leading to low rates of advance care planning[7]. Other factors included fear, the belief that advance care planning brings bad luck, and feelings of sadness that distress both the patient and family. In addition, there was a lack of trust in family members to make decisions on the patient's behalf, misunderstandings, confusion over whether advance care planning needs to be performed at the end of life, and misconceptions about treatments such as cardiopulmonary resuscitation or intubation, thinking they would cure the underlying illness. There was also an expectation that medical personnel would initiate discussions about advance care planning; however evidence suggests that doctors do not have enough time to initiate the conversations[7]. A qualitative study using in-depth interviews in Australia also found that the lack of knowledge was a significant factor contributing to low rates of advance care planning. Participants expressed comments such as, "I've never heard of it before," "I don't know what it is," "I didn't know advance care planning existed," and "I don't know where to get information about it[8]." An experimental study conducted among older adult patients compared those who received information about advance care planning through a video with those who received standard advice at a healthy aging clinic at Chulalongkorn Hospital[9]. The group who watched the video showed more interest in creating advance directives than the group receiving standard advice did, despite being given the same amount of time for guidance. In Taiwan, patients in the geriatrics department watched a video on advance care planning, and at 2-week follow-up after hospital discharge, those who watched the video were found to complete advance directives more frequently than those who received standard advice (33.3% vs. 9.3%). In addition, the group who watched the video had increased knowledge and interest in advance care planning[10]. In a study conducted in the general population in Korea, the authors reported that those who watched a video had greater intentions to engage in advance care planning and gained better knowledge about palliative care compared with those who read a pamphlet[11].

The mortality rate of the Thai population has increased. According to public health statistics from 2017 to 2021, the mortality rate among the Thai population aged 20 to 59 years was as high as 28.6% to 30.3%, which is almost one-third of the mortality rate across all age groups[12]. In 2022, there were 6,279 individuals on the waiting list for organ transplants, whereas 303 deceased individuals donated organs, equating to 4.6 donors per million population. There were 105,743 individuals registered as organ donors, which is a decrease of 29,876 from 2021[13]. Organ donation can be arranged by completing an advance directive, which may be done in conjunction with advance care planning.

As a result, advance care planning is considered to be a beneficial procedure for maintaining autonomy and providing future medical information from the patient's perspective to their family and health care professionals. Currently, the health education media available to patients at Vajira Hospital consists of paper and screen-based media. Each media supports patients in different ways. Screen-based media

could provide information, examples, and scenarios, printed materials offer detailed information[14].

The provision of information through video media significantly increases interest in advance care planning and the creation of advance directives, particularly among the older adult population[9-11]. However, beyond older adults, advance care planning can be conducted by individuals of all ages and genders. Therefore, in this study, we aim to examine the provision of advance care planning and organ donation information through video media as compared with through traditional pamphlets to a population aged 18 to 60 years. We hypothesized that providing information on advance care planning through video media will increase interest in creating in advance directives and/or organ donation more than providing information via pamphlets would. The results of this study will be used to plan for providing information to the public in the future.

METHODS

This study was a randomized controlled trial comprising 100 participants who attended the Family Medicine Clinic at Vajira Hospital between April 2024 and June 2024. Sample size calculations for the randomized controlled trial with binary outcome formula shown in Figure 1[9, 15-17] indicated that each group should consist of at least 29 individuals to account for potential incomplete data collection.

$$m_{trt} = \frac{n_{trt}}{4}\left(1+\sqrt{1+\frac{2(r+1)}{n_{trt}r|p_2-p_1|}}\right)^2$$

$$n_{trt} = \left[\frac{z_{1-\frac{\alpha}{2}}\sqrt{\bar{p}\bar{q}\left(1+\frac{1}{r}\right)}+z_{1-\beta}\sqrt{p_1q_1+\frac{p_2q_2}{r}}}{\Delta}\right]^2$$

$$p_1 = P(outcome|treatment), q_1 = 1-p_1$$

$$p_2 = P(outcome|control), q_2 = 1-p_2$$

$$\bar{p} = \frac{p_1+p_2r}{1+r}, \bar{q} = 1-\bar{p}, r = \frac{n_{con}}{n_{trt}}$$

Figure 1 The sample size formula

The sample size calculation for a randomized controlled trial with a binary outcome was conducted using n4Studies software. The parameters used for the calculation included a treatment group outcome probability of P(outcome | treatment) = 0.980 and a control group outcome probability of P (outcome | control) = 0.670, with a treatment-to-control ratio of 1.00. The significance level (α) was set at 0.05, with a Z value of 1.959964 for a 97.5% confidence interval, and the power (1 - β) was set at 80% (β = 0.20), with a Z value of 0.841621. Based on these inputs, the calculated sample size without a continuity correction was 23 participants per group (treatment and control). Additionally, applying a continuity correction resulted in an increased sample size of 29 participants per group.

Consequently, we recruited 50 individuals per group, resulting in a total of 100 participants. Inclusion criteria were individuals aged 18 to 60 years who were able to listen, speak, and read Thai. The exclusion criteria were individuals diagnosed with psychiatric disorders or neurologic conditions affecting consciousness or those considered legally incompetent.

The primary objective of the study was to compare the interest in creating advance directives between two groups: one group receiving information through video media and the other receiving information via pamphlets. The secondary objective was to compare interest in organ donation between these two groups.

The research tools consisted of three components. First, the educational materials were either a video or pamphlet, and both media types provided information on advance care planning and organ donation. They included topics such as the definition of advance care planning, relevant laws, benefits, who should consider it, procedural steps, eligibility for organ donation, the types of organs that can be donated, the donation process, and a simulated scenario (for the video) depicts a young adult man was involved in a traffic accident and received life support through an endotracheal tube,

after which he was admitted to the ICU. Despite medical intervention, his condition did not improve, and the doctors determined that he had suffered brain death. His mother, deeply saddened and distressed by the situation, recalled that her son had previously expressed his wishes regarding his healthcare. He had communicated that he did not want to be resuscitated in the event of a vegetative state, poor quality of life, or loss of human dignity. Additionally, he had expressed a desire to donate his organs to help others in need of a transplant. In light of this, his mother, although grieving, found solace in respecting his wishes and made the decision to honor his wishes for organ donation. These materials were reviewed and validated by three family medicine specialists. Second, the data recording form contained demographic information with 9 questions including age, gender, marital status, education, religion, income, underlying disease, and whether participants had relatives or close individuals receiving palliative care or needing organ donation. Third, a questionnaire was applied to assess participants' interest in advance care planning and organ donation with 4 questions including the baseline level of interest in engaging in advance care planning, the baseline level of interest in organ donation, the level of interest in engaging in advance care planning following the intervention, and the level of interest in organ donation following the intervention. The questionnaire was developed based on the literature review. Then, its content validity was analyzed by three experts, demonstrating an index of item objective congruence of 0.85. Participants rated their opinions on a 5-point Likert-type scale (with a minimum of 1 and a maximum of 5) before and after receiving the educational information. The cut-off point is 3; a score of 3 or higher indicates interest, while a score below 3 indicates no interest.

After recruiting participants who met the eligibility criteria, the researcher explained the study's objectives, research procedures, potential risks, and the option to withdraw from the study and obtained informed consent. Participants were randomly assigned via simple randomization by a random number generator into two groups: an experimental group (video media) and a control group (pamphlet) allocating that each day participants will be receiving the same intervention at the Family Medicine Clinic. All participants completed a questionnaire assessing their interest in advance care planning and organ donation. The control group was instructed to read the pamphlet, which took approximately 10 minutes, whereas the experimental group watched an 8-minute video. Afterward, participants completed the same questionnaire again to assess their interest in advance care planning and organ donation. The video was not disseminated elsewhere, and the study was conducted on separate days for the control and experimental groups to ensure that the control group received information from only the pamphlet and was not influenced by the video content.

Statistical data analysis was conducted using STATA version 13.0 (Stata Corporation, College Station, TX, USA). We calculated the descriptive data, including gender, marital status, education, religion, average monthly income, underlying disease, whether the participant had relatives or close individuals receiving palliative care, and whether the participant had relatives or close individuals who needed organ donation, as percentages. Comparisons were made using the Chi-square test, Mann–Whitney U test, and Fisher's exact test, as appropriate for the data. Quantitative data, including age, and interest scores were reported as the mean and standard deviation (mean ± SD). Comparisons were made using the Mann–Whitney U test and Chi-square test, as appropriate. We used multilevel mean difference regression with random intercepts and random effect to analyze the mean difference in interest scores from baseline to after the intervention in both the video and pamphlet groups and to compare the mean difference in interest scores at baseline between

the two groups and between each participant (intercept) at baseline. Multivariable analysis adjusted for interest scores in creating advance directives at baseline. The Ethics Committee of the Faculty of Medicine, Vajira Hospital, Navamindradhiraj University, approved this study, with the research project number 194/66 E on January 2, 2024.

RESULTS

We collected data from 100 participants at the Family Medicine Clinic, Vajira Hospital divided into two groups: 50 participants in the video group and 50 in the pamphlet group. The basic characteristics collected included average age, gender, marital status, education, religion, income, underlying diseases, whether the participant had relatives or close individuals receiving palliative care, and whether the participant had relatives or close individuals who required organ donation. As shown in Table 1, there were no statistically significant differences between the groups.

Table 1 Baseline characteristics of participants in Video media and Pamphlet groups

Characteristic	Video media (n = 50)	Pamphlet (n = 50)	P-value*
Age (median (IQR))	46 (34-52)	43 (35-50.5)	0.666*
Female (n, %)	36, 72	34, 68	0.663
Marital Status (n, %)			0.693**
Single	22, 44	18, 36	
Married	23, 46	28, 56	
Widowed/Divorced/Separated	5, 10	4, 8	
Education (n, %)			0.548
Under Bachelor	26, 52	23, 46	
Bachelor or higher	24, 48	27, 54	
Religious (n, %)			0.617**
Buddhist	49, 98	47, 94	
Christian	0, 0	1, 2	
Islam	1, 2	2, 4	
Monthly Income (n, %)			0.320
Less than 5,000 THB	6, 12	7, 14	
5,000 to 10,000 THB	1, 2	2, 4	
10,001 to 20,000 THB	24, 48	16, 32	
More than 20,000 THB	19, 38	25, 50	
Underlying disease (n, %)			0.056
No underlying disease	12, 24	21, 42	
Has underlying disease	38, 76	29, 58	
Having Relatives or Close Individuals Receiving Palliative Care (n, %)			1.000
Yes	6, 12	6, 12	
No	44, 88	44, 88	
Having Relatives or Close Individuals in Need of Organ Donation (n, %)			1.000
Yes	0, 0	1, 2	
No	50, 100	49, 98	

Abbreviations: IQR, interquartile range; n, number; SD, standard deviation; THB, Thai Baht
The data were analyzed using the Chi-square test, *Mann-Whitney U test, and **Fisher's exact test.
* Significant level at $p < 0.05$, Chi-square test or Fisher's exact test & Independent t-test or Mann-Whitney U test were used to compared characteristics between video media and pamphlet group.

The group who received information via video media had an average baseline score for interest in creating advance directives of 2.34 ± 1.349 points, whereas the group who received information via pamphlet had an average baseline score of 2.86 ± 1.161 points. This difference was statistically significant (p = 0.037). However, to assess the effectiveness of the intervention, this difference was controlled using multilevel linear regression. After the intervention, the group who received information via video media had an average score of 3.74 ± 0.986 points, whereas the group receiving information via pamphlet had an average score of 3.24 ± 0.797 points. This difference was statistically significant (p < 0.001). The average interest scores in creating advance directives, both before and after receiving information via video media compared with the pamphlet, are shown in Figure 2 and detailed in Table 2.

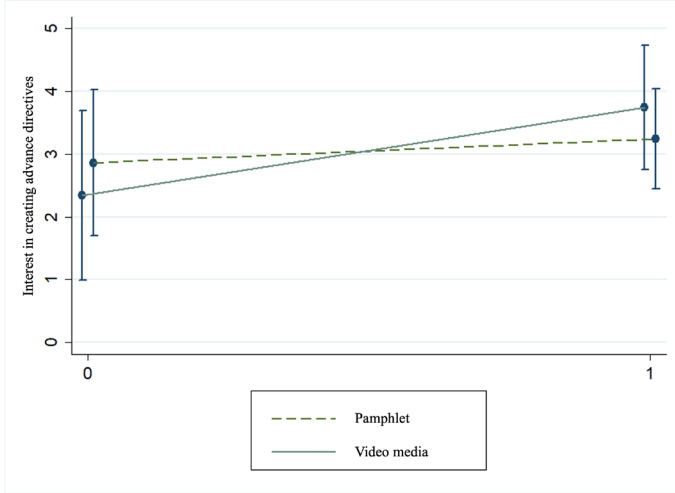

Figure 2 Mean with standard deviation of interest scores in creating advance directive from baseline to post intervention in intervention group and control group

Table 2 Multilevel mean difference regression analysis with random intercepts and random effect for interest score in creating advance directives and organ donation of participants from baseline to post intervention

Endpoint of interested	Video group	Pamphlet group	Mean difference of scores from baseline to post-intervention in Video group	P-value*	Mean difference of scores from baseline to post-intervention in Pamphlet group	P-value*	Difference of change between two group	P-value†
Interest in creating advance directives								
at baseline	2.34 ± 1.349	2.86 ± 1.161	Ref.		Ref.			
at post-intervention	3.74 ± 0.986	3.24 ± 0.797	1.40 (1.068 to 1.732)	0.000	0.38 (0.478 to 0.712)	0.025	1.02 (0.550 to 1.490)	0.000
Interest in organ donation								
at baseline	2.74 ± 1.259	3.08 ± 1.158	Ref.		Ref.			
at post-intervention	3.56 ± 1.072	3.24 ± 0.960	0.82 (0.537 to 1.103)	0.000	0.16 (-0.123 to 0.443)	0.267	0.66 (0.260 to 1.060)	0.001

* Multilevel mean difference regression with random intercepts and random effect was used to analyze mean difference in interest scores from baseline to post intervention both video and pamphlet group and to compare mean difference in interest scores at baseline between two group and between each participant (intercept) at baseline. Multivariable analysis adjusted for interest scores in creating advance directives at baseline.

† Multilevel risk difference regression with random intercepts and random effects was used to calculate mean difference in effect over time (slope) on interest score at post intervention between video and pamphlet group. Multivariable analysis adjusted for interest scores in creating advance directives at baseline.

‡ Multilevel mean difference regression with random intercepts and random effect was used to analyze mean difference in interest score at baseline between video and pamphlet group.

With regard to interest in organ donation, the group who received information via video media had an average baseline score of 2.74 ± 1.259 points, whereas the group who received information via pamphlet had an average baseline score of 3.08 ± 1.158 points. This difference was not statistically significant (p = 0.203). After the intervention, the group who received information via video media had an average score of 3.56 ± 1.072 points, whereas the group who received information via pamphlet had an average score of 3.24 ± 0.960 points. This difference was statistically significant (p = 0.038). The average interest scores in organ donation, both before and after receiving information via video compared with pamphlet, are shown in Figure 3 and detailed in Table 2.

The calculations of the increase in interest scores at baseline and post-intervention demonstrated that the video group showed a significantly greater increase in interest in both creating advance directives and organ donation compared with the pamphlet group (p = 0.000 and 0.0012, respectively). The mean difference in scores from baseline to post-intervention for the video group was 1.40 points in interest in creating advance directives, whereas the pamphlet group showed a mean difference of 0.38 points. For organ donation, the video group demonstrated a mean difference of 0.82 points, while the pamphlet group had a mean difference of 0.16 points, as shown in Table 2.

DISCUSSION

In this study, we examined the increased interest in creating advance directives and organ donation in participants who received information via video media compared with those receiving information through pamphlets at the Family Medicine Clinic, Vajira Hospital. The questionnaire measured interest both before and after the intervention, using a 5-point Likert scale, with scores ranging from 1 to 5. The study found no significant difference in the baseline characteristics between the two groups. Although at baseline prior to receive the advance care plan information, the pamphlet group showed greater interest in creating advance directives compared with the video group. After controlling for this factor, we found that the video group had a statistically significant increase in interest. In video group, interest in creating advance directives increased by 1.4 points (from 2.34 to 3.74, p = 0.000), and interest in organ donation increased by 0.82 points (from 2.74 to 3.56, p = 0.000). The difference in the increase in interest between the two groups was also statistically significant (p = 0.000 and 0.001, respectively). These findings are consistent with the results of a study conducted in Thailand

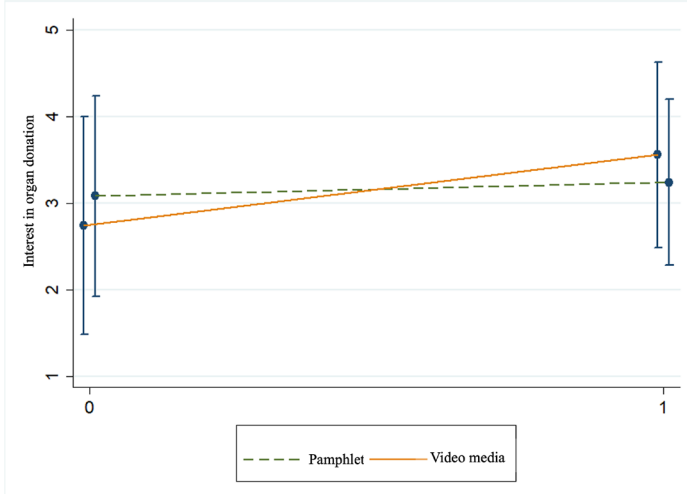

Figure 3 Mean with standard deviation of interest scores in organ donation from baseline to post intervention in intervention group and control group

among older participants[9]. The effectiveness of video as a medium may stem from its ability to engage multiple senses-sight, hearing, and reading short key phrases simultaneously-creating content that is more visual, easier to understand, and able to more effectively capture attention in a short period compared with audio or reading alone[9]. This is also similar to studies conducted in Taiwan and South Korea, where cultural similarities may play a role and video was found to be a highly engaging medium[10,11].

Although the video significantly increased participants' interest in creating advance directives and in organ donation compared to the pamphlet alone, the educational material in the pamphlet also provided detailed information, allowing participants to spend time outside the clinic reading independently. The video effectively captured attention and presented case scenarios that helped to illustrate key concepts, enhancing participants' understanding. Combining these two methods may work synergistically to further enhance participants' interest.

This study's limitations are that it evaluated the interest of participants immediately after they received the information and did not follow up for long-term assessment. In addition, some research participants had vision problems, which posed a barrier to reading the pamphlets. However, the researcher ensured that the participants were capable of reading. In the future, those who receive this information may have personal experiences, such as their own illness or other of their family and friends, that could lead them to consider whether advance care planning is in place, benefiting those who received the information to some extent.

Because participants may become more interested or decide to create advance directives or increase organ donation after discussing the information with family members, future research should include longitudinal studies. It may also be beneficial to gather data from those who engage in advance care planning or create advance directives to identify the factors influencing their decisions, with the expectation that prior information will positively affect their planning decisions.

Furthermore, palliative care has been promoted by the National Health Commission, and the Ministry of Public Health supports the development of health systems for end-of-life care, promoting policies and organizing various activities to endorse the knowledge and understanding of the topic to individuals and the public. Continuous information could be provided through video media to enhance comprehension and familiarity, reduce fear, and normalize discussions on these topics, similar to financial planning, health care, work, or retirement planning. This could lead to greater societal acceptance and interest in advance care planning.

CONCLUSION

In summary, advance care planning remains a concept that is not widely recognized by the public. Providing information through video media could more effectively enhance interest in advance care planning and organ donation than pamphlets could. In addition, video is a convenient and engaging media that well captures attention and is resource efficient.

Further studies could investigate the combination of video and pamphlet interventions to increase interest and awareness of creating advance directives. Additionally, future interventions could incorporate a holistic health education program that combines these two methods to provide a more comprehensive approach.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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DATA AVAILABILITY STATEMENT

The research data are presented in this article. For additional information, please contact the corresponding author.

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