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Palliative inter-professional learning via cased based tele-videoconference
Experience from the hospice development stage in Taiwan and China

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Abstract

Palliative care in rural areas can be difficult to assess and, often is of lower quality compared to more densely populated regions. A program of multicenter palliative care discussion forum via tele-videoconference may be a promising tool for exchanging valuable experience and constructing a comprehensive hospice care system in Taiwan and China.

The multicenter palliative care discussion forum began 1997 and 2010 in Taiwan and China, respectively. In every forum, 1 to 2 cases were presented by multiple field specialists, and multi-dimensional problems were discussed. All of these case reports and reference materials from the forums were analyzed.

The conference discussed 199 and 143 cases in Taiwan and China, including 172 and 143 cancer patients. The most common mentioned symptom was pain (66.3% in Taiwan, 96.95% in China). As time went on, the rate of discussion in pain management issues decreased, but the social and psycho-spiritual issues increased in Taiwan. After some major legal and social changes, the discussion of ethical issues increased rapidly. In China, the trends and ranking in discussion of nonpain management issues stabilized and showed most frequently in psycho-spiritual issues, followed by social, ethical and legal issues.

Sharing palliative experience via tele-videoconferences is an effective tool to improve the quality of care, and also saves a significant amount of time and expense. Experts in different professions from different hospitals should discuss any palliative problems, share their valuable experience, and ponder a comprehensive hospice care.

Abbreviation: TVC = tele-videoconference.

Keywords: education, palliative care, tele-videoconference

1. Introduction

Hospice care is a relatively new type of medicine for patients with terminal stage health issues and originated in the 1960s. Hospice care helps patients achieve good quality of life rather than life prolongation, provides medical care and support, and saves meaningless medical intervention and cost. For patients complex terminal illnesses, collaborative involvement of a diverse group of health care professionals is necessary and provides a more coherent and coordinated approach to end of life decision making.[1–3] However, this level of coordinated care costs lots of time and money and requires the development of a hospice inter-professional training program. In rural or developing areas, it's difficult to gain knowledge and experience of palliative care due to low numbers of terminal patients and the absence of coordinated programs.[4,5] However, strengthened and inter-professional education and training could attribute better quality of palliative care, including confidence regarding palliative care knowledge and skill levels as well as the management of common palliative symptoms.[6,7]

Inter-professional education invites professionals to share their experience with different healthcare programs, and provide lateral thinking, thus challenging misconceptions, enhancing teamwork opportunities, professional networks and elevating confidence.[8,9] It also contributes to develop individual, comprehensive, and patient-centered care plan followed by an inter-professional team meeting.[9,10] For participants, inter-professional education is a shortcut to obtain inter-professional collaboration of colleagues within, across, and beyond healthcare systems and agencies.[11]

Discussing and sharing experience via tele-videoconference (TVC) helps maximize educational efficiency and opportunities in programs with multiple training sites, and does not hinder overall learning.[12,13] This virtual type of meeting could enable

discussion of cross-regional training, to increase overall knowledge and improve the effect of continuing education.[14] It's also a low cost alternative and affords a no distance gap between learner and specialist, which are great benefits to both resource-rich and resource-poor institutions.[15–17] Therefore this technology has been employed by many programs with financial limitations to reduce the obstacles of time and distance, and provide greater equality of opportunity.[18,19]

Hospice education through TVC promotes tele-health, community-academic partnerships, and training rural health care professionals.[20] It's also a new and unique way of supporting palliative care professionals while reducing time and costs for both tutors and learners.[21] A positive experience and useful and essential tool for improving communication with the hospice team via a TVC, but it still needs new tools that capture the quality of video-mediated communication among multiple stakeholders and strategies to improve the ongoing documentation of technical quality in tele-health.[22]

A multicenter palliative care discussion forum via TVC has been practiced in Taiwan since 1997. Discussion within multiple field specialists and multi-dimensional problems ensued, and everyone across Taiwan could express their opinions and share their experience. At the forum, the younger hospice teams propose some issues that they are troubling or fretful, and the senior hospice teams attempted to provide a good way to resolve those problems according to their past experience. Some guides for a specific topic would be also put forward to every partner in this forum. After 20 years, near total hospice teams in Taiwan were involved in this program. Taiwan has become a friendly environment for hospice care. According to the 2015 quality of death index from the Economist Intelligence Unit, Taiwan ranked 6th in overall scores, and 9th in human resources out of 80 countries.[23] At the same time, the hospice professionals in China also started to use this TVC for building their own discussion projection and promoting their level of hospice care since 2010. As a developing country of hospice care, they discussed lots of hospice issues under supervision of other senior countries, such as Singapore and Taiwan. They want to catch up and improve their hospice care (Table 1).

In this article, classified the issues discussed in every forum, watched the development over time, compared the difference between Taiwan and China, and received feedback on TVCs from many participants. A comprehensive, inter-professional,

across the time and space, saving cost hospice caring discussions might be designed according to this report.

2. Methods

2.1. Design and setting

To find out the development of this palliative TVC in Taiwan and China, we collected cases presented in every forum, respectively. The final tally included 199 cases in Taiwan and 143 cases in China. We also disintegrated every discussion to details about those patients' character, their troubled symptoms, and their focused issues, such as social issues, ethical issues, legal issues, psychological issues, and spiritual issues. We tried to learn the change of all symptoms and issues in Taiwan and China.

Anonymous telephone interviews were also implemented for those participants about this palliative TVC. They discussed their advantage, disadvantage, prospect, and other suggestions for further evolution according to their opinions. We could learn the education effect, the symptom control, clinical logic thought, and the resolving ability for every issue to every participant after a serious palliative TVC.

2.2. Tele-videoconference (TVC) systems
2.2.1. Tele-videoconference (TVC) in Taiwan: 2 different stages. In Taiwan, the multicenter palliative care discussion was organized by 3 medical centers since 1997, including 2 in north Taiwan and 1 in eastern Taiwan. At first, case presentation with multi-dimensional problems once per month was revealed through the ISDN telephone connection. Due to the limitation of telephone line, 10 participants at most were involved in this discussion.

As time progressed, this forum was connected via the internet through different software that changed each year so that it could include more partners. Today, this forum contains more than 40 medical institutions and occurs bi-weekly without any limitation of participants (Table 1). Every discussion was a real-time presentation with immediate questionnaires and answers. There was 1 young medical institution who takes turns to present a case in the first-time forum. They could raise some troubled problems like physical, social, ethical, legal, psychological, spiritual issues. All the participants including multiple field specialists, such as physician, nurse, pharmacist, nutritionist, social worker, psy-

Table 1

Two kind type of tele-videoconference in Taiwan and China.

	Taiwan	China
Initial year	1997	2010
Total case	199	143
Case per year	10.5	17.9
Number of Participating institutions	3 at first, then more than 40	41
Net tool	ISDN telephone line (1997~), Iproom web net (2003~)	Iproom web net
Frequency	Twice per month	Pnce per month
Conference mode	Young hospital present a fresh case at the first conference, and then the senior hospital give the feedback deeply at the next conference	Two of participating institutions present cases in every conference, and then every partner discuss them
Time	1 to 2 h per case	30 to 40 min per case
Type of care	Hospice combine care, hospice home care, hospice inpatient	Hospice home care
Type of case	Cancer and noncancer patients	Cancer patients

chologist, religious teacher, and spiritual care teacher would express their only opinions. At the next forum, 1 senior hospice team by turns showed their feedback and appropriate way to resolve previous problems mentioned before according to their past experience. Through many times of brainstorming approach, all the participants tried to build a comprehensive and professional hospice consensus and care system.

2.2.2. Tele-videoconference in China.
In China, a developing country in hospice care, promoting the hospice system and resolving troubling pain and other tricky problems, Li Ka-Shing Foundation promoted the multicenter palliative care discussion since 2010. It linked all 41 medical institutions from the whole state in China through internet web services and different software, and it also involved the professions in Taiwan and Singapore. Every 2 to 4 weeks, 2 participants presented their cases for discussion. Just like Taiwan, multiple field specialists would be involved, and multi-dimensional issues would be put forward. However, the Li Ka-Shing Foundation focused on those hospice home patients' pain control with opiates and tried to cover those spending freely after applying. So those patients were almost under the hospice home service, the symptom-related pain and opiate use would be discussed in nearly every forum, and the social issue for the economic problem was presented more than half the time at the beginner. Those professionals in China tried to use this TVC program to upgrade the class of their hospice care and catch up with another developed country.

2.3. Outcome and measurement

Every case presented in this forum was enrolled in this analysis. The baseline characteristics of those cases collected were gender, age, family type, which service type in this hospice care, job, religion, education level, primary caregiver, key person for decision marking, diagnosis, symptoms or signs, complementary and alternative therapy, discussed issues (including social, ethical and legal, psychological and spiritual issues). However, some cases could not include all baseline data, and we tried to analyze all available data.

The outcomes, which were the ratio of discussed symptoms and signs, the ratio of every issue, the development trend of those discussed symptoms and issues, and the difference of development trend between Taiwan and China, were also analyzed. We also analyzed the feedback from those participants about this forum's advantages, disadvantages, prospects, and other opinions.

2.4. Ethical approval

The study was conducted following the Declaration of Helsinki and was approved by the Research Ethics Committee of Hualien Tzu Chi Hospital (IRB106-102-B). For those discussed cases, due to the anonymous forum, informed written consent was waived because the study was a retrospective data analysis. Nevertheless, for those anonymous telephone interviews, informed written consents were obtained by every participant before the interview.

2.5. Statistical analysis

Data were collected from the TVC database in Taiwan. Those discussed cases in every TVC were compared using the Chi-square test or Fisher exact test based on Taiwan or China. Statistical significance was set at $P < .05$. Statistical analyses were performed using SPSS software, version 23.0 (SPSS Inc., Chicago, IL).

3. Results

3.1. Tele-videoconference (TVC) in Taiwan

In Taiwan, a total of 199 cases available from the database was presented from 1997 to 2017, and were individual and nonrepetitive, included 60.8% male, 37.2% aged from 40 to 59 years old, 57.6% from the nuclear family. All types of terminal diseases were involved, including 90.5% of cancer patients, 2.1% amyotrophic lateral sclerosis, 7.4% other terminal diseases from organ failure (brain with dementia or other brain diseases; lung with COPD or other lung diseases; heart with congestive heart failure; liver with cirrhosis; kidney with acute or chronic renal failure) (Table 2).

In the part of symptoms and signs, the most often discussed one was pain with 66.3%, and the following were dyspnea with 27.1%, GI symptoms (nausea, vomiting, and dyspepsia) with 26.1% (Table 2). Simultaneously, a comprehensive discussion was also fulfilled: 72.4% with psychological issues, 54.3% with spiritual issues, and 40.7% with social issues (Table 3). As time goes on, the ratio of psychological and spiritual issues increased, from 35.7% to above 82%. The ratio of social issues and ethical and legal issues was maintained, about 53.6% and 28.6%, respectively. The symptoms or signs discussion increased at first

Table 2

Demographics of those discussed cases in Taiwan and China.

| Characteristics | Taiwan | | China | | |
	n	%	n	%	P-value
n	199		143		
Gender					.33
Male	113	60.8	70	49.0	
Female	73	39.2	73	51.0	
Age (y/o): median	52.2		51.4		.02[*]
0~9	2	1.1	5	3.5	
10~19	10	5.6	6	4.2	
20~39	37	20.6	20	14.0	
40~59	67	37.2	70	49.0	
60~79	48	26.7	39	27.3	
>80	16	8.9	3	2.1	
Family type					<.01[*]
Living alone	22	1.9	13	9.1	
Nuclear family	98	57.6	81	56.6	
Extended family	50	29.4	34	23.8	
Other	0	0.0	15	10.5	
Diagnosis					<.01[*]
Cancer	172	90.5	143	100.0	
ALS	4	2.1	0	0.0	
Other noncancer	14	7.4	0	0.0	
Symptoms and signs					
Pain	132	66.3	138	96.5	<.01[*]
Respiratory distress	54	27.1	5	3.5	<.01[*]
Constipation	11	5.5	16	11.2	.06
Nausea, vomiting, and dyspepsia	52	26.1	17	11.9	<.01[*]
Psychologic problem	36	18.1	12	8.4	.01[*]
Edema	36	18.1	18	12.6	.17
Wounds	30	15.1	18	12.6	.51
Other	58	29.1	15	10.5	<.01[*]

% = percentages; n = number.
[*] With significant difference.

n and ratio of discussed issues in tele-videoconference.

	Taiwan		China		
	n	**%**	**n**	**%**	**P-value**
n	199		143		
Complementary and alternative therapy	43	21.6	8	5.6	<.01[*]
Ethical issues	39	19.6	6	4.2	<.01[*]
Legal issues	10	5.0	5	3.5	.50
Social issues	81	40.7	58	40.6	.98
Psychological issues	144	72.4	78	54.5	<.01[*]
Spiritual issues	108	54.3	24	16.8	<.01[*]

% = percentages; n = number.
[*] With significant difference.

but decreased at last, for example, the ratio of pain from 40.9% to 88% then to 48.4% with the tendency of fewer and fewer (Fig. 1).

3.2. Tele-videoconference (TVC) in China

However, in China, more accumulated cases were presented due to more frequency of TVC from 2010 to 2017, a total of 143 (17.9 cases per year), included 51% female, 49% aged from 40 to 59 years old, 56.6% from the nuclear family. Due to the pain control projection from the Li Ka-Shing Foundation, all cases were cancer patients who could be involved in this projection (Table 1).

For symptoms and signs, the physician focused on pain (96.5%) and paid little attention to other discomforts (tumor wound: 12.6%; edema: 12.6%) (Table 2). Nevertheless, they still presented a comprehensive discussion, included 54.5% cases with psychological issues, 40.6% with social issues, and 16.8% with spiritual issues (Table 3). Contrasting with the beginner in Taiwan, the TVC in China had a higher discussed ratio in pain control, social issues, and psycho-spiritual issues. However, as time goes on, the ratio of pain control stayed the same from 95.3% to 94.9%, the social issues decreased from 51.2% to 35.9%, the psychological and spiritual issues mildly decreased from 62.8% to 59%, but the ethical and legal issues increased from 2.3% to 10.3% (Fig. 2). There was a stable ratio about every issue, but no significant breakthrough.
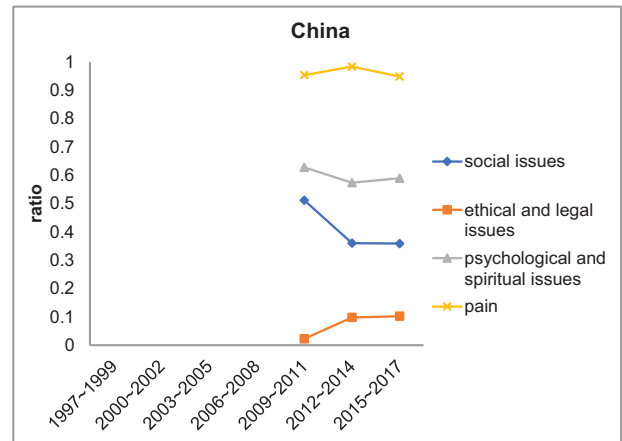

Figure 1. The ratio of discussed issues by time in Taiwan.

Figure 2. The ratio of discussed issues by time in China.

3.3. Anonymous telephone interviews

Thirty-three time-anonymous telephone interviews were used to investigate the quality of conference connection (included voice and image), advantage, disadvantage, and other suggestions for this palliative TVC. All interviews were anonymous, not time-limited, and no interest was exchanged. About the problem for connection in TVC, above half of participates thought unreliable voice quality (n = 18/33) but better image quality (n = 11/33). Near total participants through learning much from different inter-professional teams and gaining mush of hospice knowledge, the technique for care, resolving strategy for problematic symptom, and those troubled legal, social psycho-spiritual issues (n = 29/33). That positive feedback was significant, but there were some improved opinions, such as necessary for more accessible and mobile net tool to connect all participates (n = 6/33), widen the discussion about noncancer and other terminal patients (n = 4/33), and the addition of more complementary and alternative therapy for better comfortable care (n = 5/33).

4. Discussion

In Taiwan 1993, when hospice care was in the germination stage, 3 medical centers promoted palliative TVC through the telephone connection at that present technologic stage. However, the telephone connection was limited to 10 participants joined with unstable voice and image quality. Those predecessors tried to share their experience, discuss the troubling issues, and enhance the quality of palliative care via case discussions and special lectures again and again. As time goes on, the internet web developed quickly. Many internet web tools could circumnavigate the limitation mentioned above and link without any number restriction, such as Microsoft MSN in 1995, Iproom web net in 2001, skype in 2003, and Zoom in 2011. Now, the palliative TVC in Taiwan using the Iproom web net allows more than 100 participates without time and space burden and offers real-time quizzes and answers. When a new palliative TVC was promoted in China in 2010, Iproom web net was also adopted.

At the beginning of palliative TVC in Taiwan, those forums were focused on terminal cancer patients with 98% and amyotrophic lateral sclerosis with 2%. However, when non-cancer terminal patients (including 8 types of organ failure) were involved in the hospice care system since 2009 through policy and
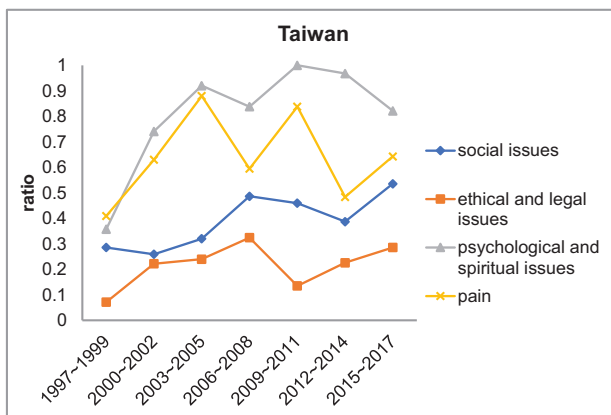
legislation of government, discussions for those patients with organ failure increased to 15.6%. Those focused issues also shifted from control of symptoms or signs, especially the pain control, to holistic health care, including the legal, ethical, psychological, social, and spiritual problems, especially the psycho-spiritual issues: the discussed ratio was highly near up to 100%. About the legal and ethical issues, the mentioned ratio increased at first and then decreased as time goes, but the ratio raised again after noncancer terminal patients were involved in the hospice care system. In 2009, the Hospice Palliative Care Act was revised to allow withdrawal of the futile life-sustaining treatments in 2013, and the Patient Self-Determination Act was legislated in 2015.

However, in China, due to the restraint into the program of Li Ka-Shing Foundation for opiate sponsor and economic support, those discussed cases were hospice home care based, and all terminal cancer patients and issues were almost focused on social problems and the opiate using for pain management. Under the Taiwan and Singapore supervisor, every participant proposed a case by model of holistic health care, including symptoms or signs, social problems, psycho-spiritual issues, and other problems. So the discussed ratio of psychological and spiritual issues was higher than the beginner in Taiwan. Due to the repeated economic discussion and medicine and community resource ameliorated, social issues about the resources although had a role to play but its ratio was reduced. At the same time, the legal and ethical issues gradually were valued by people with the idea of human rights germination in China.

Inter-professional meetings via TVC in palliative care provided an excellent way to hospice specialist training, developed a patient-centered care plan, and obtained the inter-professional collaboration of colleagues, especially the rural or developed area.[9,14,20] It also reduced the cost and the burden of time and space.[21] In our study, near 90% of participates showed positive feedback for their knowledge of inter-professional education, the ability to manage complex legal, social psycho-spiritual frustration, and the concordance across different specialists, just like previous studies.[8,10,11,13] That is to say, this palliative TVC was practical to train cross-professional concordance, create a whole people care planning, and enhance the quality of life in those terminal patients for those younger hospice teams.[22] Nevertheless, broader discussion, all sorts of cases, and stable and real-time voice connection during the seminar wound be expected in the future.[22]

This article assessed the impact of palliative TVCs, the tendency of discussed issues, and the difference between developing hospice countries with and without any supervision. However, there are some limitations to our study. First, we lose some earlier stage seminar and case bases data due to damaged or unrecognized films. The secondary, subjective decision to distinguish different issues in every discussion is assertive and not convincing. In those complex cases, it is also hard to differentiate from a psychological or spiritual problem. Third, the telephone interview is nonobjective and unreal, and it is easy to have some hidden opinions in every respondent, even in an anonymous setting. Finally, due to this observational design, we could not define causality or make solid conclusions.

5. Conclusions

Palliative inter-professional learning via case-based TVC is an effective tool to improve the quality of care, and it also saves lots of time and expense. Experts in different professions from different hospitals could discuss any palliative problems at the same time, share their valuable experience, and ponder comprehensive hospice care. This program in Taiwan and China contributes comprehensive, accessible, and professional hospice care.

Author contributions

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