Effect of advance care planning on knowledge, behaviour, and well-being of older adults: a systematic review

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ABSTRACT
We conducted a systematic review on the effect of advance care planning (ACP) on older adults in terms of (1) knowledge (of end-of-life care, treatment choices, and advanced directive [AD]), (2) behaviour (identification of the goal of care, utilisation of health services, and completion of AD), and (3) psychological well-being (levels of stress and depression, care satisfaction, and quality of life). Major databases for Chinese and English studies were searched; 6 randomised controlled trials were included for methodological quality assessment and meta-analysis. The overall effectiveness of ACP in older adults was limited because of insufficient outcome data for analysis. The evidence only shows that ACP increases the likelihood of older adults to opt for comfort care in the end of life. The effect of ACP on knowledge about end-of-life care issues and psychological well-being among older adults remains uncertain.

Key words: Advance care planning; Frail elderly; Review; Terminal care

INTRODUCTION
Advance care planning (ACP) for end-of-life care has been widely promoted worldwide. Older adults have a high prevalence of long-term conditions and an increased risk of loss of mental capacity. The effect of ACP on older adults remains uncertain. In Hong Kong, the current application of ACP is focused on patients with advanced or terminal disease.

According to the World Health Organization, the older population is defined as those aged ≥60 years with or without any chronic illness. ACP includes the process of discussing the values and goals of future care, determining and executing treatment directives, and appointing a proxy decision maker. The formats of ACP include information provision, discussion, counselling, storytelling, individual or group interview, and decision-making meeting. The contents of ACP include the nature, purpose, and power of an advance directive (AD), explanation of possible treatment choices associated with health state, and decision making about AD or appointment of a proxy. Facilitators of ACP include nurses, physicians, social workers, and other health providers. The comparator of ACP is the usual care or practice.

This study reviewed the literature on the effect of ACP on older adults in terms of (1) knowledge (of end-of-life care, treatment choices, and AD), (2) behaviour (identification of the goal of care, utilisation of health services, and completion of AD), and (3) psychological well-being (levels of stress and depression, care satisfaction, and quality of life).

METHODS
1751 English and 28 Chinese studies were identified from the databases of MEDLINE, CINAHL,
Asians. Three studies were conducted in a medical abstract, 1747 English and 28 Chinese studies were excluded. The remaining 12 English studies were eligible for full text assessment. No additional study was identified from the reference lists. The primary and secondary reviewers independently appraised the selected articles, using the inclusion criteria of the listed participant, intervention, comparator and outcome. Disagreement was resolved by consensus or by consulting a third reviewer.

Six of the studies were excluded because the focus was not within the scope of this review. The remaining 6 studies were randomised controlled trials and were included for methodological quality assessment and meta-analysis. Data including interventions, populations, study methods, and outcomes were extracted. For any missing data and query, the original authors were contacted for statistical data and clarification. Quantitative data were pooled for meta-analysis using RevMan 5.2. For categorical data, the effect size was expressed as relative risks and/or odds ratio (OR), with 95% confidence intervals (CI). For continuous data, the effect size was expressed as mean differences for the same scale, and standardised mean differences for different scales with 95% CI. Heterogeneity was assessed using the standard Chi-square. The selected studies were categorised as clinical, methodological, or statistical, and were assessed for heterogeneity by reviewing the settings, populations, interventions, and outcomes.

RESULTS

Five studies were conducted in the United States, and one in Australia. A total of 842 older adults (sample size ranging from 61 to 309) aged 67 to 91 years were included. All were cognitively sound and native English speakers. Race of the participants included Caucasian, African American, Hispanic American, Latino, and others. Two studies did not mention the race of the participants. None mentioned whether the participants included Asians. Three studies were conducted in a medical or primary care clinic, one in the medical ward of an acute hospital, one in a nursing home, and one did not mention the venue but recruitment was in a clinic.

In 4 studies, ACP was conducted by trained facilitators (mainly nurses or allied health personnel). Four studies used the educational approach to conduct ACP intervention such as a video supplemented with verbal narrative. The length of the video ranged from 2 to 10 minutes. After viewing the video, the facilitators provided a narrative description of the content of the video but whether the narrative session was conducted in an individual or group format was not mentioned. One study used video and an information handout to educate participants about medical and AD issues. Two studies conducted ACP through discussions with the client, family members, surrogate, and health professionals. One to 3 meetings were conducted, and the duration ranged from 10 to 200 minutes, depending on the needs of individual clients. Discussion included explanation of treatment options and appointment of a surrogate, and educational pamphlets were delivered. None of these 6 studies mentioned any theoretical basis or framework.

Effects of advance care planning

Knowledge of end-of-life care and treatment choices

Two studies assessed the effect of ACP on knowledge about the disease nature and resuscitation. In one study, ACP improved client knowledge about the purpose and process of cardiopulmonary resuscitation, based on a dichotomy measurement (OR=4.77; 95% CI, 0.90-25.23). In another study, ACP had a positive effect on improving client knowledge about the nature of dementia and related disability; the mean±SD knowledge score was higher in the intervention than control group (4.5±1.0 vs. 3.8±1.3). However, meta-analysis of these 2 studies was not feasible because of different outcome measurements. Two studies demonstrated a positive effect of ACP in improvement of knowledge about AD. In one study, the OR for client understanding of the nature of AD was 6.18 (95% CI, 2.15-17.81). In another study, client knowledge about the meaning, legality, and ramifications of AD was assessed, but that for the control group was not reported. Meta-
analysis of these 2 studies was again not feasible because of different outcome measurements.

**Behavioural change**

Only one study assessed the completion rate of AD following ACP: ACP positively increased the number of clients who prepared an AD (OR=1.6; 95% CI, 0.48-5.37). Two studies assessed the proxy appointment following ACP: ACP increased the number of clients who appointed a proxy, but data on the control group were unavailable. Three studies assessed the identified goal of end-of-life care of the client. In one study, all subjects in the intervention and control groups could identify the goal of care. In the other 2 studies, the identified goal of care OR was 2.71 and 3, and was 2.08 (95% CI, 0.44-18.04, p=0.28) when pooled for meta-analysis. The forest plot shows that ACP has a low effect on identifying the goal of care in older adults (Figure 1). In addition, the 3 studies also assessed the client preference for comfort care following ACP, using categorical variables. All demonstrated that ACP had a positive effect on older adults’ preference for comfort care (OR=3.03-3.87); when pooled for meta-analysis the OR was 3.39 (95% CI, 2.03-5.65, p<0.00001), with low heterogeneity (I²=0%), using the fixed effect model (Figure 2).

**Psychological well-being**

Data related to the psychological well-being of older adults after ACP were unavailable. One study assessed the level of care satisfaction, anxiety, and depression among bereaved family members. One study assessed the client’s quality of life using the Beliefs and Values Questionnaire. Nonetheless, the data focused on the shift in individual response in quality of life across time, rather than individual perceived quality of life.

**DISCUSSION**

The 6 studies show that ACP has a positive effect on increasing knowledge about end-of-life care issues and treatment options, completion of AD, and appointment of a proxy, but data on these outcomes were limited for comparison. Older adults were willing to think ahead for their end-of-life care and to be involved in the care planning and decision-making process. Nonetheless, the reliability and validity of some of the instruments used were unclear. Psychological outcomes in older adults, including the level of satisfaction, level of anxiety and depression, and quality of life, were not available. Therefore, only 2 behavioural outcomes (identifying the goal of care and preference for comfort care) were retrieved.
for meta-analysis. These 2 outcomes derived from 3 studies that used the same education approach (video viewing supplemented with informative handouts or narrative explanations). The video depicted the medical procedure with varied states of physical functioning. The pooled results indicated that ACP increased the older adults' preference for comfort care (OR=3.39). However, the effect of ACP on identifying the goal of care, completion of an AD, and appointment of a proxy was insufficient. This finding was consistent with a previous systematic review of educational interventions to improve AD completion. Only one study reported the number of appointed proxies following ACP intervention. Clients who received ACP intervention were more likely to appoint a proxy, but the sample size (n=61) was small and thus lacked statistical power. Further studies are needed to examine why older adults are less likely to sign an AD or appoint a proxy following ACP, despite their clear care preference. In addition, none of the studies involved a Chinese population. Hong Kong has launched a consultation on legitimising AD and promoting ACP in practice. Exploring the effect of ACP on Chinese older adults would provide useful information for the intervention design and outcome evaluation.

CONCLUSION

The overall effectiveness of ACP in older adults was limited because of insufficient outcome data for analysis. The evidence only shows that ACP increases the likelihood of older adults to opt for comfort care in the end of life. The effect of ACP on knowledge about end-of-life care issues and psychological well-being among older adults remains uncertain.

REFERENCES