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## Review Article

## Advance Care Planning in Asia: A Systematic Narrative Review of Healthcare Professionals' Knowledge, Attitude, and Experience



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## A B S T R A C T

## Keywords:

Advance care planning  
health care professionals  
knowledge  
attitude  
experience  
Asia

**Objective:** The value of advance care planning (ACP) for patients with life-limiting illnesses is widely recognized but Asian health care professionals' (HCPs') perspectives on ACP have received little systematic attention. We aim to synthesize evidence regarding Asian HCPs' knowledge of, attitudes toward, and experiences with ACP.

**Design:** Systematic review with narrative synthesis and stepwise thematic analysis.

**Setting and Participants:** HCPs in southern, eastern, and southeastern Asia.

**Methods:** Studies from inception to September 2019 were identified from English-language searches of Embase, MEDLINE, Web of Science, and Google Scholar with reference-chaining and hand-searching. Two investigators independently screened and assessed the risk of bias in all original studies reporting HCPs' knowledge of, attitudes toward, and experiences with ACP, including their perspectives toward barriers and facilitators of ACP.

**Results:** Fifty-one studies were included; 42 were quantitative, 43 had been conducted in high-income countries, and 36 were of good quality. Twenty-six studies operationalized ACP as the completion of an advance directive rather than a value-exploration process. Thirteen studies reported knowledge, 44 attitudes, 29 experiences, and 36 barriers and facilitators of ACP. Asian HCPs addressed the essential role of families in ACP. They acknowledge the importance of ACP but rarely engage the patient in it. They considered ACP difficult to initiate, partly because of their lack of knowledge and skills in ACP, personal uneasiness to conduct ACP, fear of conflicts with family members and their legal consequences, and the lack of a standard system for ACP. Most studies indicated HCPs' low engagement and late initiation of ACP.

**Conclusions and Implications:** Despite acknowledging its importance, Asian HCPs felt that engaging in ACP is challenging. Capacity building for ACP in Asia should focus on culturally adapting ACP models concerning the essential role of the family in Asia, education for HCPs and the public, and providing institutional support for ACP.

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This work was supported by the Indonesia Endowment Fund for Education (Lembaga Pengelola Dana Pendidikan, grant number 201711220412068), the Ministry of Finance of Indonesia. The funder had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; or the decision to submit the manuscript for publication.

The authors declare no conflicts of interest.

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<https://doi.org/10.1016/j.jamda.2020.12.018>

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Complex decisions regarding medical care and treatment often need to be made during life-limiting disease trajectories. If health care professionals (HCPs) do not clearly understand patients' life goals and care preferences, patients may not always be treated in accordance with their preferences.<sup>1</sup> Advance care planning (ACP) is a process that enables individuals, family members, and HCPs to define, discuss, document, and review goals and preferences for future medical care and treatment.<sup>2</sup> Systematic reviews have shown that ACP has the potential to improve the quality of end-of-life care, the documentation of care preferences, the provision of goal-concordant care, and the use of palliative and hospice care, while potentially reducing the cost.<sup>3–7</sup>

The implementation of ACP in clinical practice is often affected by societal norms and values.<sup>8,9</sup> Although ACP was developed mainly in Western countries,<sup>4,10</sup> it is now gaining attention in Asia<sup>11–13</sup>—the largest and most populous continent in the world, and the home of various cultures. Examples of cultural values that may affect the uptake of ACP in Asia include family-centeredness in medical decision making,<sup>9,14–16</sup> paternalism on the part of HCPs,<sup>17</sup> and moderation or concealment of a poor prognosis.<sup>18,19</sup> Central to these values is the great importance of social harmony and interdependence. Meanwhile, Asians require more support from their HCPs to voice their own wishes.<sup>20</sup>

Asian HCPs' perspectives on ACP have not been systematically analyzed. We therefore aimed to synthesize and appraise the evidence from Asia with regard to HCPs' knowledge of ACP, their attitudes toward it, and their experiences with it and also to the barriers and facilitators related to their engagement in ACP.

## Methods

The study protocol has been registered in the International Prospective Register of Systematic Reviews (PROSPERO: CRD42018099980). The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement was used for reporting (Supplementary Table 1).<sup>21</sup>

### Data Sources and Selection

With the aid of a biomedical information specialist (WMB), we developed a systematic search strategy based on the predetermined research question in the following electronic databases: Embase.com (1971–), MEDLINE ALL Ovid (1946–), Web of Science Core Collection (1975–), and Google Scholar from inception to September 2019. We used the tailored search terms for each database, using thesaurus terms (Emtree and MeSH) where applicable. Supplementary Table 2 shows the full searches for all databases. The searches not only contained words for ACP and advance directive (AD) but also were designed to retrieve articles on decision making for the end of life. To ensure a comprehensive search, we scanned the reference lists from relevant existing literature reviews and from the included articles, and finally asked several experts in the field of ACP in Asia whether important studies that met our inclusion and exclusion criteria had been missed.

### Study Selection

We did not limit the type of study designs for this review and included all original studies that studied “advance care planning,” or studies that addressed one or both core elements of ACP as defined by the European Association for Palliative Care (EAPC):<sup>2</sup>

1. discussing patients' goals and/or preferences for future medical care and/or treatment with family and/or HCPs and/or

2. recording patients' preferences including the appointment of a personal representative and an AD.

We defined AD as a document to record values, goals, and preferences to be considered when the individual is unable to express their preferences.<sup>2</sup> AD may include living wills,<sup>22</sup> durable power of attorneys,<sup>23</sup> and do-not-resuscitate (DNR) orders.<sup>24–26</sup> For the aim of this review, we included professionals that the authors had labeled as “health care professionals” or those who followed WHO definition as “professionals who maintain health in humans through the application of the principles and procedures of evidence-based medicine and caring.”<sup>27</sup> This may include, but is not limited to, physicians, nurses, social workers, and care managers. Because of the sheer size of the Asian continent, we limited our search to its southern, eastern, and southeastern regions (Supplementary Table 3), whose similarities in cultural background provided a reasonable representation of collectivism in Eastern cultures.<sup>28</sup> We included original articles on HCPs' knowledge of, attitudes toward, or experiences with ACP that had been published in English in peer-reviewed journals. We excluded studies in which the specific elements of ACP were not clearly described, and studies on HCPs' perspectives toward ACP among patients younger than 18 years or patients with psychiatric illnesses other than dementias.

Duplicates of the retrieved studies were removed, and each title and abstract was screened by 2 of 3 reviewers (D.M., M.S.K., and C.P.L.) independently. This was followed by full-text reviewing for inclusion. Disagreements were discussed with J.R. and/or C.R. if necessary. Endnote bibliographic software version X9 was used to manage references.

### Data Extraction and Quality Assessment

A tailored data extraction form was developed and piloted by J.R. and C.R. and further used to extract data that included (1) the study characteristics (study design, country or region, the element and term related to ACP studied, number of HCPs, type of HCPs, and setting); (2) HCPs' knowledge of ACP; (3) HCPs' attitudes toward and experiences with ACP; (4) HCPs' perspectives on barriers and facilitators related to engagement in ACP. The extraction form was completed by DM and checked by MSK.

We used a 9-item tool developed by Hawker et al<sup>29</sup> to assess the methodologic quality of the included studies. Per study, the risk of bias was evaluated for the following items: (1) abstract and title, (2) introduction and aims, (3) methods and data, (4) sampling, (5) data analysis, (6) ethics and bias, (7) results, (8) transferability, and (9) implications. Each criterion was scored on a 4-point Likert-type scale ranging from 1 (very poor) to 4 (good). In total, a summed score of 9 to 36 was calculated. Studies with scores between 30 and 36 were classified as having a low risk of bias, studies with scores between 24 and 29 were classified as having a moderate risk, and scores lower than 24 were classified as having a high risk.<sup>30</sup> Studies were not excluded on the basis of their methodological quality. D.M. assessed all studies, 50% of which were randomly selected and checked independently by C.P.L.

### Data Synthesis and Analysis

Following the Guidance on the Conduct of Narrative Synthesis in Systematic Reviews, a narrative synthesis was conducted of the included quantitative, qualitative, and mixed methods studies.<sup>31</sup> To summarize the findings of the included articles, we conducted textual description of the extracted data, tabulation, grouping, and clustering. This was followed by a stepwise thematic analysis. A critical interpretive synthesis approach was used to categorize knowledge, attitudes, experiences, barriers, and facilitators into domains.<sup>32</sup>

## Results

### Study Selection and Characteristics

After deduplication, we identified 3887 studies for titles and abstracts screening. Three studies were added following a manual search and input from experts in Asia, and 244 studies were assessed for full-text review. Ultimately, 51 studies were included in the analysis (Figure 1).

Most of the studies included were quantitative, among which 42 were surveys, 19 were conducted in hospital settings, and most included fewer than 500 HCPs ( $n = 45$ ), were performed among physicians ( $n = 42$ ), and were from high-income countries (Table 1 and Supplementary Table 4): Japan,<sup>33–48</sup> South Korea,<sup>34,49–60</sup> Hong Kong,<sup>61–66</sup> Singapore,<sup>67–72</sup> and Taiwan.<sup>73–76</sup> Twenty-six studies operationalized ACP merely as the documentation process. The term ACP was used in 12 studies that had been published in the last decade (Tables 1 and 2). Thirteen studies reported on HCPs' knowledge, 44 studies on attitudes, 29 on experiences, and 36 on barriers and

facilitators of ACP. The risk of bias was low in 36 studies, moderate in 13, and high in 2 (Supplementary Table 5).

### Asian HCPs' Knowledge of ACP

Eleven of the 13 studies on HCPs' knowledge of ACP assessed their knowledge of the documents related to ACP, such as ADs or DNR orders (Supplementary Table 6).<sup>49,50,53,55,58,62,64,69,73,77,78</sup>

In Hong Kong, 57% of the physicians<sup>62</sup> and 49% of the nurses<sup>64</sup> were familiar with ADs, as were 40% to 61% of the physicians and 56% of the nurses in South Korea.<sup>49,50</sup> In Singapore, general practitioners answered 80% to 88% of the 8 questions on AD correctly.<sup>69</sup> Taiwanese nurses and intensivists provided correct answers to fewer than 5 of the 10 questions on their knowledge of ADs.<sup>73</sup> In Sri Lanka, while 67% of physicians had heard of DNR orders and 21% of ADs, only half of them (26% and 12%, respectively) understood the correct meanings of the terms.<sup>77</sup> In Singapore, physicians and social workers answered a mean of 8 out of 9 questions correctly, while nurses answered 6 questions correctly.<sup>67</sup> In a qualitative study, more physicians than

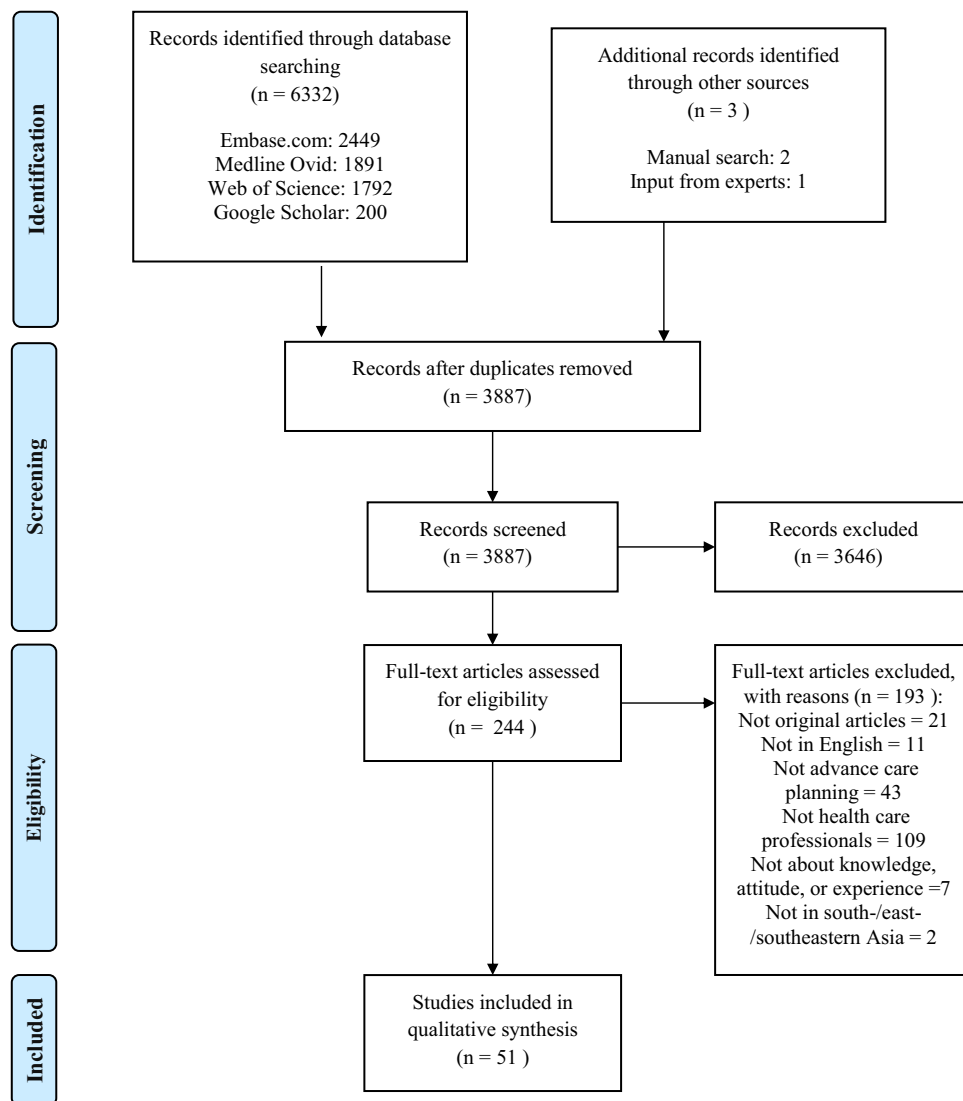


Fig. 1. PRISMA flow diagram for study selection.

**Table 1**  
Characteristics of the Included Studies (n = 51)

Study Characteristics	n (%)
Type of study	
Quantitative study	42 (82)
Qualitative study	7 (14)
Mixed study	2 (4)
Country or region*	
Japan	16
South Korea	13
Hong Kong	6
Singapore	6
Taiwan	4
China	3
Others†	5
Term related to ACP studied‡	
Advance care planning	12
Term related to ACP documents	
Advance (medical) directive	25
DN(A)R order/form	14
Living will	2
Term related to ACP conversation	
End-of-life discussion	2
End-of-life (care or medical) decision-making	5
DNR order discussion	2
Code status discussion	2
AD discussion	1
End-of-life care planning	1
The element of ACP studied	
ACP as completion of documents	26
ACP as process of a discussion on preferences	11
Both	14
Number of HCPs in the study	
0–100	18
101–500	27
501–1000	5
>1000	1
Type of HCPs studied§	
Physicians	42
Nurses	20
Social workers	10
Case managers	1
Setting	
Hospital (not further specified)	19
Oncology	7
Palliative care or hospice	4
Intensive care	6
Geriatric	4
Dialysis	2
Others, no restriction	15
Outcomes of the study	
Knowledge	13
Attitude	44
Experience	29
Barrier and facilitator	34

DN(A)R, do not attempt resuscitation.

\*Several studies were multicountry studies.

†Others: India (2), Sri Lanka (1), Thailand (1), and Pakistan (1).

‡Several studies used more than 1 term related to ACP.

§Several studies studied more than 1 type of health care professional.

||Several studies were done in more than 1 setting.

nurses and medical social workers had heard of ACP, but few of them understood it as a series of conversations.<sup>71</sup>

#### Asian HCPs' Attitudes Toward and Experiences With ACP

We synthesized the findings from 41 studies reporting Asian HCPs' attitudes toward ACP and 30 studies reporting Asian HCPs' experiences with ACP into 12 and 9 categories based on the similar outcomes reported (see Table 3 and Supplementary Tables 7 and 8).

Here, we summarize our findings on Asian HCPs' attitudes and experiences into 4 overarching themes: (1) HCPs' perceptions of the usefulness of ACP and their willingness to engage in it; (2) the role HCPs perceive for themselves and their engagement in ACP; (3) the role of patient and family in ACP as perceived by HCPs; and (4) HCPs' perceptions of the optimal timing for initiation of ACP.

#### HCPs' perceptions of the usefulness of ACP and their willingness to engage in it

A majority of Asian HCPs perceived ADs as useful or important (eg, 71%–94% in Japan,<sup>40–43,47</sup> 96%–97% in South Korea<sup>51,54</sup>). In Hong Kong, there were increases in the numbers of HCPs who perceived the completion of a DNR form to be useful, particularly for colleagues (from 48% in 2004 to 85% in 2008) and for patient management (from 32% in 2004 to 54% 2008).<sup>65</sup>

A study in Singapore (2011),<sup>67</sup> and more recent studies in Japan (2014, 2018, and 2018)<sup>35,36</sup> and Hong Kong (2019),<sup>66</sup> reported on HCPs' agreement regarding the importance of ACP as a discussion process. Most Japanese HCPs who worked at palliative or geriatric facilities attached importance to discussing treatment goals (95%–99%) and to recommending the completion of an AD (63%–69%) or proxy designation (57%–77%).<sup>35,36</sup> Studies in Japan (2018) and Hong Kong (2019) showed that HCPs working at palliative or long-term care facilities believed that the main importance of ACP lay in achieving mutual understanding between patients and their families regarding their values.<sup>46,66</sup>

As well as beliefs on the importance of ACP, studies also showed that half to a large majority of HCPs supported the use of AD (eg, 51% in India,<sup>78</sup> 55% in Japan,<sup>48</sup> 68% in Sri Lanka,<sup>77</sup> 78%–87% in South Korea,<sup>56,57</sup> 84% in China,<sup>79</sup> and 83% in Singapore<sup>69</sup>) and were willing to engage in ACP particularly when involving the family (90% in China,<sup>34</sup> 95% in Japan,<sup>34</sup> 78% in Taiwan,<sup>75</sup> 94% in Hong Kong,<sup>62</sup> 74% in South Korea<sup>34</sup>).

#### The role HCPs perceive for themselves and their engagement in ACP

In general, oncologists (44% in Japan<sup>40</sup> and 69% in China<sup>79</sup>) more often had received an AD from a patient than physicians from other disciplines (1%–22%),<sup>37,44,56</sup> nurses (22%–24%),<sup>64,67</sup> or social workers (23%).<sup>67</sup> Among Singaporean HCPs, 100% of social workers, 82% of physicians, and 37% of nurses considered themselves as having a role in ACP.<sup>67</sup> In actual practice, ACP had been initiated more often by social workers (90%) and physicians (82%) than by nurses (19%).<sup>67</sup> In Taiwan, 98% of physicians and 97% of nurses agreed that nurses should also participate in ACP.<sup>73</sup> The initiative to start an ACP conversation was more usually taken by physicians (75%) than by nurses (22%).<sup>73</sup> In Hong Kong, nurses had less experience with ACP (13%–28%),<sup>61,64</sup> than physicians (49%),<sup>62</sup> or HCPs working in palliative care units (63%).<sup>66</sup> In Japan, more physicians (62%) had ever participated in a DNR discussion than nurses (42%).<sup>42,43</sup> In South Korea, 83% of oncologists believed they should initiate ACP, and 68% thought that the palliative care team should conduct the ongoing discussion thereafter.<sup>59</sup> Among the oncologists, 83% to 93% had engaged in the discussion of prognosis and 22% of proxy appointments.<sup>59</sup>

#### The role of patient and family in ACP as perceived by HCPs

All studies showed that involving family members—with or without the patient—was considered crucial in ACP. In Hong Kong (89%),<sup>61</sup> South Korea (63%–85%),<sup>49,59</sup> and Singapore (78%),<sup>70</sup> HCPs thought that together with the patient, family members should be involved in ACP discussions. A higher number of HCPs would rather discuss DNR orders with the family than with the competent patient (India: 92% vs 5%,<sup>80</sup> China: 90% vs 13%,<sup>34</sup> Pakistan: 82% vs 18%,<sup>81</sup> South Korea: 74% vs 20%,<sup>34</sup> Japan: 95% vs 67%<sup>34</sup>).

Studies of actual practice also showed that family members were often involved in ACP. Patients were less involved than families,



**Table 2**

Categories of Asian HCPs Attitudes toward and Experiences with ACP

Categories (References)	Number of Studies
Asian HCPs' Attitude toward ACP	
HCPs' perceptions of the usefulness/importance of ACP <sup>25,36,40–43,46,47,51,53,54,65–67,71</sup>	15
Whether or not HCPs supported the use of AD <sup>39,48,56,57,67,69,77–79</sup>	9
HCPs' confidence about engaging in ACP <sup>38,41,53,63,65</sup>	5
The role HCPs perceived for themselves in ACP <sup>59,60,67,69,73</sup>	5
HCPs' willingness to engage in ACP <sup>34,50,62,75</sup>	4
Who HCPs believed should participate in ACP <sup>49,59,61,70,80–82</sup>	7
HCPs' willingness to follow an AD <sup>37,42–44,54,61,68,82,83</sup>	9
Who HCPs believed should be the decision maker in ACP <sup>42,43,54,69–71,77,80</sup>	8
Which factors HCPs believed influenced decision making <sup>42–44,65</sup>	4
HCPs' perceptions regarding the optimal timing to initiate ACP <sup>23,46,49–51,54,56,59,60,65,66,69,70,81</sup>	14
HCPs' beliefs on the need for ACP training and education <sup>46,49,65,67,76</sup>	5
HCPs' beliefs on the need for legislation and standardization of ACP <sup>42,43,49,54,62,69,75,79</sup>	8
Asian HCPs' Experience with ACP	
HCPs who had received an AD <sup>37,40,44,56,64,67,79</sup>	7
HCPs who had engaged in ACP <sup>35,36,38,42,43,53,56,59,61,62,64–67,73,74,83</sup>	17
Who (ie, patients and families) had participated in ACP <sup>34,59,61,83</sup>	4
Who had been the decision maker in ACP <sup>47,77</sup>	2
HCPs who had followed an AD <sup>35,37,40,42,43,48,56,60,61,80</sup>	10
When ACP had been initiated <sup>59</sup>	1
Whether HCPs had had ACP-related training and education <sup>56,67</sup>	2
The presence of guideline or formal regulation for ACP <sup>75</sup>	1
HCPs who had experienced any negative or positive consequences of ACP <sup>33,42,48</sup>	3

particularly in discussions on life-sustaining treatment<sup>47</sup> and DNR orders (35% vs 95% in Thailand,<sup>83</sup> 56% vs 86% in Japan,<sup>34</sup> 5% vs 80% in China,<sup>34</sup> 6% vs 57% in South Korea,<sup>34</sup> and 52% vs 89% in Hong Kong<sup>61</sup>).

Once a DNR order had been completed by the patient, it would be respected by 42% of HCPs in China,<sup>82</sup> 70% to 95% in Japan,<sup>42,43</sup> 79% in Hong Kong,<sup>61</sup> and 91% in Thailand.<sup>83</sup> In the event of disagreement between a patient's AD and family's wishes, HCPs would defer to family's wishes (46%–65% in Singapore,<sup>68</sup> 73% in South Korea,<sup>54</sup> and 81% in Japan<sup>37</sup>). Studies of actual practice showed that more palliative care physicians had followed a DNR order when it was in accordance with the family's wishes (71%) than when it was in accordance only with the patient's wishes (33%).<sup>35</sup> In South Korea, although 67% of physicians reported they had followed an AD,<sup>56</sup> a qualitative study stated that noncompliance with patients' preferences often occurred.<sup>60</sup>

#### *HCPs' perceptions on the optimal timing for initiation of ACP*

Forty-two percent of the general practitioners in Singapore believed that ACP should be initiated while the patient was still healthy.<sup>69</sup> This percentage was 15% for oncologists in South Korea.<sup>51</sup> More South Korean physicians would engage in ACP when the patient was terminally ill (97%) rather than when the patient was still healthy (64%).<sup>50</sup> As the stage of a patient's disease advanced, the proportion of HCPs who would initiate ACP increased as follows: after diagnosis of life-limiting illness (12%–13% in South Korea<sup>49</sup>), after diagnosis of incurable disease or metastasis (59%–60% in South Korea<sup>49</sup> and 24%–39% in Singapore<sup>70</sup>), and when life expectancy was less than 6 months (97% in South Korea<sup>56</sup>; 41%–60% in Singapore<sup>70</sup>). In the last days of life, however, this proportion fell again, to 12% to 27% in South Korea<sup>49</sup> and 30% in Singapore<sup>69</sup> in the terminal stage, and to 0% to 5% in Singapore<sup>70</sup> in the dying phase.

#### *Asian HCPs' Perspectives on Barriers to and Facilitators of ACP*

We categorized the barriers and facilitators into 4 categories: (1) HCP related, (2) system-related, (3) patient-related, and (4) family-related (Tables 3 and 4).

We further grouped the barriers into 5 themes: HCPs' limited knowledge about and skills regarding ACP; HCPs' personal uneasiness with regard to conducting ACP; HCPs' fear of conflict with patient's

family and its legal consequences; HCPs' concern about patients' readiness for and well-being after ACP; and lack of a standard system and institutional support for ACP. We also categorized the facilitating factors for ACP into 4 overarching themes: HCPs' competence in ACP and end-of-life care; HCPs' positive attitudes toward ACP; the availability of legal and standard systems for ACP; and cultural shift toward more open conversation about death and dying.

## **Discussion**

This systematic review explored Asian HCPs' knowledge of, attitudes toward, and experiences with ACP. We found that despite most studies' operationalization of ACP as the completion of an AD, some recent studies had focused on ACP as a value-exploration process. Most Asian HCPs considered family's role in ACP to be essential. The majority of them thought that ACP should be initiated when the patient's disease was no longer curable, and particularly when his or her life expectancy was less than 6 months. Despite a general willingness to engage in ACP, Asian HCPs found it challenging to initiate it. This led to relatively low engagement.

With regard to the role of family, our findings showed that Asian HCPs often engaged family in ACP without the patient. This finding is similar to studies from Western countries.<sup>61,84</sup> However, contrary to our findings, HCPs in Western countries would provide patients greater voice in ACP.<sup>85,86</sup> Meanwhile Asian HCPs tended to give families a greater voice. This was particularly prominent if a patient has lost capacity and has previously expressed a wish for future care and treatment that was different from wishes expressed by family members. In such situations, Asian HCPs tended to allow those of the family to prevail. This may result from Asian HCPs' attempt to maintain harmony with the family members—an important consideration in collectivist cultures such as those in Asia.<sup>87,88</sup> Although Confucianism has long been viewed as the shared values underpinning collusion and family-centeredness in Asia,<sup>89</sup> a similar spirit of collectivism is also found in studies from countries with little or no Confucian influence (India, Pakistan, and Sri Lanka), with various degrees of variance between them. Patient involvement in ACP is less valued by HCPs, particularly in China, India, Pakistan, and Thailand. A sensitive approach is required to ensure ACP promote meaningful conversation

**Table 3**

HCPs- and System-Related Barriers and Facilitators of ACP in Asia According to HCPs

HCP-Related Barriers and Facilitators	
HCP-Related Barriers	HCP-Related Facilitators
HCPs limited knowledge about and skills regarding ACP	HCPs competence in ACP and EOL care
HCPs' limited knowledge about and skills regarding EOL care (incl. prognostication) and ACP <sup>33,42,43,45,46,48,50,52,54,56,59,67,71,72,76,81</sup>	HCPs' knowledge and skills in end-of-life care (incl. prognostication) and ACP <sup>33,36,50,52,59,67,69,74</sup>
HCPs' concerns that patients' preferences may change over time <sup>48,50,57,71</sup>	HCPs' positive attitudes toward fostering patient's autonomy
HCPs' personal uneasiness with regard to conducting ACP	HCPs' positive attitudes toward fostering patients' autonomy <sup>33,40,47,53,56,57,67,76,79</sup>
HCPs' uneasiness about discontinuing life-supporting treatments <sup>47,56,67,72,75,77</sup>	HCPs' understanding of cultural relevance to EOL issues <sup>52</sup>
HCPs being more inclined to the curative intent of medicine <sup>42,43,45,48,52,72,76,78,79,81</sup>	HCPs' feeling comfortable with engaging in EOL discussions <sup>33,53</sup>
HCPs' concern of patients receiving suboptimal care after signing ACP's document <sup>48,54,70,79,81</sup>	HCPs' positive attitudes toward hospice and palliative care <sup>51,53</sup>
HCPs concern that engaging in ACP means advocating euthanasia <sup>48,56,67,79</sup>	HCPs' beliefs on the benefits of ACP <sup>33,40,42,43,47,48,54,56,57,71,77–79</sup>
HCPs' uneasiness about engaging in EOL discussions <sup>33,45–47,50,52,56,59,67,71,72,75,81</sup>	HCPs' positive attitudes toward legalization of ACP <sup>74</sup>
HCPs' belief that discussing EOL with the patient challenges the local culture (eg filial piety and social hierarchy) <sup>34,45,46,48,52,71,72,83</sup>	
System-Related Barriers and Facilitators	
System-Related Barriers	System-Related Facilitators
Lack of a standard system and institutional support for ACP	The availability of legal and standard systems for ACP
Lack of policy and formal regulation of ACP <sup>42,43,49,52,54,72,78,79,81</sup>	Availability of policy and formal regulation of ACP <sup>49,52,54,60,62,69,75,79</sup>
Lack of standard strategies to implement ACP <sup>45,46,48,52,54,72</sup>	Availability of a standard system for ACP <sup>50,52,54,60,65,72</sup>
Lack of training and education related to ACP <sup>46,48,50,52,65,67,76</sup>	Training and education related to ACP <sup>46,50,52,60,65,67,76</sup>
Time constraints on HCPs <sup>47,52,56,59,67,81,83</sup>	Availability of palliative care team <sup>59,72</sup>
Trained staff constraints <sup>47,81</sup>	Payment for conducting ACP discussions <sup>50,59</sup>
Insufficient leadership in the multidisciplinary care setting <sup>45,46,72</sup>	Availability of data supporting the benefits of ACP for HCPs and public <sup>72</sup>
Lack of institutional support for application of AD <sup>45,52,72,81</sup>	Cultural shift toward more open conversation about death and dying
	Public promotion efforts for ACP <sup>50,52</sup>
	Fostering a culture that stimulates open conversations about death between patients with family members <sup>50</sup>
	Paradigm shift in life and death, end-of-life care, and AD <sup>52,72</sup>

EOL, end of life.

and facilitate mutual understanding between patients, families, and HCPs while maintaining family harmony.<sup>46,90</sup>

Our study identified several barriers that were similar to those found in studies of Western countries: limited ACP formal education, legislations, institutional support, and cultural factors.<sup>4</sup> Asian HCPs viewed ACP as a discussion of forgoing life-sustaining treatments that may challenge medicine's life-prolonging intent norm. They reported uneasiness about discontinuing life-supporting treatments as barriers for initiating ACP. They also expressed concern that engaging in ACP may lead to patients receiving suboptimal care or to euthanasia. Education should therefore also target this common misconceptions among HCPs. However, education alone will not sustain without the support of the system. Our review highlighted Asian HCPs' fear of the legal consequences of engaging in ACP. Although this perspective may have shifted after the more recent enactment of ACP-related laws (eg,

South Korea, Taiwan) and guidelines (eg Japan, Hong Kong),<sup>13</sup> a recent study from Taiwan suggested that HCPs were unsure if the law would protect them.<sup>76</sup> Lastly, our findings also suggested limited institutional support for ACP. South Korean HCPs, for instance, reported that financial incentives would encourage their engagement in ACP. All of these systemic characteristics may, in part, contribute to the late and limited ACP engagement in Asia.

### Strengths and Limitations

A strength of this study is that it is the first systematic review to explore HCPs' knowledge of, attitudes toward, and experiences with ACP in Asia. A second strength is its comprehensive conceptualization of ACP, which enabled us to perform a sensitive search that included studies on specific elements of ACP (such as the process of discussing

**Table 4**

Patient- and Family-Related Barriers of ACP in Asia According to HCPs

Patient-Related Barriers	Family-Related Barriers
HCPs' concern about patients' readiness for and well-being after ACP	HCPs' fear of conflict with patient's family and its legal consequences
HCPs' concerns that ACP engagement might harm patients' well-being <sup>46,48,56,59,67,71,81</sup>	HCPs' fear of legal consequences of ACP <sup>46,47,54,56,59,65,76,79,81</sup>
HCPs' concerns that patients lacked knowledge regarding their current condition <sup>45,46,48</sup>	HCPs' fear of conflict with family members <sup>40,46–48,56,59,65,67,79,81</sup>
HCPs' concern that ACP is too complex for patients to engage <sup>66</sup>	HCPs' fear of conflict among family members <sup>47,59,81</sup>
HCPs' concern of patients or society not being ready for ACP <sup>56,67,71</sup>	HCPs' concern of family members' reluctance to include patients in ACP <sup>56,59,76</sup>
HCPs' concern that patients were reluctant to express their preferences <sup>46</sup>	HCPs' fear that ACP would upset or cause discomfort to family members <sup>46,67,71</sup>
HCPs' concern of patients' religious belief about death <sup>46</sup>	HCPs' concerns that ACP had the potential to burden family members <sup>42,71</sup>
HCPs' concern of the lack of rapport needed to discuss sensitive issues with patients <sup>45,46,56</sup>	

preferences and the completion of the documents) without these studies necessarily using the term ACP. Third, the risk of bias was high in only 2 of the 51 studies, but these studies did not affect the overall results of the systematic review.

Several limitations need to be considered when interpreting this study. First, limiting the search to studies published in English may have excluded important studies in other languages, potentially depriving our review of valuable contributions. However, because of our comprehensive search strategy, our wide inclusion criteria, and the similarities between findings in identified studies, we believe that we found sufficient studies to answer our research questions. Second, there may be selection bias in the studies that we included in the review: potentially, HCPs with an interest in ACP may have been more inclined to participate than those who did not participate. Third, our study synthesized evidence on the barriers and facilitators of ACP based on Asian HCPs' perspectives that does not necessarily reflect all of the potential barriers and facilitators of ACP. Fourth, the narrative approach of synthesizing evidence involved an interpretive process which may decrease the transparency. Finally, our results may lack generalizability to Asian low- and middle-income countries and to other regions of Asia (ie northern, western, and central Asia).

## Conclusions and Implications

Our results show that the current Western-oriented ACP may not always easily be transferable to other cultures, including Asian ones. Its uptake in Asia may be improved by adapting the current ACP models to acknowledge the deep importance traditionally attached to the role of the family. If policy and standard system are established for ACP, HCPs may be empowered to deliver it. Similarly, its rate of delivery may be improved by training to HCPs and cultural shift.

Our findings may also be relevant to the practice of ACP in Western countries. HCPs who engage in ACP with patients of Asian origin should pay particular attention to the potentially essential role of family in ACP. Given that ACP is at an early stage of development in Asia, Asian patients and families living in another country may benefit from clear explanations of the legal and standard systems related to ACP specific to the country.

## Acknowledgments

The authors would like to thank Maarten F.M. Engel for his support with the search process.

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**Supplementary Table 1**  
PRISMA 2009 Checklist

Section/Topic	No.	Checklist Item	Reported on Page No.
Title: Advance care planning in Asia: A systematic review of health care professionals' knowledge, attitude and experience			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
Abstract			
Structured summary	2	Provide a structured summary including, as applicable, background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	1-2
Introduction			
Rationale	3	Describe the rationale for the review in the context of what is already known.	3
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	3
Methods			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (eg, Web address), and, if available, provide registration information including registration number.	4
Eligibility criteria	6	Specify study characteristics (eg, PICOS, length of follow-up) and report characteristics (eg, years considered, language, publication status) used as criteria for eligibility, giving rationale.	4-5
Information sources	7	Describe all information sources (eg, databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	4
Search	8	Present full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	Supplementary Table 2
Study selection	9	State the process for selecting studies (ie, screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	4-5 and Figure 1
Data collection process	10	Describe method of data extraction from reports (eg, piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	5
Data items	11	List and define all variables for which data were sought (eg, PICOS, funding sources) and any assumptions and simplifications made.	5
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	6
Summary measures	13	State the principal summary measures (eg, risk ratio, difference in means).	5
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (eg, $I^2$ ) for each meta-analysis.	6-7
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (eg, publication bias, selective reporting within studies).	6
Additional analyses	16	Describe methods of additional analyses (eg, sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	NA
Results			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	7 and Figure 1
Study characteristics	18	For each study, present characteristics for which data were extracted (eg, study size, PICOS, follow-up period) and provide the citations.	Supplementary Table 4
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	Supplementary Table 5
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	7-12, Supplementary Tables 6-8
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	NA
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	NA
Additional analysis	23	Give results of additional analyses, if done (eg, sensitivity or subgroup analyses, meta-regression [see Item 16]).	NA
Discussion			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (eg, health care providers, users, and policy makers).	12, 13, 14
Limitations	25	Discuss limitations at study and outcome level (eg, risk of bias), and at review level (eg, incomplete retrieval of identified research, reporting bias).	14, 15
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	15
Funding			
Funding	27	Describe sources of funding for the systematic review and other support (eg, supply of data); role of funders for the systematic review.	15

**Supplementary Table 2**

## Search Strategies

## MEDLINE Ovid

(exp Advance Directives/OR Resuscitation Orders/OR ((Decision Making/OR Communication/OR Physician-Patient Relations/OR Patient Preference/OR Personal Autonomy/OR Knowledge/)) AND (Terminal Care/OR Palliative Care/OR Terminally Ill/OR Resuscitation/OR Life Support Care/OR Euthanasia/OR Hospice/)) OR (((Advance) ADJ3 (plan\* OR directive\*)) OR ((living-will\*)) OR ((decision\* OR decid\* OR plan OR plans OR planning OR preference\* OR want OR wish\* OR dilemma\* OR refus\* OR choos\* OR choice\* OR communication OR talking OR disclos\* OR autonom\* OR attitude\* OR practice\* OR perspective\*) ADJ6 (terminal\* OR end of life OR palliativ\* OR serious\*-ill\* OR severe\*-ill\* OR death OR dying OR advanced\*-cancer\* OR euthanas\* OR hospice\*)) OR ((do-not OR refus\*) ADJ3 resuscit\*) OR ((decision\* OR decid\* OR plan OR plans OR planning OR preference\* OR want OR wish\* OR dilemma\* OR refus\* OR choos\* OR choice\* OR communication OR talking OR disclos\* OR autonom\* OR attitude\* OR practice\* OR perspective\*) ADJ6 life ADJ (saving OR saver\* OR sustain\* OR resuscit\* OR threat\* OR support\*))) ,ab,ti.) AND (Asia/OR exp Asia, Southeastern/OR exp Far East/OR Asia, Western/OR Bangladesh/OR Bhutan/OR exp India/OR Nepal/OR Pakistan/OR Sri Lanka/OR Asian Continental Ancestry Group/OR (Asia\* OR Afghan\* OR Bangla\* OR Bhutan\* OR Borne\* OR Brunei\* OR Cambod\* OR China\* OR Chinese\* OR India OR Indonesia\* OR Japan\* OR Korea\* OR Laos\* OR Laotian\* OR Malaysia\* OR Mongolia\* OR Myanmar\* OR Birmese\* OR Birma OR Nepal\* OR Pakistan\* OR Papua\* OR Philippin\* OR Singapore\* OR Sri-Lank\* OR Taiwan\* OR Thailand\* OR Thai OR Timor\* OR Viet-Nam\* OR VietNam\* OR mekong OR (eastern NOT ((middle OR mediterr\* OR europe) ADJ3 eastern)) OR far-east).ab,ti,jn,cp.) NOT (exp Emigration and Immigration/OR exp Tissue Donors/OR exp Transients and Migrants/OR exp transplantation/OR (immigr\* OR migrant\* OR emigra\* OR refugee\* OR donor\* OR donation OR transplant\* OR chinese american\* OR japanese american\* OR korean american\* OR asian american\*).ab,ti.) NOT (letter\* OR news OR comment\* OR editorial\* OR congres\* OR abstract\* OR book\* OR chapter\* OR dissertation abstract\*).pt. AND english.la. NOT (exp child/NOT exp adult/

## Web of Science

TS=(((((Advance)) NEAR/2 (plan\* OR directive\*)) OR ((living-will\*)) OR ((decision\* OR decid\* OR "plan" OR "plans" OR "planning" OR preference\* OR "want" OR wish\* OR dilemma\* OR refus\* OR choos\* OR choice\* OR "communication" OR "talking" OR disclos\* OR autonom\* OR attitude\* OR practice\* OR perspective\*) NEAR/5 (terminal\* OR "end of life" OR palliativ\* OR serious\*-ill\* OR severe\*-ill\* OR death OR dying OR advanced\*-cancer\* OR euthanas\* OR hospice\*)) OR ((do-not OR refus\*) NEAR/2 resuscit\*) OR ((decision\* OR decid\* OR "plan" OR "plans" OR "planning" OR preference\* OR "want" OR wish\* OR dilemma\* OR refus\* OR choos\* OR choice\* OR "communication" OR "talking" OR disclos\* OR autonom\* OR attitude\* OR practice\* OR perspective\*) NEAR/5 life NEAR/1 (saving OR saver\* OR sustain\* OR resuscit\* OR threat\* OR support\*)))) AND ((Asia\* OR Afghan\* OR Bangla\* OR Bhutan\* OR Borne\* OR Brunei\* OR Cambod\* OR China\* OR Chinese\* OR India OR Indonesia\* OR Japan\* OR Korea\* OR Laos\* OR Laotian\* OR Malaysia\* OR Mongolia\* OR Myanmar\* OR Birmese\* OR Birma OR Nepal\* OR Pakistan\* OR Papua\* OR Philippin\* OR Singapore\* OR Sri-Lank\* OR Taiwan\* OR Thailand\* OR Thai OR Timor\* OR Viet-Nam\* OR VietNam\* OR mekong OR ("eastern" NOT ((middle OR mediterr\* OR "europe") NEAR/2 "eastern")) OR far-east)) NOT ((immigr\* OR migrant\* OR emigra\* OR refugee\* OR donor\* OR donation OR transplant\* OR "chinese american\*" OR "japanese american\*" OR "korean american\*" OR "asian american\*")) NOT (child\* NOT adult\*))

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("living will"/exp OR ("patient decision making"/exp OR "decision making"/de OR "interpersonal communication"/exp OR "doctor patient relation"/de OR "patient information"/de OR "patient preference"/de OR "patient autonomy"/de OR "personal autonomy"/de OR "patient attitude"/de OR "knowledge"/exp OR "personal experience"/de) AND ("terminal care"/exp OR "palliative therapy"/exp OR "terminally ill patient"/exp OR "terminal disease"/de OR "life threat"/exp OR "advanced cancer"/de OR resuscitation/de OR "life sustaining treatment"/de OR euthanasia/de OR hospice/de)) OR (((Advance) NEAR/3 (plan\* OR directive\*)) OR ((living-will\*)) OR ((decision\* OR decid\* OR plan OR plans OR planning OR preference\* OR want OR wish\* OR dilemma\* OR refus\* OR choos\* OR choice\* OR communication OR talking OR disclos\* OR autonom\* OR attitude\* OR practice\* OR perspective\*) NEAR/6 (terminal\* OR "end of life" OR palliativ\* OR serious\*-ill\* OR severe\*-ill\* OR death OR dying OR advanced\*-cancer\* OR euthanas\* OR hospice\*)) OR ((do-not OR refus\*) NEAR/3 resuscit\*) OR ((decision\* OR decid\* OR plan OR plans OR planning OR preference\* OR want OR wish\* OR dilemma\* OR refus\* OR choos\* OR choice\* OR communication OR talking OR disclos\* OR autonom\* OR attitude\* OR practice\* OR perspective\*) NEAR/6 life NEXT/1 (saving OR saver\* OR sustain\* OR resuscit\* OR threat\* OR support\*))) ,ab,ti) AND ("Asia"/de OR "Asian"/de OR "South Asian"/exp OR "Southeast Asian"/exp OR "Far East"/exp OR "South Asia"/exp OR "Japanese (people)"/exp OR "Korean (people)"/exp OR "Sino-Tibetan people"/exp OR (Asia\* OR Afghan\* OR Bangla\* OR Bhutan\* OR Borne\* OR Brunei\* OR Cambod\* OR China\* OR Chinese\* OR India OR Indonesia\* OR Japan\* OR Korea\* OR Laos\* OR Laotian\* OR Malaysia\* OR Mongolia\* OR Myanmar\* OR Birmese\* OR Birma OR Nepal\* OR Pakistan\* OR Papua\* OR Philippin\* OR Singapore\* OR Sri-Lank\* OR Taiwan\* OR Thailand\* OR Thai OR Timor\* OR Viet-Nam\* OR VietNam\* OR mekong OR (eastern NOT ((middle OR mediterr\* OR europe) NEAR/3 eastern)) OR far-east):ab,ti,ta,cy) NOT ("immigration"/exp OR "donor"/exp OR "migrant"/exp OR "transplantation"/exp OR (immigr\* OR migrant\* OR emigra\* OR refugee\* OR donor\* OR donation OR transplant\* OR "chinese american\*" OR "japanese american\*" OR "korean american\*" OR "asian american\*"):ab,ti) NOT ([Conference Abstract]/lim OR [Letter]/lim OR [Note]/lim OR [Editorial]/lim) AND [english]/lim NOT (child/exp NOT adult/exp)

## Google Scholar (top 200 ranked)

"living will|wills|"advance directive|directives|"advance care planning|plans|plan" Asia|China|Chinese|India|Indonesia|Japan|Japanese|Korea -immigration -donor -migrant -transplantation -american

**Supplementary Table 3**

## List of Asian Countries Eligible for Inclusion

Regions of Asia	Countries or Regions
Eastern Asia	China, Hong Kong, China Macao Special Administrative Region, Democratic People's Republic of Korea (North Korea), Japan, Mongolia, Republic of Korea (South Korea)
Southeastern Asia	Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, Timor-Leste, Viet Nam
Southern Asia	Afghanistan, Bangladesh, Bhutan, India, Iran, Maldives, Nepal, Pakistan, Sri Lanka

**Supplementary Table 4**  
Characteristics of Included Studies

Author (Reference)	Year	Study Design	Country	Setting (N)	Type of HCPs	Asian HCPs' Sample Size	Elements of ACP	Term Related to ACP Studied
Kumar et al <sup>78</sup>	1991	Cross-sectional survey	India	ICU of major hospitals in Delhi (not reported)	Physicians	102	Documentation	DNR order
Sehgal et al <sup>37</sup>	1996	Cross-sectional survey	Japan, United States, and Germany	Dialysis clinic in national academic hospitals (38)	Nephrologists	73 (among 232 HCPs; other participants: 72 Americans and 87 Germans)	Documentation	AD
Asai et al <sup>47</sup>	1997	Focus group interview	Japan	Medical institution (6)	Internists	7	Documentation	AD
Tee et al <sup>69</sup>	1997	Cross-sectional survey	Singapore	Private clinic (not reported)	General practitioners	174	Documentation	AD
Asai et al <sup>40</sup>	1998	Cross-sectional survey	Japan	No restriction on the setting (N/A)	Internists (members of the Japan Society for Cancer Therapy)	339	Documentation	AD
Voltz et al <sup>41,*</sup>	1998	Cross-sectional survey	Japan, United States, and Germany	No restriction on the setting (N/A)	Physicians and nurses	38: 14 physicians, 24 nurses (of 93 HCPs; other participants: 26 Americans and 29 Germans)	Discussion, documentation	End-of-life decision, AD
Asai et al <sup>44</sup>	1999	Cross-sectional survey	Japan	Academic hospital (not reported)	Physician members of the Japan Society of Apoplexy	190	Documentation	AD
Hosaka et al <sup>42</sup>	1999	Cross-sectional survey	Japan	Academic hospital (1)	Physicians	150	Documentation	DNR order
Hosaka et al <sup>43</sup>	1999	Cross-sectional survey	Japan	Academic hospital (1)	Nurses	706	Documentation	DNR order
Chao et al <sup>75</sup>	2002	Cross-sectional survey	Taiwan	No restriction on the setting (N/A)	Internists and surgeons (members of national societies for internists or surgeons)	1338	Documentation	DNR order
Kim et al <sup>57</sup>	2003	Cross-sectional survey	South Korea	Acute hospital in urban areas (3)	Nurses	185	Documentation	AD
Masuda et al <sup>48</sup>	2003	Mixed method studies	Japan	No restriction on the setting (N/A)	Physicians (reported by relatives to have received a living will)	301 (survey); 120 (interview)	Documentation	Living will
Yap et al <sup>61</sup>	2004	Cross-sectional survey	Hong Kong	ICU of public hospitals (11)	Intensivists	65	Discussion and documentation	DNR order, DNR order discussion
Yaguchi et al <sup>39</sup>	2005	Cross-sectional survey	Japan and 20 other non-Asian countries	No restriction on the setting (N/A)	Intensivists attending international meeting on intensive care medicine	74 (of 1961; other participants were non-Asian intensivists)	Documentation	DNR order
Barnett et al <sup>80</sup>	2008	Cross-sectional survey	India	No restriction on the setting (N/A)	Pulmonary and critical care physicians	199	Discussion, documentation	End-of-life decision making, DNR order
Sittisombut et al <sup>83</sup>	2009	Cross-sectional survey	Thailand	Medical department of academic hospital (1)	Physicians	55	Documentation	AD
Hu et al <sup>74</sup>	2010	Cross-sectional survey	Taiwan	Nationwide, oncology care wards and palliative care units (N/A)	Physicians and nurses (members of hospice foundations and oncology organizations)	431	Discussion, documentation	ACP, AD
Lee et al <sup>49,*</sup>	2010	Cross-sectional survey	South Korea	General hospital in metropolitan areas (6)	Physicians, nurses	64: 30 physicians; 34 nurses	Documentation	AD
Park et al <sup>54</sup>	2011	Cross-sectional survey	South Korea	ICU of general hospitals in metropolitan areas (not reported)	Nurses	252	Documentation	DNR order
Weng et al <sup>82</sup>	2011	Cross-sectional survey	China	ICU (not reported)	Intensivists	315	Documentation	DNR order
Yee et al <sup>67</sup>	2011	Cross-sectional survey	Singapore	Nationwide, dialysis center in public hospitals and private sectors (not reported)	Nephrologists, nurses, medical social workers	546: 51 physicians; 461 nurses; 13 medical social workers, 21 others	Discussion, documentation	ACP, AMD

(continued on next page)

Supplementary Table 4 (continued)

Author (Reference)	Year	Study Design	Country	Setting (N)	Type of HCPs	Asian HCPs' Sample Size	Elements of ACP	Term Related to ACP Studied
Hong et al <sup>58</sup>	2012	Cross-sectional survey	South Korea	Outpatient clinic and inpatient wards of acute hospital (3)	Nurses	293	Documentation	AD
Yang et al <sup>70</sup>	2012	Cross-sectional survey	Singapore	Tertiary cancer center (1)	Oncology or palliative care physicians and nurses	146: 37 physicians, 109 nurses	Discussion, documentation	DNR discussion, DNR order
Foo et al <sup>68</sup>	2013	Cross-sectional survey	Singapore	Cancer center hospital (1)	Oncology or palliative care physicians and nurses	147: 47 physicians; 110 nurses	Discussion	End-of-life care decision making
Keam et al <sup>51,*</sup>	2013	Cross-sectional survey	South Korea	National cancer center (1) and general hospital (16)	Oncologists	303	Documentation	AD
Kim et al <sup>52</sup>	2013	Cross-sectional survey (part of a Delphi study)	South Korea	No restriction on the setting (N/A)	Experts panel members of Korean Society for Hospice and Palliative Care (physicians, nurses, social workers)	Round 1: 40 (14 physicians, 18 nurses, 8 others); round 2: 15 (7 physicians, 5 nurses, 3 others)	Documentation	AD
Pinto et al <sup>77</sup>	2013	Cross-sectional survey	Sri Lanka	Academic hospital (3) in urban area	Physicians	232	Documentation	AD, DNR order
Nakazawa et al <sup>35</sup>	2014	Cross-sectional survey	Japan	Nationwide, certified palliative care unit members of national palliative care association (203)	Palliative care physicians	99	Discussion, documentation	ACP, AD
Lam et al <sup>65</sup>	2015	Cross-sectional survey	Hong Kong	Medical department of tertiary referral hospital (1)	Physicians	106: 60 in 2004; 46 in 2008	Documentation	Do not attempt resuscitation form
Luk et al <sup>62</sup>	2015	Cross-sectional survey	Hong Kong	Public teaching hospital (1)	Physicians (internists, surgeons, oncologists)	77 (40 internists, 31 surgeons, 6 oncologists)	Discussion, documentation	AD discussion, AD
Mori et al <sup>33</sup>	2015	Cross-sectional survey	Japan	Nation-wide, no restriction on the setting (N/A)	Medical oncologists	479	Discussion	End-of-life discussion
Chen et al <sup>79</sup>	2016	Cross-sectional survey	China	Oncology department in academic (1), tertiary general (4), and urban general (5) hospitals	Oncologists	223	Documentation	Living will
Coffey et al <sup>64</sup>	2016	Cross-sectional survey	Hong Kong, Ireland, Israel, Italy, and United States	Clinical and educational setting (not reported)	Nurses	157 (of 1089; other participants were HCPs from Ireland, Israel, Italy, and United States)	Documentation	AD
Kwon et al <sup>53</sup>	2016	Cross-sectional survey	South Korea	Registered geriatric social work institutions in metropolitan area	Social workers	246	Discussion, documentation	ACP, AD
Han et al <sup>55</sup>	2016	Cross-sectional survey	South Korea	Long-term care facility (not reported)	Social workers	297	Discussion, documentation	End-of-life care decision, AMD
Hiraoka et al <sup>38</sup>	2016	Cross-sectional survey	Japan	Acute care hospital (3)	Physicians	111	Discussion, documentation	Code status discussion, DNR order
Koh et al <sup>60</sup>	2016	Focus group interview	South Korea	Acute care hospital, palliative care ward, and hospice facility (not reported)	Physicians and nurses	13: 8 oncologists; 5 nurses	Discussion	End-of-life care planning
Lee et al <sup>63</sup>	2017	Cross-sectional survey	Hong Kong	No restriction on the setting	Physicians, nurses, and social workers attending palliative care conference in Hong Kong	102	Discussion	ACP
Syed et al <sup>81</sup>	2017	Cross-sectional survey	Pakistan	Department of medicine in academic hospital (1)	Physicians (who discussed at least 5 code statuses)	77	Discussion	Code-status discussion
Hirakawa et al <sup>46</sup>	2018	Focus group interview	Japan	Long-term care facility (6) and psychogeriatric hospital (1)	Social workers and care managers	14: 3 social workers, 11 care managers	Discussion	ACP



Koh et al <sup>59</sup>	2018 Cross-sectional survey	South Korea	No restriction on the setting	Oncologists attending annual meeting of oncology and resident physicians	376: 147 oncologists; 229 residents	Discussion	End-of-life discussion
Menon et al <sup>71,*</sup>	2018 Focus group and individual in-depth interview	Singapore	Acute public hospital, public specialist cancer center, private clinics (not reported)	Physicians (family physicians and junior doctors), nurses, medical social workers	33: 15 physicians; 13 nurses, 5 medical social workers	Discussion	ACP
Park et al <sup>34</sup>	2018 Cross-sectional survey	China, South Korea, Japan	Nationwide, ICU (not reported)	Physicians	605: China: 195; South Korea: 186; Japan: 224	Documentation	DNR order
Tsuruwaka et al <sup>45</sup>	2018 In-depth interview	Japan	Hansen's disease sanatoria (13 national; 1 private)	Physicians, nurses, social workers, care workers	66: 10 physicians, 27 nurses, 6 social workers, 23 care workers	Discussion	ACP
Yokoya et al <sup>36</sup>	2018 Cross-sectional survey	Japan	Nationwide, geriatric health care facilities (844)	Head nurses	844	Discussion, documentation	ACP, AD
Chan et al <sup>166,*</sup>	2019 Mixed method studies	Hong Kong	Regional hospital (2)	Physicians, social workers	24	Documentation	AD
Ke et al <sup>73</sup>	2019 Cross-sectional survey	Taiwan	Medical and surgical ICU in medical center in northern Taiwan (7)	Physicians, nurses	176: 56 physicians; 120 nurses	Discussion, documentation	End-of-life medical decision making process, AD
Lee et al <sup>56</sup>	2019 Cross-sectional survey	South Korea	No restriction on the setting (N/A)	Geriatricians attending national geriatric conference	181	Documentation	AD
Lin et al <sup>76,*</sup>	2019 Semi-structured interview	Taiwan	Inpatient oncology (1) and hospice (1) unit in northern Taiwan	Physicians, nurses, social workers, case managers, psychologist, chaplain, volunteer	12: 4 physicians; 4 nurses; 1 social worker; 3 case managers; 1 psychologist; 1 chaplain; 1 volunteer	Discussion	ACP
Park et al <sup>50,*</sup>	2019 Cross-sectional survey	South Korea	Nation-wide, large hospital (1 general and 1 cancer center) in capital, 5 major provinces and 3 metropolitan cities	Physicians	928	Discussion, documentation	ACP, AD
Tan et al <sup>72</sup>	2019 Focus group interview	Singapore	Public hospitals and specialist center	Physicians, nurses, social workers who had completed national ACP training program	63: 12 physicians; 15 nurses; 24 medical social workers; 12 ACP coordinators	Discussion	ACP

ACP, advance care planning; AD, advance directive; AMD, advance medical directive; DNR, do not resuscitate; HCPs, health care professionals; ICU, intensive care unit; N/A, not applicable.

\*Studies also studied non-HCPs.

**Supplementary Table 5**

Quality Assessment Scores for Included Studies

Author (Reference)	Year	Abstract and Title	Introduction and Aims	Method and Data	Sampling	Data Analysis	Ethics and Bias	Results	Transferability	Implications and Usefulness	Total
Kumar et al <sup>78</sup>	1991	2	1	2	2	1	2	2	2	4	18
Sehgal et al <sup>37</sup>	1996	4	4	4	3	4	3	4	3	4	33
Asai et al <sup>47</sup>	1997	4	4	3	3	1	4	4	2	4	29
Tee et al <sup>69</sup>	1997	4	4	4	4	4	1	4	3	4	32
Asai et al <sup>40</sup>	1998	4	4	3	3	4	1	4	3	3	29
Voltz et al <sup>41</sup>	1998	4	4	3	3	4	1	4	3	3	29
Asai et al <sup>44</sup>	1999	3	4	3	4	3	1	2	3	4	27
Hosaka et al <sup>42</sup>	1999	4	4	3	3	1	1	4	3	3	26
Hosaka et al <sup>43</sup>	1999	4	3	3	3	1	1	4	3	3	25
Chao et al <sup>75</sup>	2002	4	4	4	4	3	1	3	3	3	29
Kim et al <sup>57</sup>	2003	3	4	3	3	3	2	4	3	3	28
Masuda et al <sup>48</sup>	2003	4	4	3	3	1	4	4	3	4	30
Yap et al <sup>61</sup>	2004	4	4	4	4	4	4	3	3	3	33
Yaguchi et al <sup>39</sup>	2005	4	4	3	3	4	1	4	3	4	30
Barnett et al <sup>80</sup>	2008	2	2	2	2	1	2	1	2	3	17
Sittisombut et al <sup>83</sup>	2009	4	3	4	3	4	4	4	3	4	33
Hu et al <sup>74</sup>	2010	4	4	3	4	3	4	3	4	4	33
Lee et al <sup>49</sup>	2010	4	4	4	4	4	4	4	3	3	34
Park et al <sup>54</sup>	2011	3	4	3	3	3	4	4	3	4	31
Weng et al <sup>82</sup>	2011	4	4	3	3	4	3	3	3	3	30
Yee et al <sup>67</sup>	2011	4	4	4	4	4	4	4	3	4	35
Hong et al <sup>58</sup>	2012	2	4	4	3	4	1	3	3	4	28
Yang et al <sup>70</sup>	2012	4	4	3	3	1	2	4	3	4	28
Foo et al <sup>68</sup>	2013	4	4	4	3	4	4	4	3	3	33
Keam et al <sup>51</sup>	2013	4	4	3	3	4	3	4	3	3	31
Kim et al <sup>52</sup>	2013	4	4	4	3	3	4	4	3	4	33
Pinto et al <sup>77</sup>	2013	4	3	3	4	3	3	4	3	4	31
Nakazawa et al <sup>35</sup>	2014	4	4	4	4	4	4	4	3	4	35
Lam et al <sup>65</sup>	2015	4	4	3	3	4	1	4	3	3	29
Luk et al <sup>62</sup>	2015	4	4	3	3	4	4	4	3	4	33
Mori et al <sup>33</sup>	2015	4	4	4	4	4	4	4	4	4	36
Chen et al <sup>79</sup>	2016	4	4	3	3	4	1	4	3	4	30
Coffey et al <sup>64</sup>	2016	2	4	2	3	4	4	4	3	4	30
Kwon et al <sup>53</sup>	2016	4	4	4	4	3	4	3	4	3	33
Han et al <sup>55</sup>	2016	4	4	3	3	4	4	3	3	4	32
Hiraoka et al <sup>38</sup>	2016	3	4	4	1	4	4	4	3	4	31
Koh et al <sup>60</sup>	2016	3	4	2	4	3	2	4	2	4	28
Lee et al <sup>63</sup>	2017	4	4	4	3	4	4	4	3	3	33
Syed et al <sup>81</sup>	2017	4	4	4	3	4	4	4	3	4	34
Hirakawa et al <sup>46</sup>	2018	3	4	4	3	4	4	4	3	2	31
Koh et al <sup>59</sup>	2018	3	4	3	3	3	2	4	3	3	28
Menon et al <sup>71</sup>	2018	3	4	4	4	4	4	4	3	4	34
Park et al <sup>34</sup>	2018	4	4	4	4	4	4	4	4	4	36
Tsuruwaka et al <sup>45</sup>	2018	4	4	4	3	4	4	4	3	3	33
Yokoya et al <sup>36</sup>	2018	4	4	4	4	4	4	4	4	4	36
Chan et al <sup>66</sup>	2019	3	4	3	4	4	4	3	3	4	32
Ke et al <sup>73</sup>	2019	4	4	4	3	4	4	4	3	4	34
Lee et al <sup>56</sup>	2019	4	4	4	3	3	1	4	3	4	30
Lin et al <sup>76</sup>	2019	4	4	4	4	4	4	4	3	4	35
Park et al <sup>50</sup>	2019	4	3	4	3	4	4	4	4	4	34
Tan et al <sup>72</sup>	2019	4	4	3	4	4	1	4	3	4	31

**Supplementary Table 6**

## Asian Health Care Professionals' Knowledge of Advance Care Planning

Author	Year	Country/Region (Setting)	Subjects	Awareness of ACP (or Its Elements)	Main Finding
Luk et al <sup>62</sup>	2015	Hong Kong (Hospital)	Physicians (various specialties)	1. Familiarity with a standardized AD form 2. Familiarity with local guidelines for AD	1. 57% were familiar 2. 21% were very familiar; 68% knew the guidelines existed but were not very familiar; 10% not familiar
Chen et al <sup>79</sup>	2016	China (Hospital)	Oncologists	1. Familiarity with DNR order 2. Knowing the difference between DNR order and euthanasia	1. 28% knew a lot; 51% knew something, 21% knew nothing 2. 74%
Coffey et al <sup>64</sup>	2016	Hong Kong (Clinical and educational setting)	Nurses	Familiarity with AD	49%
Lee et al <sup>49</sup>	2010	South Korea (Hospital)	Physicians, nurses	Having heard of AD	40% (physicians); 56% (nurses)
Pinto et al <sup>77</sup>	2013	Sri Lanka (Hospital)	Physicians	1. Having heard of DNR orders 2. Knowing the correct meaning of DNR orders 3. Having heard of AD 4. Knowing the correct meaning of AD	1. 67% 2. 26% 3. 21% 4. 12%
Kwon et al <sup>53</sup>	2016	South Korea (Geriatric institution)	Social workers	Having heard of AD	27%
Park et al <sup>50</sup>	2019	South Korea (no restriction)	Physicians	Having heard of AD	61%
Menon et al <sup>71</sup>	2019	Singapore (geriatric or family medicine institution)	Physicians, nurses, medical social workers	Having heard of ACP (Qualitative data)	Physicians: most had heard of ACP and knew it involved making advance health care plans. Some nurses and medical social workers had heard of ACP but were not aware of the details. Some knew nothing. Nearly none knew that ACP is a series of conversations and that a trained facilitator may/can conduct it.
Author	Year	Country (Setting)	Subjects	Knowledge of ACP (or Its Elements) Measured by Specific Instrument*	Main Finding
Tee et al <sup>69</sup>	1997	Singapore (Private clinic)	General practitioners	Based on a questionnaire of knowledge about AD (8 questions): 1. AD knowledge score (Range = -9 to 9) 2. Correct answer rates to questions related to AD definition, possibility to be revoked, continuity of care after withdrawal of life-sustaining treatment, proxy appointment	1. Median = 7; min to max = -2 to 9 2. 80%-88%
Yee et al <sup>67</sup>	2011	Singapore (Dialysis center)	Nephrologists, nurses, medical social workers	Based on questionnaire of knowledge about ACP (9 questions): 1. ACP knowledge score (range = 0-9) 2. Correct answer rate to questions referring to: a. Communication skills for ACP, the appropriate timing of ACP, and patient's values is taken into account in ACP b. Whether ACP can be proceeded without patient signing in an AD c. Whether ACP is a legal document rather than a process	1. Mean = 8.0 (physicians); 6.3 (nurses); 8.3 (medical social workers) a. 88%-97% b. 55% c. 23%
Hong et al <sup>58</sup>	2012	South Korea (Hospital)	Nurses	Based on a questionnaire of knowledge about AD made for public population (9 questions): 1. AD knowledge score (range = 0-9)* 2. Correct answer rate	1. Mean $\pm$ SD = 7.6 $\pm$ 1.39 (min to max = 3-9) 2. 84%

(continued on next page)

Supplementary Table 6 (continued)

Author	Year	Country/Region (Setting)	Subjects	Awareness of ACP (or Its Elements)	Main Finding
Han et al <sup>55</sup>	2016	South Korea (Long-term care facility)	Social workers	Based on a questionnaire of knowledge about AD (10 questions; 5-point Likert scale): 1. Medical knowledge of AD score (4 questions, range = 4-20) 2. General knowledge of AD score (6 questions, range = 6-30)	1. Mean ± SD = 2.3 ± 0.93 2. Mean ± SD = 2.3 ± 0.99
Ke et al <sup>73</sup>	2019	Taiwan (ICU)	Physicians, nurses	Based on a questionnaire of knowledge about AD (10 questions): AD knowledge score (range = 0-10)	Physicians: Mean ± SD = 4.39 ± 1.49 Nurses: Mean ± SD = 3.89 ± 1.3

\*Higher scores indicated better knowledge.



**Supplementary Table 7**

Asian Health Care Professionals' Attitudes Toward Advance Care Planning

Author	Year	Country (Setting)	Type of HCPs	HCPs' Perceptions of the Usefulness/Importance of ACP (or Its Elements)	Main Finding
Asai et al <sup>40</sup>	1998	Japan (no restriction)	Internists (members of cancer society)	HCPs who believed that AD is useful	89%
Voltz et al <sup>41</sup>	1998	Japan (Hospice or palliative care unit)	Physicians, nurses	1. HCPs who believed that AD is useful 2. HCPs who believed that surrogate appointment is useful	1. 71% 2. 45%
Hosaka et al <sup>42</sup>	1999	Japan (Hospital)	Physicians	HCPs who believed that DNR order is important	94%
Hosaka et al <sup>43</sup>	1999	Japan (Hospital)	Nurses	HCPs who believed that DNR order is important	87%
Yee et al <sup>67</sup>	2011	Singapore (Dialysis center)	Nephrologists, nurses, medical social workers	HCPs' perceptions of the usefulness of ACP in a 5-point Likert scale* *(1=strongly disagree; 5=strongly agree)	Mean score: physicians: 4.2; nurses: 3.8; social workers: 4.3*
Park et al <sup>54</sup>	2011	South Korea (ICU)	Nurses	HCPs who believed that DNR order is important	96%
Keam et al <sup>51</sup>	2013	South Korea (Hospital)	Oncologists	HCPs who believed that AD is important	97%
Nakazawa et al <sup>35</sup>	2014	Japan (Palliative care unit)	Palliative care physicians	1. HCPs who believed that ACP is useful for guidance 2. HCPs who believed that discussing patient's goals of care with the family is important 3. HCPs who believed that discussing patient's goals of care with the patient is important 4. HCPs who believed that confirming existing AD with the patient is important 5. HCPs who believed that recommending patient to complete an AD is important 6. HCPs who believed that asking the patient to designate a health care proxy is important 7. HCPs who believed that patients would worry less about unwanted treatment after making an AD	1. 87% 2. 99% 3. 98% 4. 69% 5. 63% 6. 57% 7. 85%
Lam et al <sup>65</sup>	2015	Hong Kong (Hospital)	Physicians	1. HCPs who believed that DNR order is useful for colleagues 2. HCPs who believed that DNR order is useful for terminal patient management	1. 48% (in 2004); 85% (in 2008) 2. 32% (in 2004); 54% (in 2008)
Kwon et al <sup>53</sup>	2016	South Korea (Geriatric institution)	Social workers	HCPs who believed that self-determination is important	87%
Yokoya et al <sup>36</sup>	2018	Japan (Geriatric health service facilities)	Head nurses	1. HCPs who believed that asking about existing AD is important 2. HCPs who believed that recommending completion of AD is important 3. HCPs who believed that asking for health care proxy designation is important 4. HCPs who believed that discussing patient's goals of care with the family is important 5. HCPs who believed that discussing patient's goals of care with the patient is important	1. 80% 2. 69% 3. 77% 4. 96% 5. 95%

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**Supplementary Table 7** (continued)

Author	Year	Country (Setting)	Type of HCPs	HCPs' Perceptions of the Usefulness/Importance of ACP (or Its Elements)	Main Finding
Asai et al <sup>47</sup>	1997	Japan (Medical institution)	Physicians	HCPs' perception of the usefulness of AD [Qualitative data]	Physicians found AD useful for setting the parameters for patient care at the end of life
Menon et al <sup>71</sup>	2018	Singapore (Geriatric or family medicine institution)	Physicians, nurses, medical social workers	HCPs' perception of the usefulness of ACP [Qualitative data]	HCPs believed that ACP would be useful if adequate information related to the disease was provided to the family members and the patient
Chan et al <sup>66</sup>	2019	Hong Kong (Palliative care unit)	Physicians, social workers	HCPs' perception of the importance of AD [Qualitative data]	HCPs believed that the main importance of AD discussion is to enhance mutual understanding between patients, families, and health care professionals
Hirakawa et al <sup>46</sup>	2019	Japan (Long-term care facilities)	Social workers	HCPs' perception of the usefulness of ACP [Qualitative data]	HCPs believed that ACP is useful to enhance mutual understanding between the patients and their families
Author	Year	Country (Setting)	Type of HCPs	Whether or Not HCPs Supported the Use of AD	Main Finding
Kumar et al <sup>78</sup>	1991	India (ICU)	Physicians	HCPs willing to apply DNR orders on patients beyond salvage	51%
Tee et al <sup>69</sup>	1997	Singapore (Private clinic)	General practitioners	HCPs supported the use of AD	83%
Kim et al <sup>57</sup>	2003	South Korea (Hospital)	Nurses	HCPs supported the use of AD (after being educated on AD)	78%
Masuda et al <sup>48</sup>	2003	Japan (no restriction)	Physicians (who had been presented with living will according to relatives)	HCPs supported the use of AD	55%
Yaguchi et al <sup>39</sup>	2005	Japan (no restriction)	Intensivists	HCPs not willing to apply DNR orders (in persistent vegetative state patient with no close relatives nor AD)	33%
Yee et al <sup>67</sup>	2011	Singapore (Dialysis center)	Nephrologists, nurses, medical social workers	Whether or not HCPs supported the use of ACP in a 5-point Likert scale* *(1=strongly disagree; 5=strongly agree)	Mean score: Physicians: 4.48; nurses: 4.0, social worker: 4.46*
Pinto et al <sup>77</sup>	2013	Sri Lanka (Hospital)	Physicians	HCPs supported the use of DNR order	68%
Chen et al <sup>79</sup>	2016	China (Hospital)	Physicians	HCPs supported the use of AD	84%
Lee et al <sup>56</sup>	2019	South Korea (no restriction)	Physicians	HCPs supported the use of AD	87%
Author	Year	Country (Setting)	Type of HCPs	HCPs' Confidence About Engaging in ACP	Main Finding
Voltz et al <sup>41</sup>	1998	Japan (Hospice or palliative care unit)	Nurses, physicians	1. HCPs who felt comfortable to help patient setting up an AD 2. HCPs who felt comfortable to help with the proxy appointment	1. 71% 2. 55%
Lam et al <sup>65</sup>	2015	Hong Kong (Hospital)	Physicians	1. HCPs who felt uncomfortable to sign DNR form 2. HCPs who would refrain from signing DNR form when he was relieving the duty of another doctor	1. 32% 2. 47%
Hiraoka et al <sup>38</sup>	2016	Japan (Hospital)	Physicians	HCPs who felt confident to discuss DNR order with patient	47%
Kwon et al <sup>53</sup>	2016	South Korea (Geriatric institution)	Social workers	1. HCPs who felt comfortable to discuss death in general 2. HCPs who felt comfortable to discuss death with an older patient	1. 41% comfortable 2. 27% comfortable

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Supplementary Table 7 (continued)

Author	Year	Country (Setting)	Type of HCPs	HCPs' Confidence About Engaging in ACP	Main Finding
Lee et al <sup>63</sup>	2017	Hong Kong (no restriction)	Physicians, nurses, social workers attending palliative care conference	1. Overall beliefs in ACP discussion (range: 11–77)* 2. Had positive feelings toward ACP discussion with their family and its outcomes (range: 2–14)* 3. Belief that society expected HCPs to discuss ACP and make advance care decisions for the family (range: 2–14)* 4. Had the ability and supports to discuss ACP with their family (range: 5–32)* 5. HCP's readiness to discuss ACP with their family (range: 2–13)* * Lower scores represented more positive attitudes toward ACP	1. Physicians: 30.27 ± 10.25; nurses: 33.78 ± 12.47; social workers: 30.58 ± 4.5 2. Physicians: 4.45 ± 2.57; nurses: 6.53 ± 2.60; social workers: 5.17 ± 1.8 3. Physicians: 4.76 ± 2.67; nurses: 5.3 ± 3.06; social workers: 5.29 ± 2.2 4. Physicians: 13.94 ± 5.71; nurses: 15.97 ± 5.93; social workers: 14.71 ± 3.38 5. Physicians: 6.23 ± 3.09; nurses: 6.12 ± 2.74; social workers: 5.79 ± 2.42
Author	Year	Country (Setting)	Type of HCPs	The Role HCPs Perceived for Themselves in ACP	Main Finding
Tee et al <sup>69</sup>	1997	Singapore (Private clinic)	General practitioners	HCPs who believed that family physicians should initiate ACP	35%
Yee et al <sup>67</sup>	2011	Singapore (Dialysis center)	Nephrologists, nurses, medical social workers	HCPs who believed that ACP is part of their role	82% (physicians); 100% (social workers); 37% (nurses)
Koh et al <sup>59</sup>	2018	South Korea (no restriction)	Oncologists, residents	1. Who should initiate ACP: - Oncologist - Hospice care specialist or palliative care coordinator 2. Who should conduct the ongoing discussion of ACP: - Hospice care specialist or palliative care coordinator	83% 15% 68%
Ke et al <sup>73</sup>	2019	Taiwan (ICU)	Physicians, nurses	Whether nurse should participate in ACP	98% (physicians); 97% (nurses)
Koh et al <sup>60</sup>	2016	South Korea (Hospital or hospice)	Physicians, nurses	The role HCPs perceived for themselves in ACP [Qualitative data]	HCPs thought that the attending physicians should deliver the bad news and the palliative care team should conduct the ongoing discussion of ACP
Author	Year	Country (Setting)	Type of HCPs	HCPs' Willingness to Engage in ACP	Main Finding
Chao et al <sup>75</sup>	2002	Taiwan (no restriction)	Internists, surgeons	HCPs willing to initiate DNR discussion with patient and families	78%
Luk et al <sup>62</sup>	2015	Hong Kong (Hospital)	Physicians (various specialties)	HCPs willing to initiate AD discussions with terminally ill patients and their family	94%
Park et al <sup>34</sup>	2018	China, South Korea, Japan (ICU)	Physicians	1. HCPs willing to discuss DNR orders with competent patient 2. HCPs willing to discuss DNR orders with patient's families	1. 13% (China); 20% (South Korea); 67% (Japan) 2. 90% (China); 74% (South Korea); 95% (Japan)

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**Supplementary Table 7** (continued)

Author	Year	Country (Setting)	Type of HCPs	HCPs' Willingness to Engage in ACP	Main Finding
Park et al <sup>50</sup>	2019	South Korea (no restriction)	Physicians	HCPs willing to engage in ACP: 1. when patient is still in healthy condition 2. when patient had been diagnosed with serious illness 3. when patient has difficult prognosis 4. when patient's condition of a serious illness is worsening 5. when patient terminal stage is easy to predict 6. when patient had been diagnosed with terminal stage	1. 64% 2. 88% 3. 82% 4. 97% 5. 97% 6. 97%
Author	Year	Country (Setting)	Type of HCPs	Who HCPs Believed Should Participate in ACP	Main Finding
Yap et al <sup>61</sup>	2004	Hong Kong (ICU)	Intensivists	1. About life-sustaining treatment: - Patient and/or families - Nurses 2. About DNR orders: - Families - Patient	89% 55% 92% 88%
Barnett et al <sup>80</sup>	2008	India (no restriction)	Intensivists	About DNR orders: 1. Family 2. Patients 3. Patients and families	1. 92% 2. 5% 3. 3%
Lee et al <sup>49</sup>	2010	South Korea (Hospitals)	Physicians, nurses	1. Both patient and families 2. Patient only	1. 63%(physicians); 74%(nurses) 2. 37%(physicians); 26%(nurses)
Weng et al <sup>82</sup>	2011	China (ICU)	Physicians	Patient or families	96%
Yang et al <sup>70</sup>	2012	Singapore (Oncology or palliative care wards)	Physicians, nurses	1. Patient 2. Families	1. 79% 2. 78%
Syed et al <sup>81</sup>	2017	Pakistan (Hospitals)	Physicians	About DNR-orders: Families	82%
Koh et al <sup>59</sup>	2018	South Korea (no restriction)	Oncologists, residents	1. Oncologist 2. Patient and their families 3. Only patient 4. Only families	1. 30% 2. 85% 3. 8% 4. 6%
Author	Year	Country (Setting)	Type of HCPs	HCPs' Willingness to Follow an AD	Main Finding
Sehgal et al <sup>37</sup>	1996	Japan (Dialysis clinic)	Nephrologists	HCPs willing to follow patient's AD to withdraw LST when patient's AD conflicts family's wishes	19%
Asai et al <sup>44</sup>	1999	Japan (Hospital)	Physicians	HCPs willing to follow patient's AD to withdraw LST when family's wishes are to withdraw LST	17%
Hosaka et al <sup>43</sup>	1999	Japan (Hospital)	Nurses	HCPs willing to follow DNR orders	95%
Hosaka et al <sup>42</sup>	1999	Japan (Hospital)	Physicians	HCPs willing to follow DNR orders	70%
Yap et al <sup>61</sup>	2004	Hong Kong (ICU)	Intensivists	HCPs willing to follow DNR orders	79%
Sittisombut et al <sup>83</sup>	2009	Thailand (Hospital)	Physicians	HCPs willing to follow DNR orders	91%
Weng et al <sup>82</sup>	2011	China (ICU)	Physicians	HCPs willing to follow DNR orders	42%
Park et al <sup>54</sup>	2011	South Korea (ICU)	Nurse	HCPs not willing to follow patient's AD when in conflict with family request	73%

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Supplementary Table 7 (continued)

Author	Year	Country (Setting)	Type of HCPs	HCPs' Willingness to Follow an AD	Main Finding
Foo et al <sup>68</sup>	2013	Singapore (Cancer center hospitals)	Oncology or palliative care physicians and nurses	1. HCPs willing to follow patient's AD when it is conflicting with family's wishes 2. HCPs not willing to follow patient's AD when it is conflicting with family's wishes	1. 46% (physicians); 33% (nurses) 2. 46% (physicians); 65% (nurses)
Author	Year	Country (Setting)	Type of HCPs	Who HCPs Believed Should Be the Decision Maker in ACP	Main Finding
Tee et al <sup>69</sup>	1997	Singapore (Private clinic)	General practitioners	Who HCPs believed is a better decision maker for the appropriateness of withholding LST: Physicians	70%
Hosaka et al <sup>42</sup>	1999	Japan (Hospital)	Physicians	Who HCPs believed should make the final decision on DNR: 1. Patient, family, and physician in charge 2. Physician in charge	1. 44% 2. 28%
Hosaka et al <sup>43</sup>	1999	Japan (Hospital)	Nurses	Who HCPs believed should make the final decision on DNR: 1. Patient, family, and physicians 2. Physicians and ward director 3. DNR committee in the hospital	1. 44% 2. 18% 3. 13%
Barnett et al <sup>80</sup>	2008	India (no restriction)	Intensivists	Who HCPs believed should make the final decision on DNR 1. Patient 2. Family 3. Physician 4. Physician and family	1. 2% 2. 7% 3. 18% 4. 73%
Park et al <sup>54</sup>	2011	South Korea (ICU)	Nurse	Who HCPs believed should make the final decision on DNR 1. Patient and family 2. Patient only 3. Family and physicians	1. 53% 2. 23% 3. 21%
Yang et al <sup>70</sup>	2012	Singapore (Oncology or palliative care wards)	Physicians, nurses	Who HCPs believed should make the final decision on DNR: 1. Physicians 2. Physicians and patients or family 3. Patient or family	1. 70% (physicians); 32% (nurses) 2. 24% (physicians); 39% (nurses) 3. 5% (physicians); 28% (nurses)
Pinto et al <sup>77</sup>	2013	Sri Lanka (Hospital)	Physicians	Who HCPs believed should have the right to decide on LST: 1. Patient 2. Physician 3. Family	1. 63% 2. 63% 3. 47%
Menon et al <sup>71</sup>	2018	Singapore (Geriatric or family medicine institution)	Physicians, nurses, medical social workers	Who HCPs believed should have the right to decide on health care–related decision [Qualitative data]	The main decision lay with the family members, particularly with regard to elderly patients
Author	Year	Country (Setting)	Type of HCPs	Which Factors HCPs Believed Influenced Decision Making	Main Finding
Asai et al <sup>44</sup>	1999	Japan (Hospital)	Physicians	Regarding life-sustaining treatment: 1. Patient's written AD 2. Patient's oral AD 3. Family's wishes	1. 91% 2. 73% 3. 76%

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**Supplementary Table 7** (continued)

Author	Year	Country (Setting)	Type of HCPs	Who HCPs Believed Should Be the Decision Maker in ACP	Main Finding
Hosaka et al <sup>42</sup>	1999	Japan (Hospital)	Physicians	Regarding DNR order: 1. Patient's consent was indispensable 2. Patient's consent was preferable, but if it was not obtained, the patient's family and the physician could decide	1. 14% 2. 78%
Hosaka et al <sup>43</sup>	1999	Japan (Hospital)	Nurses	Regarding DNR order: 1. Patient's consent was indispensable 2. Patient's consent was preferable, but if it was not available, family and physicians could decide	1. 36% 2. 64%
Lam et al <sup>65</sup>	2015	Hong Kong (Hospital)	Physicians	Regarding DNR decision: 1. Patient's wishes 2. Good medical practice 3. Family's wishes 4. Cost-effectiveness	1. 93% 2. 91% 3. 47% 4. 38%
Author	Year	Country (Setting)	Type of HCPs	HCPs' Perceptions Regarding the Optimal Timing to Initiate ACP	Main Finding
Tee et al <sup>69</sup>	1997	Singapore (Private clinic)	General practitioners	Perceived optimal timing to initiate ACP: 1. When patient was still healthy 2. When patient had been diagnosed with terminal illness	1. 42% 2. 30%
Lee et al <sup>49</sup>	2010	South Korea (Hospitals)	Physicians, nurses	Perceived optimal timing to initiate ACP: 1. When patient had been diagnosed with cancer 2. On patient's first admission for cancer treatment 3. When patient was in the end stage or metastatic phase 4. When patient was in the terminal stage	1. 13% (physicians); 12% (nurses) 2. 0% (physicians); 18% (nurses) 3. 60% (physicians); 59% (nurses) 4. 27% (physicians); 12% (nurses)
Park et al <sup>54</sup>	2011	South Korea (ICU)	Nurse	Perceived optimal timing to initiate ACP (in ICU setting): 1. When the patient was admitted to the ICU 2. When the patient became comatose 3. When the patient stopped self-respiration	1. 20% 2. 30% 3. 28%
Yang et al <sup>70</sup>	2012	Singapore (Oncology or palliative care wards)	Physicians, nurses	Perceived optimal timing to initiate DNR discussion: 1. As early as possible, soon after patient had been diagnosed with incurable disease 2. When patient's life expectancy was 6–12 mo 3. When patient's life expectancy was 3–6 mo 4. When patient's life expectancy was less than 3 mo 5. When patient was in the dying phase	1. 24% (physicians); 39% (nurses) 2. 14% (physicians); 11% (nurses) 3. 19% (physicians); 10% (nurses) 4. 41% (physicians); 31% (nurses) 5. 0% (physicians); 5% (nurses)
Keam et al <sup>51</sup>	2013	South Korea (Hospital)	Oncologists	Perceived optimal timing to document an AD: 1. When patient was still healthy 2. When patient had been diagnosed with cancer 3. When patient had been diagnosed as terminally ill 4. When patient was in the dying phase	1. 15% 2. 20% 3. 52% 4. 13%

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Supplementary Table 7 (continued)

Author	Year	Country (Setting)	Type of HCPs	HCPs' Perceptions Regarding the Optimal Timing to Initiate ACP	Main Finding
Mori et al <sup>33</sup>	2015	Japan (no restriction)	Medical oncologists	Perceived optimal timing to initiate: 1. DNR status discussion: - When patient was hospitalized - When patient had been diagnosed with metastasized cancer 2. Prognosis discussion: - When patient had been diagnosed with metastasized cancer - Only if the patient and/or family brought it up 3. Hospice enrollment discussion: - When there were no more nonpalliative treatments - When patient had been diagnosed with metastasized cancer 4. Preferred site of death discussion: - When there were no more nonpalliative treatments - When patient had been diagnosed with metastasized cancer	43% 4% 34% 32% 62% 14% 61% 10%
Lam et al <sup>65</sup>	2015	Hong Kong (Hospital)	Physicians	Perceived optimal timing to initiate ACP: When patient was admitted to hospital	22%
Syed et al <sup>81</sup>	2017	Pakistan (Hospitals)	Physicians (who discussed at least 5 code statuses)	Perceived optimal timing to initiate ACP: 1. On patient's first visit, irrespective of the severity of illness 2. When patient got sick	1. 29 2. 55%
Koh et al <sup>59</sup>	2018	South Korea (no restriction)	Oncologists, residents	Perceived optimal timing to initiate ACP: 1. On exacerbation of patient's disease (metastasis or recurrence) 2. When patient discontinued chemotherapy	1. 36% 2. 33%
Lee et al <sup>56</sup>	2019	South Korea (no restriction)	Physicians	Perceived optimal timing to initiate ACP: When patient's life expectancy was less than 6 mo	97%
Park et al <sup>50</sup>	2019	South Korea (no restriction)	Physicians	Perceived optimal timing to document an AD: 1. On hospitalization of patients with specific severe diseases 2. Before patient underwent high-risk procedures 3. On hospitalization of every older patient (above 65 years old) 4. On hospitalization of every patient	1. 44% 2. 29% 3. 14% 4. 6%
Koh et al <sup>60</sup>	2016	South Korea (Hospital or hospice)	Physicians, nurses	Perceived optimal timing to initiate ACP [Qualitative data]	HCPs thought that ACP should be initiated upon diagnosis of a terminal disease or when a responsible physician believed that an impending terminal stage was imminent (continued on next page)

**Supplementary Table 7** (continued)

Author	Year	Country (Setting)	Type of HCPs	HCPs' Perceptions Regarding the Optimal Timing to Initiate ACP	Main Finding
Hirakawa et al <sup>46</sup>	2018	Japan (Long-term care facilities)	Social workers	Perceived optimal timing to initiate ACP [Qualitative Data]	HCPs expressed that if ACP was initiated before signs of imminent death, patients and families would express higher degrees of discomfort and upset
Chan et al <sup>66</sup>	2019	Hong Kong (Palliative care unit)	Physicians, social workers	Perceived optimal timing to initiate ACP [Qualitative Data]	When patient was cognitively competent
Author	Year	Country (Setting)	Type of HCPs	HCPs' Beliefs on the Need for ACP Training and Education	Main Finding
Lee et al <sup>49</sup>	2010	South Korea (Hospitals)	Physicians, nurses	HCPs who felt the need for education on AD	100% of nurses 87% of physicians
Yee et al <sup>67</sup>	2011	Singapore (Dialysis center)	Nephrologists, nurses, medical social workers	HCPs who felt the need for training on ACP	83%
Lam et al <sup>65</sup>	2015	Hong Kong (Hospital)	Physicians	1. HCPs who felt the need for training in handling DNR issue 2. HCPs who felt the need for training on EOLC	1. 40% 2. 77%
Hirakawa et al <sup>46</sup>	2018	Japan (Long-term care facilities)	Social workers	HCPs' beliefs regarding the need for ACP training [Qualitative data]	Social workers felt lacking on the skills to discuss medical treatments and to meet patient's wishes
Lin et al <sup>76</sup>	2019	Taiwan (Hospice and oncology wards)	Physicians, nurses, social worker, case managers	HCPs' beliefs regarding the need for ACP training [Qualitative data]	Felt they lacked the communication skills necessary to engaging in ACP
Author	Year	Country (Setting)	Type of HCPs	HCPs' Beliefs on the Need for Legislation and Standardization of ACP	Main Finding
Tee et al <sup>69</sup>	1997	Singapore (Private clinic)	General practitioners	1. Whether HCPs agreed that legislation of AD was needed 2. Reasons of disagreeing on the need of AD legislation	1. 45% agreed; 31% disagreed 2. HCPs' concern that it may lead to euthanasia (73%)
Hosaka et al <sup>42</sup>	1999	Japan (Hospital)	Physicians	HCPs who believed that the standardization of DNR order form was needed	49%
Hosaka et al <sup>43</sup>	1999	Japan (Hospital)	Nurses	HCPs who believed that the standardization of DNR order form was needed	66%
Chao et al <sup>75</sup>	2002	Taiwan (no restriction)	Internists, surgeons	HCPs who believed that the legislation of DNR order was needed	96%
Lee et al <sup>49</sup>	2010	South Korea (Hospitals)	Physicians, nurses	1. HCPs who believed that the legal form for AD was needed 2. HCPs who believed that the legislation of AD was needed	1. 97% (physicians); 94% (nurses) 2. 87% (physicians); 100% (nurses)
Park et al <sup>54</sup>	2011	South Korea (ICU)	Nurses	HCPs who believed that the standardization of DNR order was needed	93%
Luk et al <sup>62</sup>	2015	Hong Kong (Hospital)	Physicians (various specialties)	HCPs who believed that the legislation of AD was needed	62%
Chen et al <sup>79</sup>	2016	China (Hospital)	Physicians	HCPs who believed that the legislation of AD was needed	88%

AD, advance directive; DNR, do not resuscitate; HCPs, health care professionals; LST, life-sustaining treatment.

\*Lower scores represented more positive attitudes toward ACP.

†1 = strongly disagree; 5 = strongly agree.



**Supplementary Table 8**

## Asian Health Care Professionals' Experiences With Advance Care Planning

Author	Year	Country (Setting)	Subjects	HCPs Who Had Received an AD	Main Finding
Sehgal et al <sup>37</sup>	1996	Japan (Dialysis clinic)	Nephrologists	HCPs who had received an AD (of dialysis patients)	2 of 62 (0.07%)
Asai et al <sup>40</sup>	1998	Japan (no restriction)	Internists (members of cancer society)	HCPs who had received an AD	44%
Asai et al <sup>44</sup>	1999	Japan (Hospital)	Physicians	HCPs who had received an AD (of persistent vegetative state patients):	
				- from 10-100 patients	3%
				- from 0-10 patients	15%
				- no patients with AD	82%
Yee et al <sup>67</sup>	2011	Singapore (Dialysis center)	Nephrologists, nurses, medical social workers	HCPs who had received an AD	
				- Physicians	49%
				- Nurses	22%
				- Social workers	23%
Chen et al <sup>79</sup>	2016	China (Hospital)	Oncologists	HCPs who had received an AD	69%
Coffey et al <sup>64</sup>	2016	Hong Kong (Clinical and educational setting)	Nurses	HCPs who had received an AD	24%
Lee et al <sup>56</sup>	2019	South Korea (no restriction)	Physicians	HCPs who had received an AD	22%
Author	Year	Country (Setting)	Subjects	HCPs Who Had Engaged in ACP	Percentage
Hosaka et al <sup>42</sup>	1999	Japan (Hospital)	Physicians	HCPs who had participated in DNR orders discussion	62%
Hosaka et al <sup>43</sup>	1999	Japan (Hospital)	Nurses	HCPs who had participated in DNR orders discussion	42%
Yap et al <sup>61</sup>	2004	Hong Kong (ICU)	Intensivists	ICU nurses who had participated in life-sustaining treatment discussion	28%
Sittisombut et al <sup>83</sup>	2009	Thailand (Hospital)	Physicians	1. HCPs who had initiated DNR discussion with terminally ill patients 2. HCPs who had initiated DNR discussion with terminally ill patient's family	1. 35% = yes; 62% = no 2. 95% = yes; 4% = no
Hu et al <sup>74</sup>	2010	Taiwan (Oncology wards and palliative care unit)	Physicians, nurses	HCPs who had engaged in ACP	45% = always or often 56% = occasionally or not at all
Yee et al <sup>67</sup>	2011	Singapore (Dialysis center)	Nephrologists, nurses, medical social workers	1. HCPs who had initiated ACP discussion 2. HCPs who had engaged in ACP with their patients	1. Physicians = 82%; nurses = 19%; social worker = 90% 2. Physicians = 84%, nurses = 30%, social worker = 77%
Nakazawa et al <sup>35</sup>	2014	Japan (Palliative care unit)	Palliative care physicians	1. HCPs who had asked about the existing ADs to the patient 2. HCPs who had recom- mended patient to com- plete an AD 3. HCPs who had asked pa- tient to designate a proxy	1. 47% = always or very often; 48% = sometimes or rarely; 5% = never 2. 30% = always or very often; 59% = sometimes or rarely; 10% = never 3. 40% = always or very often; 57% = sometimes or rarely; 3% = never
Luk et al <sup>62</sup>	2015	Hong Kong (Hospital)	Physicians (various specialties)	1. HCPs who had initiated AD discussions 2. HCPs who had engaged in AD discussions: - Once or fewer times per month - 2-5 times per month - 5-20 times per month	1. 49% 30%; 10%; 9%
Lam et al <sup>65</sup>	2015	Hong Kong (Hospital)	Physicians	1. HCPs who had reached DNR consensus with family - In <50% cases - In >90% cases 2. HCPs who had never or seldom signed a DNR form	13% (in 2004) and 7% (in 2008) 43% (2004) and 64% (2008) 2. 80% (in 2004) and 13% (in 2008)
Kwon et al <sup>53</sup>	2016	South Korea (Geriatric institution)	Social workers	HCPs who had engaged in ACP	3%
Hiraoka et al <sup>38</sup>	2016	Japan (Hospital)	Physicians	HCPs who had ordered a DNR order	76%
Coffey et al <sup>64</sup>	2016	Hong Kong (Clinical and educational setting)	Nurses	HCPs who had previous experience working with ADs	13%

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**Supplementary Table 8** (continued)

Author	Year	Country (Setting)	Subjects	HCPs Who Had Engaged in ACP	Percentage
Yokoya et al <sup>36</sup>	2018	Japan (Geriatric health service facility)	Head nurses	1. HCPs who had asked the patient about existing ADs 2. HCPs who had recommended the patient complete an AD 3. HCPs who had asked patient to designate a proxy	1. 28 % = always or often; 39% = sometimes or rarely; 31% = never 2. 18% = always or often; 40% = sometimes or rarely; 41% = never 3. 30% = always or often; 34% = sometimes or rarely; 34% = never
Koh et al <sup>59</sup>	2018	South Korea (no restriction)	Oncologists, residents	HCPs who had engaged in ACP discussion about: 1. Proxy appointments 2. Progress and prognosis of disease 3. Possibility of recovery	1. 22% 2. 93% 3. 83%
Lee et al <sup>56</sup>	2019	South Korea (no restriction)	Physicians	HCPs who had completed an AD for themselves	7%
Chan et al <sup>66</sup>	2019	Hong Kong (Palliative care unit)	Physicians, nurses, social workers	HCPs who had discussed AD with patients	63%
Ke et al <sup>73</sup>	2019	Taiwan (ICU)	Physicians, nurses	1. Who had initiated ACP: - Nurses - Physicians - Patient/family 2. Nurses who had participated in ACP together with the physician	1. 0 (physicians); 22% (nurses) 75% (physicians); 63% (nurses) 25% (physicians); 15% (nurses) 2. 70% (physicians); 68% (nurses)
Author	Year	Country (Setting)	Subjects	Who (ie, Patients and Families) Had Participated in ACP	Main Finding
Yap et al <sup>61</sup>	2004	Hong Kong (ICU)	Intensivists	1. About life-sustaining treatment: - Patient or patient's families 2. About DNR orders: - Patient - Patient's families	83% 52% 89%
Sittisombut et al <sup>83</sup>	2009	Thailand (Hospital)	Physicians	About DNR orders: - Patient (terminally ill) - Patient's families	35% 95%
Koh et al <sup>59</sup>	2018	South Korea (no restriction)	Oncologists, residents	About end-of-life discussion: - Both patient and patient's families - Patient's families only (without the patient)	63% 36%
Park et al <sup>34</sup>	2018	China, South Korea, Japan (ICU)	Physicians	About DNR orders: - Patient - Patient's families	56% Japanese, 5% Chinese, and 6% South Korean 86% Japanese, 80% Chinese, and 57% South Korean
Author	Year	Country (Setting)	Subjects	Who Had Been the Decision Maker in ACP	Percentage
Pinto et al <sup>77</sup>	2013	Sri Lanka (Hospital)	Physicians	1. Physician 2. Patient 3. Families	1. 40% 2. 25% 3. 17%
Asai et al <sup>47</sup>	1997	Japan (Medical institution)	Physicians	Who had been the decision maker regarding life-sustaining treatment [Qualitative Data]	Physicians and family members usually made decisions about life-sustaining treatment. Even when patients were competent, their wishes were not taken into account.
Author	Year	Country (Setting)	Subjects	HCPs Who Had Followed an AD	Main Finding
Sehgal et al <sup>37</sup>	1996	Japan (Dialysis clinic)	Nephrologists	HCPs who had followed patient's AD	1 of 2 (50%)
Asai et al <sup>40</sup>	1998	Japan (no restriction)	Internists (members of cancer society)	1. HCPs who had followed: - All ADs - 50%-75% AD - 25% AD 2. HCPs who had given priority to patients' wishes when known	35% 57% 7% 2. 51% (regardless of patient's competence); 59% (if patient is competent)
Hosaka et al <sup>43</sup>	1999	Japan (Hospital)	Nurses	HCPs who had followed DNR orders	44%
Hosaka et al <sup>42</sup>	1999	Japan (Hospital)	Physicians	HCPs who had followed DNR orders	58%

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Supplementary Table 8 (continued)

Author	Year	Country (Setting)	Subjects	HCPs Who Had Followed an AD	Main Finding
Masuda et al <sup>48</sup>	2003	Japan (no restriction)	Physicians (presented with living will according to relatives)	1. HCPs who had followed patient's AD 2. HCPs who had changed the therapy as a result of receiving an AD 3. HCPs who had not changed the therapy as a result of receiving an AD	1. 73% 2. 19% 3. 69%
Yap et al <sup>61</sup>	2004	Hong Kong (ICU)	Intensivists	HCPs who had applied DNR orders: 1. Written 2. Oral	1. 60% 2. 35%
Barnett et al <sup>80</sup>	2008	India (no restriction)	Intensivist	HCPs who had applied DNR orders (written and oral)	41%
Nakazawa et al <sup>35</sup>	2014	Japan (Palliative care unit)	Palliative care physicians	1. HCPs who had ordered DNR (after knowing that the patient wished for DNR) 2. HCPs who had ordered DNR (after knowing that the family wished for DNR)	1. 33% = always or very often; 48% = sometimes or rarely; 17% = never 2. 71% = always or very often; 15% = sometimes or rarely; 12% = never
Lee et al <sup>56</sup>	2019	South Korea (no restriction)	Physicians	1. HCPs who had followed an AD 2. HCPs who had changed treatment as a result of receiving an AD	1. 67% 2. 63%
Koh et al <sup>60</sup>	2016	South Korea (Hospital or hospice)	Physicians, nurses	HCPs who had followed an AD [Qualitative data]	Despite recognition of the importance of ACP, many were noncompliant with patient preferences and were often reluctant to discuss these issues
Author	Year	Country (Setting)	Subjects	When ACP Had Been Initiated	Main Finding
Koh et al <sup>59</sup>	2018	South Korea (no restriction)	Oncologists, residents	1. On patient's cancer diagnosis 2. On metastasis or recurrence of cancer 3. When chemotherapy was expected to be discontinued in a cancer patient 4. On chemotherapy discontinuation 5. When patient's life expectancy was less than 6 mo 6. When the patient's life expectancy was less than 2-3 mo	1. 2% (oncologists); 5% (residents) 2. 10% (oncologists); 15% (residents) 3. 25% (oncologists); 17% (residents) 4. 24% (oncologists); 13% (residents) 5. 15% (oncologists); 23% (residents) 6. 22% (oncologists); 19% (residents)
Author	Year	Country (Setting)	Subjects	Whether HCPs Had Had ACP-Related Training and Education	Percentage
Yee et al <sup>67</sup>	2011	Singapore (Dialysis center)	Nephrologists, nurses, medical social workers	HCPs who had been exposed to ACP information during professional education	Physicians = 43%; nurses = 25%; medical social workers = 54%
Lee et al <sup>56</sup>	2019	South Korea (no restriction)	Physicians	HCPs who had had ACP-related training during medical education	17%
Author	Year	Country (Setting)	Subjects	The Presence of Guideline or Formal Regulation for ACP	Main Finding
Chao et al <sup>75</sup>	2002	Taiwan (no restriction)	Internists, surgeons	1. The presence of a formal DNR order in the institution 2. The presence of guidelines for DNR order	1. 47% 2. 27%
Author	Year	Country (Setting)	Subjects	HCPs Who Had Experienced Any Negative or Positive Consequences of ACP	Percentage
Hosaka et al <sup>42</sup>	1999	Japan (Hospital)	Physicians	HCPs who had encountered legal problems due to performing a DNR order	3%

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**Supplementary Table 8** (continued)

Author	Year	Country (Setting)	Subjects	HCPs Who Had Experienced Any Negative or Positive Consequences of ACP	Percentage
Masuda et al <sup>48</sup>	2003	Japan (no restriction)	Physicians (who had been presented with living will according to relatives)	HCPs who had more opportunities to communicate with patient and family after receiving an AD	53%
Mori et al <sup>33</sup>	2015	Japan (no restriction)	Medical oncologists	1. HCPs who had witnessed marked anxiety of patients/families caused by EOLD (mean score $\pm$ SD)*	1. 2.2 $\pm$ SD = 0.6*
				2. HCPs who perceived that patients had spent terminal phase as desired because of EOLD*	2. 3.5 $\pm$ SD = 0.7*
				3. HCPs who had experienced patients attempting/committing suicide just after EOLD	3. 20%
				*5-point Likert-type scale: 1 (never) to 5 (very frequently)	

ACP, advance care planning; AD, advance directive; DNR, do not resuscitate; HCPs, health care professionals; EOLD, end-of-life decision; ICU, intensive care unit.

\*5-point Likert-type scale: 1 (never) to 5 (very frequently).