Patient Education and Counseling 136 (2025) 108761

Contents lists available at ScienceDirect

Patient Education and Counseling

journal homepage: www.journals.elsevier.com/patient-education-and-counseling

Timing of advance care planning in patients with advanced cancer: Analysis of ACTION data

Tingting Zhu [a,*], Judith AC Rietjens [a,b], Johannes J.M. van Delden [c], Luc Deliens [d], Agnes van der Heide [a], Anna Thit Johnsen [e], Francesca Ingravallo [f], Urška Lunder [g], Nancy J. Preston [h], Jane Seymour [i], Ida J. Korfage [a]

[a] *Department of Public Health, Erasmus MC, University Medical Center Rotterdam, Rotterdam, the Netherlands*
[b] *Department of Design, Organization and Strategy, Faculty of Industrial Design Engineering, Delft University of Technology, Delft, the Netherlands*
[c] *Julius Centre for Health Sciences and Primary Care, UMC Utrecht, Utrecht, the Netherlands*
[d] *End-of-Life Care Research Group, Vrije Universiteit Brussel and Ghent University, Brussels, Belgium*
[e] *Department of Clinical Oncology and Palliative Care, Zealand University Hospital, Roskilde, Denmark*
[f] *Department of Medical and Surgical Sciences (DIMEC), University of Bologna, Bologna, Italy*
[g] *University Clinic of Respiratory and Allergic Diseases Golnik, Golnik, Slovenia*
[h] *International Observatory on End of Life Care, Division of Health Research, Lancaster University, Lancaster, United Kingdom*
[i] *Health Sciences School, University of Sheffield, Sheffield, United Kingdom*

ARTICLE INFO

Keywords:
ACP
Timing
Readiness
Cancer
Survey

ABSTRACT

Objective: To explore the experiences of patients with advanced cancer regarding the timing of ACP.
Methods: This secondary analysis used data from the ACTION cluster-randomized clinical trial. 288 patients with advanced lung or colorectal cancer, WHO performance status 0–3, and with a minimum life expectancy of 3 months were included in this analysis.
Results: The mean time between patients' cancer diagnosis and the first ACP conversation was 15.3 months (SD:19.4). The average duration from current cancer stage diagnosis to the first conversation was 8.9 months (SD:10.7). The timing of the conversation was perceived as "just right" by 217 (75.3 %) of the patients. Patients who perceived the timing as "too early" were more recently diagnosed with cancer (9.1 months) or with their current cancer stage (5.7 months) than those who did not. Patients perceiving the timing as "too late" had shorter estimated survival times.
Conclusion: Patients with advanced cancer may benefit from earlier ACP than what is currently typically initiated in clinical practice.
Practice implications: When initiating ACP conversations, several aspects should be considered, including patients' gender, their socio-cultural environment, and their ability to perform daily activities, with or without limitations.

1. Introduction

Advance care planning (ACP) is a process that support individuals in understanding and communicating their goals, values, and preferences for future medical treatment and care. It involves appointing and preparing a trusted person(s) to make medical decisions, discussing these goals and preferences with this trusted person, family and healthcare providers, and recording and reviewing these preferences to ensure they can be acted on when needed [1,2]. Engaging in ACP has been shown to potentially enhance mutual understanding of perspectives on patients' future medical care among patients, relatives and healthcare professionals, relieve the anxiety associated with end-of-life decision making [3–5].

The integration of ACP into treatment and care for people with advanced cancer varies significantly across Europe. For example, in the Netherlands and Belgium, discussions about patient preferences were established, and supported by legislation emphasizing patient autonomy before 2005 [6,7], In contrast, Italy introduced its first ACP law in 2017, and public awareness of ACP remains limited [8]. Previous European studies have highlighted variations in the prevalence and scope of

---

* Correspondence to: Department of Public Health, Erasmus MC, University Medical Centre Rotterdam, Dr. Molewaterplein 40, Rotterdam 3015 GD, the Netherlands.

E-mail address: z.tingting@erasmusmc.nl (T. Zhu).

https://doi.org/10.1016/j.pec.2025.108761
Received 12 June 2024; Received in revised form 27 February 2025; Accepted 19 March 2025

end-of-life discussions. For instance, end-of-life discussions were more common and covered a broader range of end-of-life topics in the Netherlands compared to Italy or Spain [9,10]. An international survey among European long-term care facility residents further underscored these disparities, showing wide variation in the prevalence and types of written advance directives across Europe [11].

Patients often expect healthcare professionals to initiate ACP [12,13], however, healthcare professionals do not regularly initiate ACP throughout the illness trajectory [14,15]. Nearly half of patients with advanced cancer either die without having engaged in ACP [16–18] or only participate in these conversations late in their illness course [19,20]. The delay in initiating ACP results in lost opportunities and insufficient discussions about future care in patients with advanced cancer [21,22]. In a qualitative study, patients with advanced cancer and family members reported ACP often occurred too late to put plans in place to ensure a patient's preferences can be met [13].

Research has consistently shown that determining the optimal timing for initiating ACP conversations is both critical and difficult [23,24]. Several tools have been developed to timely identify patients in needs of future care conversations [25,26], including clinically-based indicators such as referral to specialized palliative care [27–29], the supportive and palliative care indicators tool (SPICT) [30,31], the RADboud indicators for PAlliative Care Needs (RADPAC) [32], and the Surprise Questions [33].

Studies based on medical records suggest that healthcare professionals frequently take a reactive approach to managing acute patient deterioration, rather than proactively assessing the need to initiate ACP [34,35]. As a result, occurrence of ACP in actual practice is often later than what healthcare professionals perceive to be the optimal timing. This delay is related to the fear among healthcare professionals of inducing anxiety in patients and depriving hope [36]. Additionally, uncertainty about patients' readiness to engage in these discussions also contributes to healthcare professionals' hesitance to initiate ACP [37].

Understanding patients' real-life experiences with the timing of ACP could better inform healthcare professionals about when to optimally initiate these discussions. However, limited research has been conducted on real-life ACP experiences of patients with advanced cancer [38,39]. Current studies frequently use hypothetical scenarios for patients with advanced cancer to explore their perspectives on ideal ACP timing, which may introduce bias by reflecting general attitudes towards ACP and uncertainty about future rather than patients' real-life experiences [15,24,40].

Recent publications have studied how patients' perceived the optimal timing based on a hypothetical context. For example, in hypothetical scenarios, many patients with advanced cancer indicate to prefer ACP discussions early in their illness trajectory [15,41,42], others choose to wait until end-of-life situations become imminent [37]. Reluctance of patients to have ACP conversations early is often driven by factors such as a lack of information regarding their condition or lack of decision making support. Furthermore, patients may prefer to focus on here and now and to continuing treatment rather than contemplating the (near) future. Real-life experiences of patients with ACP conversations offer a more accurate view of patients' emotions and readiness during ACP discussions as compared with their perceived optimal timing in a hypothetical context [33,36–38]. By learning from real-life experiences, healthcare providers can better identify the optimal timing for ACP. However, there is limited evidence on patients experience of timing of ACP beyond hypothetical situations.

Studies suggest that patients' experiences with ACP conversations are shaped by factors such as awareness and knowledge of palliative care, socioeconomic status, and external environmental support [24,43,44]. These factors contribute to inequities in health outcomes, often reflecting disparities in access to and quality of care. By understanding these underlying factors, healthcare providers can better identify how patient-specific and external elements affect end-of-life care [45,46]. Moreover, this understanding highlights the broader cascading effects of these inequities, including implications for social and healthcare policy, and accessibility of care for patients [47].

In the ACTION cluster-randomized trial, structured ACP conversations were held by facilitators in healthcare settings with patients with advanced cancer and their families. These firsthand experiences provided meaningful insights into patients' emotions about the conversations and how these conversations shaped their perspectives on the timing for ACP. We therefore conducted this secondary analysis to gain more insights into the timing of ACP as experienced by patients with advanced cancer in different European countries. Additionally, in order to identify triggers that can help healthcare providers recognize the characteristics of patients who are most ready for ACP conversations, we explored the factors influencing patients' perceptions of the appropriateness of ACP timing, including demographic and clinical factors.

2. Methods

2.1. *Research design*

This secondary analysis of data from the ACTION study, a multicenter cluster-randomized controlled trial that evaluated the ACTION Respecting Choices ACP intervention in patients with advanced cancer (Trial Number: ISRCTN63110516) explored patients' experiences with the timing of ACP conversations during the study and the factors associating with those experiences [48,49]. The study was conducted in 23 hospitals across 6 European countries (the Netherlands, Belgium, Slovenia, Italy, Denmark, and the United Kingdom). The ACTION intervention includes three components: (1) facilitated structured ACP conversations, (2) the My preferences form, and (3) information leaflets. The ACP conversations were guided by structured scripts based on the standardized Respecting Choices program, which is widely adopted in ACP practice [50–52]. Certified facilitators used these scripts to support patients (and their personal representatives) in discussing the patient's illness, goals, values, and treatment preferences. Patients were also invited to document their preferences in a 'My Preferences' form and encouraged to review these with their physician.

Fidelity checks were conducted to assess the extent to which the facilitators adhered to the protocol during the ACP conversations. These evaluations showed that, on average, 86 % of the key protocol elements were covered in the ACP conversations conducted within the ACTION trial [48]. According to patients' preferences, one or two structured ACP conversations were delivered. Patients in the intervention group reported their experiences with the ACP conversation process at 12 weeks (follow-up questionnaire one) and 20 weeks (follow-up questionnaire two) after enrollment.

2.2. *Participants*

Participants were enrolled in the ACTION study between May 2015 and December 2017. Patients older than 18 years with advanced lung cancer (small cell-extensive disease/stage III or IV and non-small cell-stage III or IV) or colorectal cancer (stage IV or metachronous metastases), with WHO performance status scored 0–3, an estimated life expectancy $\geq$ 3 months, and competence to complete an informed consent form, were eligible. In this secondary data analysis, we included all intervention arm patients from the ACTION study who completed at least one of the follow-up questionnaires.

2.3. *Data collection*

We anticipated differences among patient groups based on sociodemographic characteristics, including age, gender, country. Therefore, we included these characteristics in the analysis. Sociodemographic characteristics of participants were retrieved from the baseline assessment. Clinical characteristics of patients, including cancer type and stage, date of diagnosis of cancer (stage), whether they were receiving systematic cancer treatment, and WHO performance status, were reported by clinicians at baseline.

In follow-up questionnaires at 12 (time-point one) and 20 weeks (time-point two) after inclusion, participants reported their experiences with ACP timing (options: 'too early', 'just about right', 'too late') and whether they found the ACP conversation helpful or distressing ('not at all', 'a little', 'quite a bit', 'very much'). Responses were categorized as 'no' ('not at all', 'a little') and 'yes' ('quite a bit', 'very much').

When patients completed both follow-up questionnaires, only the answers to the assessment at time-point two were analyzed. Participants' medical files were checked for specialist palliative care involvement and survival status. The follow-up duration for checking survival status was 12 months. Medical files were no longer checked after 1 January, 2019, due to data collection closure.

2.4. Statistical analysis

In univariate and multivariate analysis, we explored which factors were associated with perceiving the timing of the ACP conversation as "too early" or "too late". Variables with a P-value < 0.1 in univariate analyses were included in a multivariable logistic regression analysis using the Forward Stepwise method, with P-values < 0.05 were considered statistically significant.

A 12-months follow-up duration was utilized as the applied administrative censoring survival time to account for extended follow-up periods. Overall survival time was calculated from the date of the first ACP conversation to the patient's death or last follow-up within the 12 months timeframe. Kaplan-Meier analysis was performed to estimate survival time, and the log-rank test assessed the likelihood that patients with short or long survival times experienced the timing of ACP conversation as appropriate. P-values < 0.05 were considered statistically significant.

Data analysis was conducted using IBM SPSS for Windows version 20.0.

2.5. Ethical considerations

Ethical approval for the main study was obtained from the institutional review board (IRB) of the coordinating centre (Medical Research Ethics Committee Erasmus MC, NL 50012.078.14, v02), as well as IRBs in all participating countries. Permission for study participation was sought with informed consent.

3. Results

Between May 2015 and February 2018, 3748 patients were considered eligible for participation in the ACTION study, 2748 (73 %) were invited to participate, of whom 1135 (41 %) provided consent to participate, with five withdrawing their consent later.

Of 442 patients in the intervention group, 301 (68 %) responded to timing questions in follow-up assessments at time-point 1 or 2, or both. After excluding 13 patients due to illogical data, the resulting 288 patients had a mean age of 65.6 years (SD: 10.4), with 112 (38.0 %) being women. The mean time between patients' cancer diagnosis and the first ACP conversation was 15.3 months (SD: 19.4, ranging from 0.4 to 114.5 months). This varied across countries: from 5.1 months (SD: 5.9) in Denmark, 5.2 months (SD: 6.1) in Slovenia, 13.1 months (SD: 22.7) in Italy, 16.0 months (SD: 21.4) in Belgium, 20.9 months (SD: 18.8) in the Netherlands, to 23.5 months (SD: 23.1) in the United Kingdom. The mean time between patients' diagnosis of the current cancer stage to the first ACP conversation was 8.9 months (SD:10.7, ranging from 0.2 to 55.1 months), and this duration also varied across countries. Ranging from 3.8 months (SD: 5.5) in Slovenia, 4.4 months (SD: 3.9) in Denmark, 7.7 months (SD: 11.3) in Italy, 9.4 months (SD: 12.2) in Belgium, 9.9 months (SD: 9.8) in the United Kingdom, to 14.9 months (SD: 13.6) in the Netherlands.

Table 1
Patients' characteristics (N = 288).

Sociodemographic Characteristics	Total (N = 288, %)
Age, mean (SD)	65.6 (10.4)
Education, mean (SD), year	13.6 (4.2)
Gender, n (%)	
Men	178 (61.8)
Women	110 (38.2)
Living situation, n (%)	
Living with a spouse	198 (68.8)
Living alone	82 (28.5)
Having children, n (%)	
Yes	242 (84.0)
No	38 (13.2)
Religion, n (%)	
Religious	127 (44.1)
Not religious	124 (44.1)
Prefers not to specify	31 (10.8)
Considering oneself member of minority group, n (%)	
Yes	1 (0.3)
No	276 (95.8)
Country of residence, n (%)	
The Netherlands	66 (22.9)
Belgium	23 (8.0)
Slovenia	51 (17.7)
Italy	26 (9.0)
Denmark	43 (14.9)
The United Kingdom	79 (27.4)
Clinical Characteristics	
Diagnosis, n (%)	
Lung cancer, stage III or IV	171 (59.4)
Colorectal cancer, stage IV	117 (40.6)
Receiving systemic treatment, n (%)[a]	
Yes	229 (79.5)
No	58 (20.1)
WHO performance status, n (%)[b]	
0 fully active	82 (28.5)
1 able to carry out light or sedentary work	159 (54.5)
2 or 3 capable of only limited self-care	45 (15.3)
Survival, n (%)	
Died within 12 months follow-up	78 (27.1)
Did not die within 12 months follow-up	174 (60.4)
Palliative care specialist involvement, n (%)	
Yes	78 (27.1)
No	174 (60.4)
Actual timing	
Months between diagnosis and first ACP conversation, mean (SD)	15.3 (19.4)
Months between diagnosis current stage and ACP conversation, mean(SD)	8.9 (10.7)
Months between first ACP conversation and death, mean (SD)[c]	6.4 (2.5)
Perceived timing of ACP conversation, n (%)	
Too early	46 (16.0)
Just right	217 (75.3)
Too late	25 (8.7)

Abbreviation: n, sample size; SD, standard deviation; ACP, ACP; WHO, World Health Organization;

Missing values: Education: 30(10.4 %); Living: 8 (2.8 %); Having children: 8 (2.8 %); Religious: 6 (2.1 %); Considering as a minority ethnic group: 11 (3.8 %); Receiving systematic treatment: 1 (0.3 %); WHO performance status: 5(1.7 %); Relatives presenting: 1(0.3 %); survival: 36 (12.5 %); Palliative care specialist involvement: 36 (12.5 %); ACP helpful: 2 (0.7 %); ACP distressing: 1 (0.3 %); Months between diagnosis and first ACP conversation: 3(1.0 %); Months between diagnosis current stage and ACP conversation: 1(0.3 %);

[a] Includes chemotherapy, immunotherapy, and targeted therapy.

[b] WHO performance status: 0 - Fully active, able to carry out all pre-disease performance without restriction;1 - Restricted in physically strenuous activity but able to carry out work of a light or sedentary nature; 2 - Capable of only limited self-care, unable to carry out any work activities. Up and about more than 50 % of waking hours; 3 - Capable of only limited self-care, confined to bed or chair more than 50 % of waking hours; 4 - Completely disabled, cannot carry on any self-care and unable to be out of bed.

[c] Based on 78 patients who died within 12 months of followed-up.

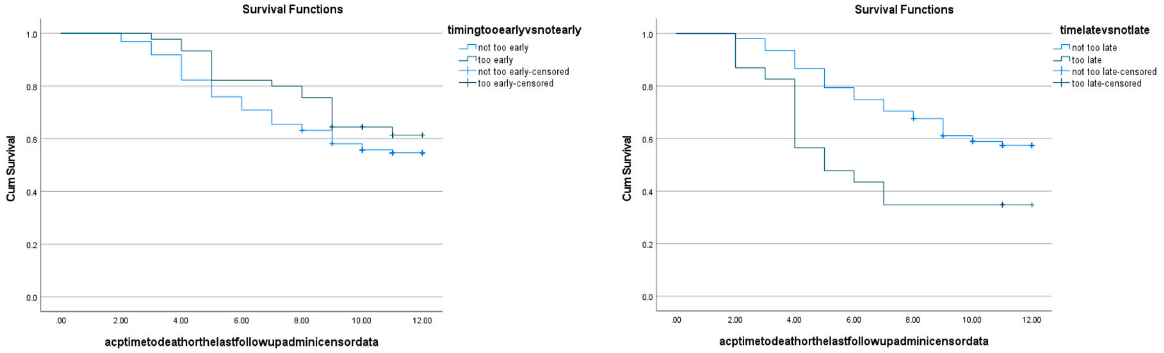

Fig. 1. Survival curve of patients by the perception of timing (N = 265).

Forty-six patients (16 %) perceived the timing of the first ACP conversation in the ACTION trial as “too early”, 217 (75.3 %) perceived it as “just right”, and 25 (8.7 %) perceived it as “too late” (Table 1). Patients who perceived the timing as “too early” were diagnosed more recently with cancer or with their current stage of cancer (on average 9.1 months and 5.7 months before ACP conversation, respectively) than those who did not (16.5 months and 9.5 months before ACP conversation, respectively; $P = 0.02$ and $P = 0.03$, respectively). The time between the date of diagnosis of cancer (stage) and the ACP conversation did not differ between patients who perceived the timing as “too late” versus those who did not.

During the 12-month follow-up period, 78 patients (27.1 %) died. The period between ACP conversations and death was the longest in Italy: 7.5 months (SD: 1.9), followed by Denmark with 6.9 months (SD: 2.6), it was the shortest in Slovenia: 5.1 months (SD: 1.9). Mean survival times did not differ between patients perceiving the timing as “too early” (10.0 months, 95 % CI: 9.2–10.9) versus those who did not (9.1 months, 95 % CI: 8.7–9.6; $P = 0.27$). Patients perceiving the timing as “too late” had a shorter survival time (6.9 months, 95 % CI: 5.3–8.5) versus those who did not (9.5 months, 95 % CI: 9.1–9.9; $P = 0.002$) (Fig. 1).

Patients perceiving ACP timing as “too early” were less often considered ACP helpful (37.0 % vs. 72.9 %, $P < 0.001$) and not distressing (73.3 % vs. 86.0 %, $P = 0.03$) versus those who perceived the timing not as “too early”. Patients perceiving ACP as “too late” were less likely to find it helpful (48.0 % vs. 69.0 %, $P = 0.03$) and not distressing (72.0 % vs. 85.1 %, $P = 0.09$) versus those who perceived the timing not as “too late”. The perception of ACP as helpful was not associated with considering it distressing.

In the regression model, women and patients from Denmark were more likely to perceive the timing as “too early” (OR=2.1, $P = 0.02$; OR=3.1, $P = 0.003$). Patients from Slovenia and patients with a worse WHO performance status (score 2 or 3, i.e, capable of only limited self-care) were more likely to perceive the timing as “too late” (OR=3.9, $P = 0.003$; OR=3.1, $P = 0.02$) (Table 3 and Table 4).

4. Discussion and conclusions

4.1. Discussion

In this secondary analysis of ACTION trial data, we found that most patients with advanced lung or colorectal cancer considered the timing of ACP as appropriate. Patients who perceived the timing as “too late” had a shorter survival time compared to those who did not. ACP perceived as neither “too early” nor “too late” were more likely to be considered helpful and not distressing. Women were more likely to perceive the timing as “too early”. In Denmark and Slovenia, ACP were initiated closer to patients’ cancer diagnoses and the advanced illness stages. Patients with limited self-care status were more likely to perceive the timing as “too late” compared to those with fully active performance status.

In our study, ACP conversations were offered on average six months (194 days) before patients’ death. This timing was perceived as appropriate by a majority of 75 % of the patients. This period of six months before death is longer than what usually has been recorded. For instance, in Dutch general practice, the median time from the first ACP documentation to death for patients with cancer was two weeks [29]. In studies in Dutch primary care practice according to medical files, ACP conversations were initiated 106–111 days before the patient’s death [35,53,54]. Not only did the ACP conversations in our study occur earlier before death than usual, the timing was also earlier than what general practitioners in the Netherlands consider optimal for ACP, i.e. around 3 months before the patient’s death [35,54].

In this study, we found that women were more likely than men to perceive the timing of ACP as “too early”, suggesting that the women may not have felt ready for the process of ACP. Gender’s association with ACP preferences vary between studies. Consistent with our findings, several studies found that women with advanced cancer often preferred a more shared or passive role in medical decision-making as their illness progressed, which may make them feel less ready for ACP [55–57]. Incongruent with our findings, other studies have observed more active engagement among women in ACP. Women were more likely than men to acknowledge the incurable nature and the advanced stage of their illness during end-of-life conversations with their oncologist [58–60]. There are potential explanations for this inconsistency. One study found that men preferred focusing on organizational aspects of end-of-life discussions, while women desired a comprehensive approach [60], suggesting they need more time to be mentally prepared. Furthermore, another study found that women with advanced cancer indicated a preference for a shared role in questionnaires but tended to delegate decisions to their oncologist in actual experiences [57]. Therefore, we recommend increasing healthcare providers’ awareness of gender disparities in clinical practice, as perspectives on the timing of ACP conversations are closely related to the level of support patients receive and the acknowledgement of symptom distress across genders. Future research is needed in understanding how social constructs of gender intersect with care experiences, the communication, care, and supports that patients and families require.

We found that, when compared with patients in the Netherlands, patients in Denmark were more likely to perceive the timing as “too early,” while patients in Slovenia tended to perceive it as “too late”. At the beginning of the ACTION trial, ACP was in its early stages in both Denmark and Slovenia [48,61], and the duration between diagnosis of cancer (stage) and ACP conversations was shorter. However, patients in these two countries reacted differently. Several factors contribute to this complexity. Firstly, patients’ clinical characteristics might be mediators associated with the country difference and their perception of the timing. In Slovenia, the time between ACP conversations and patient’s death was the shortest among the six participating countries (5.1 months), suggesting worse conditions and a sense of urgency in making medical decisions, leading to the perception of timing as already late

Table 2
Characteristics of patients and the evaluation of the ACP conversation process stratified by the perception of the timing of the ACP conversation (N = 288).

	Patients perception of the earliness of the ACP conversation (n = 288)			**Patients perception of the lateness of the ACP conversation (n = 288)**		
Sociodemographic Characteristics	**Too early (n = 46)**	**Not too early (n = 242)**	***P*-value**	**Too late (n = 25)**	**Not too late (n = 263)**	***P*-value**
Age, mean (SD)[a]	65.5 (10.4)	65.6 (10.4)	0.95	67.5 (7.6)	65.4 (10.6)	0.34
Education, mean (SD), year[a]	14.5 (3.5)	13.4 (4.3)	0.11	13.1 (3.0)	13.6 (4.3)	0.57
Gender, n (%)			0.01 [f]			0.51
Men	21 (45.7)	157 (64.9)		17 (68.0)	161 (61.2)	
Women	25 (54.3)	85 (35.1)		8 (32.0)	102 (38.8)	
Living, n (%)[b]			0.88			0.46
Living with a spouse	33(71.7)	165 (68.2)		19 (76.0)	179 (68.1)	
Living alone	13 (28.3)	69 (28.5)		5 (20.0)	77 (29.3)	
Having children, n (%)[b]			0.87			0.17
Yes	39 (84.8)	203 (83.9)		19 (76.0)	223 (84.8)	
No	7 (15.2)	31 (12.8)		4 (16.0)	34 (12.9)	
Religion, n (%)[b]			0.12			0.45
Religious	15 (32.6)	112 (46.3)		9 (36.0)	118 (44.9)	
Not religious	28 (60.9)	96 (39.7)		11 (44.0)	113 (43.0)	
Prefers not to specify	3 (6.5)	28 (11.6)		5 (20.0)	26 (9.9)	
Considering oneself member of minority[b] **group, n (%)**			1.00			0.67
Yes	0	1 (0.4)		0	1 (0.4)	
No	45	231 (95.5)		24	252 (95.8)	
Country of residence, n (%)[b]			0.02[f]			0.02[f]
The Netherlands	11 (23.9)	55 (22.7)		2 (8.0)	64 (24.3)	
Belgium	1 (2.2)	22 (9.1)		1 (4.0)	22 (8.4)	
Slovenia	5 (10.9)	46 (19.0)		11 (44.0)	40 (15.2)	
Italy	3 (6.5)	23 (9.5)		1 (4.0)	25 (9.5)	
Denmark	14 (30.4)	29 (12.0)		4 (16.0)	39 (14.8)	
The United Kingdom	12 (26.1)	67 (27.7)		6 (24.0)	73 (27.8)	
Clinical Characteristics						
Diagnosis, n (%)			0.28			0.62
Lung cancer, stage III or IV	24 (52.2)	147 (60.7)		16 (64.0)	155 (58.9)	
Colorectal cancer, stage IV	22 (47.8)	95 (39.3)		9 (36.0)	108 (41.1)	
Receiving systemic treatment, n (%)[c]			0.36			0.62
Yes	39 (84.8)	190 (78.8)		19 (76.0)	210 (80.2)	
No	7 (15.2)	51 (21.2)		6 (24.0)	52 (19.8)	
WHO performance status, n (%)[d]			0.23			0.003[f]
2 or 3 capable of only limited self-care	7 (15.2)	37 (15.6)		9 (39.1)	35 (13.5)	
1 able to carry out light or sedentary work	21 (45.7)	136 (57.4)		11 (47.8)	146 (56.2)	
0 fully active	18 (39.1)	64 (27.0)		3 (13.0)	79 (30.4)	
Palliative care specialist involvement, n (%)			0.21			0.57
Yes	9 (22.5)	69 (32.5)		8 (36.4)	70 (30.4)	
No	31 (77.5)	143 (67.5)		14 (63.6)	160 (69.6)	
Actual timing of ACP conversations						
Months between diagnosis and first ACP conversation, mean(SD)[a]	9.1 (13.2)	16.5 (20.2)	0.02[f]	11.2 (12.6)	15.7 (19.9)	0.27
Months between diagnosis current stage and ACP conversation, mean(SD)[a]	5.7 (6.6)	9.5 (11.2)	0.03[f]	7.5 (9.4)	9.0 (10.8)	0.49
Experience of the ACP conversation process						
ACP conversations considered helpful, n (%)[e]			<0.001			0.03
Yes	17 (37.0)	175 (72.9)		12 (48.0)	180 (69.0)	
No	29 (63.0)	65 (27.1)		13 (52.0)	81 (31.0)	
ACP conversations considered distressful, n (%)[e]			0.03			0.09
Yes	12 (26.7)	34 (14.0)		7 (28.0)	39 (14.9)	
No	33 (73.3)	208 (86.0)		18 (72.0)	223 (85.1)	

Abbreviation: n, sample size; SD, standard deviation; ACP, ACP; WHO, World Health Organization;

[a] These data were non-parametric, so Kruskal–Wallis tests were used.

[b] More than 20 % of cells were expected to have less than 5 cases, so Fisher-Freeman-Halton tests was used.

[c] Includes chemotherapy, immunotherapy, and targeted therapy.

[d] WHO performance status: 0 - Fully active, able to carry out all pre-disease performance without restriction; 1 - Restricted in physically strenuous activity but able to carry out work of a light or sedentary nature; 2 - Capable of only limited self-care, unable to carry out any work activities. Up and about more than 50 % of waking hours; 3 - Capable of only limited self-care, confined to bed or chair more than 50 % of waking hours; 4 - Completely disabled, cannot carry on any self-care and unable to be out of bed.

[e] Not included in logistic regression analyze as these variables are outcome assessments of the ACP conversation.

[f] Variables with $p < 0.1$ were included in multivariate analyses

[15,24]. Secondly, socio-cultural factors, including the dynamics among patients, relatives, and healthcare professionals, influence end-of-life decision-making—whether authoritative, paternalistic, or autonomous [62,63]. These dynamics exhibit considerable variation across countries. Rotar-Pavlič et al. observed an authoritative relationship between Slovenian patients and their healthcare professionals [64]. Patients may be unaccustomed to expressing their viewpoints, emotions, and preferences during routine medical consultations. Patients in Slovenian willing to participate in this study may desire timely ACP engagement.

Our study found that, patients with limited self-care status were more likely to perceive the timing of ACP as “too late” compared to those with a fully active performance status. Clinical practice guidance for healthcare professionals identified potential triggers for timely ACP, such as prognosis-related indicators including “the Surprise Question” [65–67], and the intiation of third-line chemotherapy [68]. In addition to these generic triggers, considering patients’ ability to perform daily

Table 3
Logistic regression analysis of factors contributing to differences in patients' perception of the timing of ACP conversation ("too early" versus "not too early") (Methods = Forward Stepwise (Likelihood Ratio)).

Variables	B	OR (95 %CI)	P value
Gender (ref: Men)			
Women	0.75	2.11 (1.10–4.03)	0.02
Country (ref: the Netherlands)			
Denmark	1.13	3.09 (1.46–6.54)	0.003

Table 4
Logistic regression analysis of factors contributing to differences in patients' perception of the timing of ACP conversation ("too late" versus "not too late") (Methods = Forward Stepwise (Likelihood Ratio)).

Variables	B	OR (95 %CI)	P value
Country (ref: the Netherlands)			
Slovenia	1.35	3.85 (1.60–9.26)	0.003
WHO performance status (ref: fully active)			
Capable of only limited self-care	1.13	3.08 (1.22–7.75)	0.02

activities is important, as they might prefer to discuss their medical treatments earlier.

Our study indicated that patients' perception of ACP timing was associated with whether they found ACP helpful or distressing. Given the nature of the topics, distress might be expected and is not necessarily a bad thing. Distress of patients does not mean that healthcare providers should avoid ACP. We recommend that healthcare providers be sensitive when introducing ACP and read patients' signs. Also, not all decisions need to be made in one ACP conversation. The distress might also stem from patients' unreadiness to discuss certain topics. Qualitative data from the ACTION trial suggested that despite signs of unreadiness for part of ACP, patients were still open to continue the ACP conversation when new topics were introduced [69].

4.2. Strengths and limitations

This study has several strengths. Firstly, the ACTION study is the largest randomized controlled trial conducted in Europe, focusing on the impact of structured, facilitated conversations and fidelity evaluations on ACP in patients with advanced cancer. Secondly, patients' perspectives on ACP timing were based on their actual experiences during the trial. Thirdly, the study was conducted in an intercultural context with varying levels of integration of ACP in the healthcare system, increasing the generalizability of our findings.

However, this study also has limitations. Firstly, people willing to participate in the ACTION study might have been more receptive to ACP, potentially overrepresenting those who view ACP timing (and its timing) positively. Considering the varying durations between patients' diagnoses and their first ACP across countries, country-specific effects should be considered when interpreting patients' perceptions of ACP. Secondly, since the data were collected between 2015 and 2017, the passage of time should be considered when interpreting our findings. Furthermore, we recognize that facilitated and structured ACP conversations in the ACTION trial may differ subtly from those occurring outside the trial context, which may be considered a limitation when interpreting the study's findings. Lastly, this study exclusively focuses on patients with advanced lung and colorectal cancers, which limits the generalizability of the findings.

4.3. Conclusion

In our study, ACP converations were offered earlier than what is currently practice, and this timing was perceived as appropriate by most patients. When initiating ACP conversations, several aspects should be considered, including patients' gender, their socio-cultural environment, and their ability to perform daily activites, with or without limitations.

4.4. Practice implications

Patients in our study tended to have positive views on when ACP conversations were offered to them, which was on average 6 months before their death. When compared to current evidence, we conclude that patients considered the appropriate timing for ACP to be earlier than healthcare providers often initiated, indicating that ACP could begin sooner than healthcare providers might typically suggest. Healthcare professionals are therefore recommended to offer ACP earlier than is currently common practice. In our study, women were more likely than men to perceive ACP timing as "too early". This is an unexpected finding since previous studies have shown that women are more open to ACP conversations [58–60]. Our study suggests that ACP is not inherently distressing for most patients, even when they perceive its timing as "too early" or "too late". These findings may help alleviate healthcare providers' concerns that ACP conversations could trigger negative emotions in patients. We recommend initiating ACP when patients' daily performance status begins to decline. As patients' perceptions of ACP may change as their condition worsens, multiple conversations may be necessary. Starting ACP when patients can still perform daily activities without limitations may better enable them fulfill wishes they might express during ACP conversations.

Funding statement

AH declares grant funding for the submitted work from the European Union's Seventh Framework Programme FP7/2007–2013 under grant agreement n° 602541. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

CRediT authorship contribution statement

Deliens Luc: Writing – original draft. **van der Heide Agnes:** Writing – review & editing, Validation, Supervision, Methodology, Investigation, Funding acquisition, Conceptualization. **Johnsen Anna Thit:** Writing – review & editing. **Ingravallo Francesca:** Writing – review & editing. **Lunder Urška:** Writing – review & editing. **Preston Nancy J:** Writing – review & editing. **Seymour Jane:** Writing – review & editing. **Korfage Ida J.:** Writing – review & editing, Validation, Supervision, Project administration, Methodology, Investigation, Funding acquisition, Conceptualization. **Zhu Tingting:** Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Conceptualization. **Rietjens Judith AC:** Writing – review & editing, Validation, Supervision, Project administration, Methodology, Investigation, Funding acquisition, Conceptualization. **van Delden Johannes J M:** Writing – review & editing.

Declaration of Competing Interest

All articles must include a separate file containing a statement declaring any competing interests that relate to any authors. The below is the format. Please click either of the two options and submit the form.

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

[1] Rietjens JAC, Korfage IJ, Knops M, Engels Y, van der Heide A, Junius-Walker U, et al. Definition and recommendations for advance care planning: an international consensus supported by the European Association for Palliative Care. Lancet Oncol 2017;18:e543–51.

[2] Sudore RL, Hickman SE, Walling AM. Controversies about advance care planning. J Am Med Assoc 2022;327:685.
[3] Brinkman-Stoppelenburg A, Rietjens JA, van der Heide A. The effects of advance care planning on end-of-life care: a systematic review. Palliat Med 2014;28:1000–25.
[4] Falzarano F, Prigerson HG, Maciejewski PK. The role of advance care planning in cancer patient and caregiver grief resolution: helpful or harmful? Cancers (Basel) 2021;13:1977.
[5] Fleuren N, Depla MFIA, Janssen DJA, Huisman M, Hertogh CMPM. Underlying goals of advance care planning (ACP): a qualitative analysis of the literature. BMC Palliat Care 2020;19:27.
[6] Belgian official collection of the laws. Law concerning patient rights in Belgium,< 〈https://www.sciensano.be/sites/default/files/aph66_137-157.pdf〉 > ; 2002. [accessed 19 June 2024].
[7] Medical Treatment Contract Act. Act of 17 November 1994 amending the civil code and other legislation in connection with the incorporation of provisions concerning the contract to provide medical treatment, <https://english.ccmo.nl/investigators/legal-framework-for-medical-scientific-research/laws/dutch-medical-treatment-contracts-act> ; 1994. [accessed 19 June 2024].
[8] De Panfilis L, Rossi PG, Mazzini E, Pistolesi L, Ghirotto L, Noto A, et al. Knowledge, opinion, and attitude about the Italian law on advance directives: A population-based survey. J Pain Symptom Manag 2020;60:906–14. e4.
[9] Evans N, Costantini M, Pasman HR, Van den Block L, Donker GA, et al. End-of-life communication: a retrospective survey of representative general practitioner networks in four countries. J Pain Symptom Manag 2014;47:604–19. e3.
[10] Evans N, Pasman HR, Vega Alonso T, Van den Block L, Miccinesi G, et al. End-of-life decisions: a cross-national study of treatment preference discussions and surrogate decision-maker appointments. PLoS One 2013;8:e57965.
[11] Andreasen P, Finne-Soveri UH, Deliens L, Van den Block L, Payne S, et al. Advance directives in European long-term care facilities: a cross-sectional survey. Brit Med J Support Palliat Care 2019;12:e393–402.
[12] Phenwan T, Sixsmith J, McSwiggan L, Buchanan D. A narrative review of facilitating and inhibiting factors in advance care planning initiation in people with dementia. Eur Geriatr Med 2020;11:353–68.
[13] Toguri JT, Grant-Nunn L, Urquhart R. Views of advanced cancer patients, families, and oncologists on initiating and engaging in advance care planning: a qualitative study. BMC Palliat Care 2020;19:150.
[14] Paladino J, Bernacki R, Neville BA, Kavanagh J, Miranda SP, et al. Evaluating an intervention to improve communication between oncology clinicians and patients with life-limiting cancer: a cluster randomized clinical trial of the Serious Illness Care Program. JAMA Oncol 2019;5:801–9.
[15] Kubi B, Istl AC, Lee KT, Conca-Cheng A, Johnston FM. Advance care planning in cancer: patient preferences for personnel and timing. JCO Oncol Pr 2020;16:e875–83.
[16] Schubart JR, Levi BH, Bain MM, Farace E, Green MJ. Advance careplanning among patients with advanced cancer. J Oncol Pr 2019;15:e65–73.
[17] Heyland DK, Barwich D, Pichora D, Dodek P, Lamontagne F, et al. Failure to engage hospitalized elderly patients and their families in advance care planning. JAMA Intern Med 2013;9:778–87.
[18] Bar-Sela G, Tur-Sinai A, Givon-Schaham N, Bentur N. Advance care planning and attainment of cancer patients' end-of-life preferences: relatives' perspective. Am J Hosp Palliat Care 2023:3322–8.
[19] Mack JW, Cronin A, Keating NL, Taback N, Huskamp HA, et al. Associations between end-of-life discussion characteristics and care received near death: a prospective cohort study. J Clin Oncol 2012;(35):4387–95.
[20] Cambriel A, Serey K, Pollina-Bachellerie A, Cancel M, Michalet M, et al. Oncologists' perspective on advance directives, a French national prospective cross-sectional survey - the ADORE study. BMC Med Ethics 2024;(1):44.
[21 Ahluwalia SC, Levin JR, Lorenz KA, Gordon HS. Missed opportunities for advance care planning communication during outpatient clinic visits. J Gen Intern Med 2012;27:445–51.
[22] Hemsley B, Meredith J, Bryant L, Wilson NJ, Higgins I, et al. An integrative review of stakeholder views on advance care directives (ACD): barriers and facilitators to initiation, documentation, storage, and implementation. Patient Educ Couns 2019;102:1067–79.
[23] Jimenez G, Tan WS, Virk AK, Low CK, Car J, Ho AHY. State of advance care planning research: a descriptive overview of systematic reviews. Palliat Support Care 2019;17. 234-234.
[24] Trevizan FB, Paiva CE, de Almeida LF, de Oliveira MA, Bruera E, et al. When and how to discuss about palliative care and advance care planning with cancer patients: a mixed-methods study. Palliat Support Care 2024;22:387–95.
[25] Maas EA, Murray SA, Engels Y, Campbell C. What tools are available to identify patients with palliative care needs in primary care: a systematic literature review and survey of European practice. BMJ Support Palliat Care 2013;3:444–51.
[26] Walsh RI, Mitchell G, Francis L, van Driel ML. What diagnostic tools exist for the early identification of palliative care patients in general practice? a systematic review. J Palliat Care 2015;31:118–23.
[27] Baxter R, Fromme EK, Sandgren A. Patient identification for serious illness conversations: a scoping review. Int J Environ Res Public Health 2022;19:4162.
[28] Wu A, Ugiliweneza B, Wang D, Hsin G, Boakye M, Skirboll S. Trends and outcomes of early and late palliative care consultation for adult patients with glioblastoma: a SEER-Medicare retrospective study. Neurooncol Pr 2022;9:299–309.
[29] Ermers DJM, van Bussel KJH, Perry M, Engels Y, Schers HJ. Advance care planning for patients with cancer in the palliative phase in Dutch general practices. Fam Pr 2019;36:587–93.
[30] Highet G, Crawford D, Murray SA, Boyd K. Development and evaluation of the Supportive and Palliative Care Indicators Tool (SPICT): a mixed-methods study. BMJ Support Palliat Care 2014;4:285–90.
[31] Mahura M, Karle B, Sayers L, Dick-Smith F, Elliott R. Use of the supportive and palliative care indicators tool (SPICT™) for end-of-life discussions: a scoping review. BMC Palliat Care 2024;23:119.
[32] Thoonsen B, Engels Y, van Rijswijk E, Verhagen S, van Weel C, et al. Early identification of palliative care patients in general practice: development of RADboud indicators for PAlliative Care Needs (RADPAC). Br J Gen Pr 2012;62:e625–31.
[33] Ermers DJ, Kuip EJ, Veldhoven C, Schers HJ, Perry M, et al. Timely identification of patients in need of palliative care using the double surprise question: a prospective study on outpatients with cancer. Palliat Med 2021;35:592–602.
[34] Azizi B, Tilburgs B, van Hout HPJ, van der Heide I, Verheij RA, et al. Occurrence and timing of advance care planning in persons with dementia in general practice: analysis of linked electronic health records and administrative data. Front Public Health 2022;10:653174.
[35] Tros W, van der Steen JT, Liefers J, Akkermans R, Schers H, et al. Actual timing versus GPs' perceptions of optimal timing of advance care planning: a mixed-methods health record-based study. BMC Prim Care 2022;23:321.
[36] Senior H, Grant M, Rhee JJ, Aubin M, McVey P, Johnson C, et al. General practice physicians' and nurses' self-reported multidisciplinary end-of-life care: a systematic review. BMJ Support Palliat care 2024;14:e1–11.
[37] Bjørk E, Thompson W, Ryg J, Gaardboe O, Jørgensen TL, Lundby C. Patient preferences for discussing life expectancy: a systematic review. J Gen Intern Med 2021;36:3136–47.
[38] Cohen MG, et al. Hope and advance care planning in advanced cancer: is there a relationship? Cancer 2022;128(6):1339–45.
[39] Cohen MG, Althouse AD, Arnold RM, Bulls HW, White DB, et al. Is advance care planning associated with decreased hope in advanced cancer? JCO Oncol Pr 2021;17:e248–56.
[40] Zhu N, Yang L, Wang X, Tuo J, Chen L, Deng R, Kwan RYC. Experiences and perspectives of healthcare professionals implementing advance care planning for people suffering from life-limiting illness: a systematic review and meta-synthesis of qualitative studies. BMC Palliat Care 2023;22:55.
[41] Lin CP, Peng JK, Chen PJ, Huang HL, Hsu SH, et al. Preferences on the timing of initiating advance care planning and withdrawing life-sustaining treatment between terminally-ill cancer patients and their main family caregivers: a prospective study. Int J Environ Res Public Health 2020;17:7954.
[42] Fritz L, Peeters MCM, Zwinkels H, Koekkoek JAF, Reijneveld JC, et al. Advance care planning (ACP) in glioblastoma patients: evaluation of a disease-specific ACP program and impact on outcomes. Neurooncol Pr 2022;9:496–508.
[43] Dixon A, Motschenbacher CR. Health Disparities in Palliative Care and Social Determinants of Health. Oxford University Press; 2021.
[44] Mills J, Abel J, Kellehear A, Patel M. Access to palliative care: the primacy of public health partnerships and community participation. Lancet Public Health 2021;6:e791–2.
[45] Elk R, Felder TM, Cayir E, Samuel CA. Social inequalities in palliative care for cancer patients in the United States: A structured review. Semin Oncol Nurs 2018;34:303–15.
[46] Tobin J, Rogers A, Winterburn I, Tullie S, Kalyanasundaram A, Kuhn I, et al. Hospice care access inequalities: a systematic review and narrative synthesis. BMJ Support Palliat Care 2022;12:142.
[47] Koffman J, Shapiro GK, Schulz-Quach C. Enhancing equity and diversity in palliative care clinical practice, research and education. BMC Palliat Care 2023;22:64.
[48] Korfage IJ, Carreras G, Arnfeldt Christensen CM, Billekens P, Bramley L, et al. Advance care planning in patients with advanced cancer: a 6-country, cluster-randomised clinical trial. PLOS Med 2020;17:e1003422.
[49] Rietjens JA, Korfage IJ, Dunleavy L, Preston NJ, Jabbarian LJ, et al. Advance care planning – a multi-centre cluster randomised clinical trial: the research protocol of the ACTION study. BMC Cancer 2016;16:264.
[50] Detering KM, Hancock AD, Reade MC, Silvester W. The impact of advance care planning on end of life care in elderly patients: randomised controlled trial. Brit Med J 2010;340:c1345.
[51] Kirchhoff KT, Hammes BJ, Kehl KA, Briggs LA, Brown RL. Effect of a disease-specific advance care planning intervention on end-of-life care. J Am Geriatr Soc 2012;60:946–50.
[52] MacKenzie MA, Smith-Howell E, Bomba PA, Meghani SH. Respecting choices and related models of advance care planning: a systematic review of published evidence. Am J Hosp Palliat Care 2018;35:897–907.
[53] Bekker YAC, Suntjens AF, Engels Y, Schers H, Westert GP, et al. Advance care planning in primary care: a retrospective medical record study among patients with different illness trajectories. BMC Palliat Care 2022;21:21.
[54] Tros W, van der Steen JT, Liefers J, Akkermans R, Schers H, et al. General practitioners' evaluations of optimal timing to initiate advance care planning for patients with cancer, organ failure, or multimorbidity: a health records survey study. Palliat Med 2022;36:510–8.
[55] Schmidt K, Damm K, Prenzler A, Golpon H, Welte T. Preferences of lung cancer patients for treatment and decision-making: a systematic literature review. Eur J Cancer Care (Engl) 2016;25:580–91.
[56] Beaver K, Booth K. Information needs and decision-making preferences: comparing findings for gynaecological, breast and colorectal cancer. Eur J Oncol Nurs 2007;11:409–16.
[57] Ejem D, Dionne-Odom JN, Turkman Y, Knight SJ, Willis D, et al. Incongruence between women's survey- and interview-determined decision control preferences:

a mixed methods study of decision-making in metastatic breast cancer. Psycho-Oncol 2018;27:1950–7.

[58] Fletcher K, Prigerson HG, Paulk E, Temel J, Finlay E, et al. Gender differences in the evolution of illness understanding among patients with advanced cancer. J Support Oncol 2013;11:126–32.

[59] Gaston CM, Mitchell G. Information giving and decision-making in patients with advanced cancer: a systematic review. Soc Sci Med 2005;61:2252–64.

[60] Seifart C, Riera Knorrenschild J, Hofmann M, Nestoriuc Y, Rief W, et al. Let us talk about death: gender effects in cancer patients' preferences for end-of-life discussions. Support Care Cancer 2020;28:4667–75.

[61] Sørensen AR, Marsaa K, Prior TS, Bendstrup E. Attitude and barriers in palliative care and advance care planning in nonmalignant chronic lung disease: results from a Danish national survey. J Palliat Care 2020;35:232–5.

[62] Martina D, Geerse OP, Lin CP, Kristanti MS, Bramer WM, et al. Asian patients' perspectives on advance care planning: a mixed-method systematic review and conceptual framework. Palliat Med 2021;35:1776–92.

[63] Crooks J, Trotter S, , Patient Public Involvement Consortium, Clarke G. How does ethnicity affect presence of advance care planning in care records for individuals with advanced disease? A mixed-methods systematic review. BMC Palliat Care 2023;22:43.

[64] Rotar-Pavlic D, Svab I, Wetzels R. How do older patients and their GPs evaluate shared decision-making in healthcare? BMC Geriatr 2008;8:9.

[65] Pobar I, Job M, Holt T, Hargrave C, Hickey B. Prognostic tools for survival prediction in advanced cancer patients: A systematic review. J Med Imaging Radiat Oncol 2021;65:806–16.

[66] Weijers F, Veldhoven C, Verhagen C, Vissers K, Engels Y. Adding a second surprise question triggers general practitioners to increase the thoroughness of palliative care planning: results of a pilot RCT with case vignettes. BMC Palliat Care 2018;17:64.

[67] van Lummel EV, Ietswaard L, Zuithoff NP, Tjan DH, van Delden JJ. The utility of the surprise question: A useful tool for identifying patients nearing the last phase of life? A systematic review and meta-analysis. Palliat Med 2022;36:1023–46.

[68] Bernacki RE, Block SD. American college of physicians high value care task force. communication about serious illness care goals: a review and synthesis of best practices. JAMA Intern Med 2014;174:1994–2003.

[69] Zwakman M, Milota MM, van der Heide A, Jabbarian LJ, Korfage IJ, et al. Unraveling patients' readiness in advance care planning conversations: a qualitative study as part of the ACTION Study. Support Care Cancer 2021;29:2917–29.