

Original Article

Factors Influencing Australian General Practitioners' Clinical Decisions Regarding Advance Care Planning: A Factorial Survey

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Abstract

Context. Primary care physicians are well placed to identify patients in need of advance care planning (ACP) and initiate ACP in advance of an acute situation.

Objectives. This study aimed to understand Australian general practitioner (GP) clinical decision making relating to a patient's "need for ACP" and the likelihood of initiating ACP.

Methods. An experimental vignette study pseudorandomly manipulated factors thought to influence decision making regarding ACP. Patient-level factors included gender, age, type of disease, medical severity, openness to ACP, doctor-patient relationship, and family support. An accompanying demographic survey assessed health professional-level factors, including gender, years of experience, place of training, place of practice, caseload of patients with ACP, direct personal experience in ACP, and self-reported attitudes toward ACP. Seventy GPs were recruited, and each completed six unique vignettes, providing ratings of patient need for ACP, importance of initiating ACP in the coming months, and likelihood of initiating ACP at the next consultation.

Results. Older patients, with malignant or cardiovascular disease, severe clinical presentations, good doctor-patient relationship, female gender, and poor family support were more likely to receive prompt ACP. Positive GP attitudes toward ACP were associated with greater likelihood of initiating ACP promptly.

Conclusion. Patients with presentations suggesting higher mortality risk were identified as being in need of ACP; however, the likelihood of initiating ACP was sensitive to GP attitudes and psychosocial aspects of the doctor-patient interaction. Training materials aimed at encouraging GP involvement in ACP should target attitudes toward ACP and communication skills, rather than focusing solely on prognostic risk. *J Pain Symptom Manage* 2016;51:718–727 © 2016 American Academy of Hospice and Palliative Medicine. Published by Elsevier Inc. All rights reserved.

Key Words

Advance care planning, palliative, prognosis, general practitioner, vignette, factorial survey

Introduction

Advance care planning (ACP) is a process of discussion between patients, family members/carers, and health professionals, aimed at clarifying the patient's preferences for future medical care, to be enacted if they lack capacity to make or communicate medical treatment decisions.¹ Advance care planning has been associated with positive outcomes in end-of-life

(EOL) care, including reduced risk of dying in hospital,^{2,3} greater concordance between preferred and actual hospital care,^{4,5} reduced caregiver burden during EOL care,² and reduced psychological morbidity among bereaved caregivers.⁶

Despite these benefits, community ACP uptake in Australia remains low.^{7–10} Patients typically prefer to discuss ACP with a trusted doctor, in advance of a medical emergency,^{11–13} and show increased satisfaction

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with their doctor after ACP discussion.¹⁴ In Australia, general practitioners (GPs) work in primary care settings and typically develop long-term relationships with patients. Hence, GPs are well placed to identify the need for ACP discussions and initiate ACP at an appropriate time in the illness trajectory. Clinical practice guidelines identify the GP's pivotal role in ACP,¹⁵ and the Royal Australian College of General Practitioners endorse integration of ACP in routine practice.¹⁶

Even with professional ownership of their role in ACP, studies involving Australian GPs have reported barriers, including lack of time,¹⁷ lack of knowledge about ACP,¹⁸ fear that ACP might damage the clinical relationship,¹⁹ and concerns about legal implications of ACP.^{20,21} Surveys conducted among nurses and hospital physicians further suggest that health professionals' personal attitudes toward ACP predict their decisions to initiate ACP discussion.^{22–24} Baughman et al.²⁵ used a factorial survey method and found that the strongest predictors of nurse and social worker assessments that a client was “in need of ACP” were the health professional's own attitudes toward ACP, rather than client factors. These findings suggest that factors other than the patient's clinical needs may impact on the clinical decision to initiate ACP discussion. This is of concern, as ACP is understood as a patient-centered process, with initiation in response to clinical need and patient preference, rather than health professional attitudes.^{26,27}

This study uses a factorial survey method and aims to understand GP clinical decision-making processes relating to ACP in a range of hypothetical doctor-patient interactions. It also aims to examine whether patient-level or health professional-level factors are more predictive of professional judgments about the need for ACP. Based on previous literature, we predicted that GPs would be more likely to report initiating ACP among patients who are older, have malignant diagnoses,²⁵ have more severe presentations,²⁸ show a stronger doctor-patient relationship,^{19,28} and are more open to ACP discussion.^{29,30}

Methods

The factorial survey method is an innovative, quasi-experimental survey approach to simulating professional judgments.²⁶ Participants make judgments in response to a number of “vignettes,” hypothetical scenarios each containing a number of “factors” (independent variables of interest to the researchers) presented at different “levels.” The levels of each factor are assigned randomly across the different vignettes, hence avoiding the intercorrelations that confound real cases drawn from clinical settings.

Participants make professional judgments in response to each vignette (e.g., likelihood that they would take a certain course of action). With appropriate sampling procedures, the factorial survey method can combine the strengths of the classic factorial experiment with the generalizability of traditional survey methods.^{26,27} This study was a pseudorandomized factorial survey, in which GPs responded to vignettes about hypothetical patients in primary care settings. Ethics approval was granted by the University of Western Australia (RA/4/1/6542).

Survey Development

The survey comprised four sections. Section 1 provided an open-ended definition of ACP adapted from the international literature,¹ describing it as “a process of reflection and communication between patients, family members/loved ones, and health professionals. It aims to identify and share life values, beliefs, and goals that may be relevant if a person is ever unable to make decisions or communicate their wishes relating to medical treatment or health care.” In the second section, each participant was presented with six unique vignette cases and asked to make professional judgments in response to each about the patient's need for ACP (NeedACP), the importance of initiating ACP within the coming months (ImpACP), and the likelihood that they would initiate ACP discussion at the next consultation (LikelyACP), reflecting diagnostic (NeedACP, ImpACP) and behavioral (LikelyACP) components, respectively. Each of these responses was scored on a 0–10 scale, where zero reflected a negative response (e.g., for LikelyACP, very unlikely to initiate ACP at the next consultation) and 10 reflected a strong positive response (e.g., very likely to initiate ACP at the next consultation). The third section surveyed demographic and clinical practice information about the GP, including gender, place of medical training (Australia/overseas), place of practice (metropolitan/non-metropolitan), years of experience, percentage of patient caseload with whom ACP was discussed, personal experience in ACP for family/friends, and personal experience completing their own ACP. The fourth section was a six-item questionnaire measuring GP attitudes to ACP on a five-point Likert scale.

Vignettes were designed around a prototypical general practice patient who had not undertaken ACP and had full decision-making capacity. All vignettes described patients who had been seeing the respondent as their primary doctor for approximately five years, to ensure that the doctor would be familiar enough with the patient to realistically know the information presented in each vignette. Patient details were specified by manipulating a number of “factors”

to appear at one of the researcher-defined “levels.” Factors included patient age (52 yrs/72 yrs/88 yrs), patient gender (male/female), patient disease type (malignant, cardiovascular, osteoarthritis), patient clinical severity (mild, moderate, severe), doctor-patient relationship (poor, good), patient openness to ACP (closed, open), and family support (poor, good). This yielded a seven-level matrix ($3 \times 2 \times 3 \times 3 \times 2 \times 2 \times 2$) with 432 unique vignette combinations (Appendices I and II, available at jpsmjjournal.com). Factor levels were allocated pseudorandomly using SAS (SAS Institute, Inc., Cary, NC) and Microsoft Excel (Microsoft Corp., Redmond, WA) software, ensuring that each participant responded to two cases (one male, one female) from each of the three disease types. A pilot version of the survey was completed by 12 GPs (mean completion time = 17 minutes), with mean vignette plausibility ratings of 4.3/5 (5 = highly plausible). Participant feedback led to changes in the wording of some questions; hence, these data points were excluded from final analysis.

Vignette Content

Previous factorial surveys of professional judgments relating to ACP nominated arbitrary levels of the various factors (e.g., “is experiencing severe pain”).²⁵ In an effort to boost the external validity of the vignettes, we specified factor levels using realistic clinical information, as they might appear in a patient history. Each clinical description was standardized to include three pieces of information about current symptoms, a summary of treatment history, comment from a relevant specialist involved in the patient’s care, and a piece of information (e.g., disease staging) that might inform prognosis. Disease staging used widely used classification systems for defining disease progression (New York Heart Association

Classification for heart failure, TNM [tumor, node, metastases], and Eastern Cooperative Oncology Group [ECOG] scales for cancer staging, and the Kellgren-Lawrence severity grading system for osteoarthritis). Disease stages for each clinical severity were selected based on published mortality outcomes for each disease type, such that mild, moderate, and severe medical severity reflected low, moderate, and high mortality risk, respectively, in the coming 12 months.^{31–34} Table 1 presents an example patient vignette (see Appendices I and II, available at jpsmjjournal.com, for the full matrix of factor levels).

Participant Ratings

To understand how the researcher-defined factor levels (e.g., medical severity = mild) were interpreted, participants were asked to rate the patient’s family support, mortality risk, doctor-patient relationship, and patient openness to ACP for each patient, on a visual analogue scale. This scale was scored from 0 to 10 and used to understand how changes in vignette characteristics influenced participant perceptions of patient characteristics.

Sampling

Currently registered and practicing Australian GPs were recruited through electronic newsletter invitations by consenting professional associations across Australia (five of six state/territory branches of the Royal Australian College of GPs, two GP training organizations, and 13/61 regional GP network subdivisions). Fifty-four surveys were completed online in response to invitations through these networks (unknown response rate as many associations could not provide current member figures). An additional 60 hard-copy surveys were posted or hand-delivered to local clinical networks across the southwest of Western

Table 1
Example of Patient Vignette^a

Factor	Level	Vignette Text
Doctor-patient relationship	Good	[Anne] has been a patient of yours for over five years now, with regular check-ups. [She] is very compliant, friendly and you two enjoy each other’s company.
Medical severity (cardiovascular disease)	Severe	A left heart failure patient, [Anne] is severely cachexic, reliant on Long Term Oxygen Therapy, and is chair bound for the majority of the day. [She] receives morphine for the dyspnoea, and is on maximal anti-failure treatment, but primarily [her] care is palliative. [She] is not a candidate for heart transplant, has a very poor ejection fraction and [her] cardiologist grades [her] at Grade IV on the New York Heart Association (NYHA) Classification, corresponding to “symptomatic at rest.”
Patient openness to ACP	Open	[Anne] takes a very pragmatic approach to [her] own mortality. [She] willingly discusses death, and seems to have thought at length on how it may affect those around [her].
Family support	Poor	[Anne] is a widow, [her] only child lives overseas and [she] does not have many friends who can assist [her].

ACP = advance care planning.

^a“Anne,” an 88-year-old female patient with a good doctor-patient relationship, diagnosed with cardiovascular disease (severe level), who is open to ACP discussion and has poor family support. Patient name is included as an example, all factor levels equally likely to appear as either gender, with names and pronouns adjusted accordingly.

Australia, including a stamped self-addressed envelope ($N = 16$ returned, response rate = 23%). Participation was anonymous and voluntary, with no incentive offered.

Statistical Analysis

Incomplete responses ($N = 2$) were deleted listwise. Descriptive statistics, Pearson correlation coefficients, and chi-square tests guided further analysis. One-way analysis of variance and independent samples t -tests were used to determine whether researcher-defined factor levels elicited changes in relevant participant ratings (family support, mortality risk, doctor-patient relationship, and patient openness to ACP).

A principal components analysis (Varimax rotation with Kaiser normalization) and item reduction (Cronbach alpha deletion method) of the attitudinal survey items identified two components, accounting for 63.2% of item-level variance. The first component, "ACP efficacy," (Cronbach alpha = 0.58) included two items thought to reflect beliefs that ACP is a helpful process: "ACP should be discussed with all patients over a certain age" and "A written AHD reduces burden on the patient's family." The second component, "ACP confident" (Cronbach alpha = 0.61) included two items thought to reflect self-reported confidence in initiating ACP discussions: "I feel confident to initiate ACP" and "ACP is too upsetting for patients and their families" (reverse scored). Components were weighted according to coefficient sizes from the principal components analysis (e.g., "ACP efficacy" was calculated for each participant by the formula $ACP\ efficacy = 0.72 \times (\text{Item } 2) + 0.86 \times (\text{Item } 5)$). Two additional items did not load cleanly

on either component and were retained as single items (Table 2).

Multilevel mixed-model regression analyses were conducted using SAS, for each of the three dependent variables (NeedACP, ImpACP, LikelyACP), using a random intercept mixed-model analysis of covariance (ANCOVA) (maximum likelihood estimates, unstructured covariance matrix), with each individual participant (GP) as a random effect. Independent variables occurred at vignette (patient) and respondent (health professional) levels.³⁵ Patient-level independent variables included patient demographics (age, gender), disease type, and the researcher-defined factor levels: clinical severity, doctor-patient relationship, patient openness to ACP, and family support. Health professional-level independent variables included GP demographics (gender, place of medical training, place of practice, years of experience), personal experience with completing ACP documents (caseload of patients with whom ACP was discussed, experience with ACP for family/friends and having completed their own ACP) and self-reported attitudes toward ACP.

The first stage of regression analysis tested an empty, unconditional means model for each of the three dependent variables (NeedACP, ImpACP, LikelyACP). The amount of variance attributable to within-subjects (patient) and between-subjects (health professional) variance sources in the empty model was assessed using the intraclass correlation coefficient. In the second stage, health professional-level predictors were included, using backward elimination with a $P < 0.2$ criterion for retaining predictors. All possible two-way interactions between the remaining main effects were tested, with significant ($P < 0.05$)

Table 2
Responses to Likert-Scale Items for GP Attitudes to ACP Questions (1 = Strongly Disagree, 5 = Strongly Agree)

Likert-Scale Questionnaire Item	Mean	SD	Coefficient Weighting for Component
1. Advance care planning is only for patients in the terminal phase of an illness.	1.68	0.74	N/A
2. I believe everyone over a certain age should receive information and support from their doctor about advance care planning. ^a	3.74	1.06	0.72 (ACP efficacy)
3. It is the GP's responsibility to initiate advance care planning.	3.28	0.96	N/A
4. I believe discussing advance care planning is too upsetting for patients and their families. ^b	1.88	0.70	-0.82 (ACP confident)
5. I believe that having a written advance health directive removes the burden of decision making from a patient's loved ones. ^a	3.76	1.05	0.86 (ACP efficacy)
6. I am confident in my ability to initiate advance care planning with my patients. ^b	3.76	0.93	0.84 (ACP confident)
Derived Components	Median	IQR	Formula
Component 1: ACP efficacy	3.18	1.04	$0.72 \times (\text{Item } 2) + 0.86 \times (\text{Item } 5)$
Component 2: ACP confident	0.84	0.83	$-0.82 \times (\text{Item } 4) + 0.84 \times (\text{Item } 6)$

GP = general practitioner; ACP = advance care planning; IQR = interquartile range.

^aItems 2 and 5 were weighted based on derived coefficients, to yield the component ACP efficacy.

^bItems 4 and 6 were weighted based on derived coefficients, to yield the component ACP confident.

Table 3
Participant Demographic Characteristics

Variable	n (% of total)
N (total participants)	68
Gender (female)	37 (54.4)
Trained in Australia (yes)	53 (77.9)
Place of practice (nonmetropolitan)	44 (64.7)
Years of experience (<10 yrs)	28 (41.2)
Caseload patients with whom ACP discussed <20%	55 (80.9)
Personal experience with ACP for family/friends (yes)	41 (60.3)
Completed own ACP	19 (27.9)

interactions retained. Nonsignificant main effects that were not implicated in significant two-way interactions were removed. In the third stage, this process was repeated independently for patient-level predictors, before combining remaining main effects and two-way interactions into the final mixed model.

Results

Table 3 describes participant demographic characteristics. Preliminary analyses showed that the majority of demographic variables were not significantly intercorrelated, although doctors practicing in metropolitan areas ($P = 0.02$) and doctors with personal experience of ACP for family/friends ($P = 0.05$) were more likely to have completed their own ACP. Doctors with more than 10 years experience were

more likely to have a higher caseload of patients with whom they had discussed ACP ($P = 0.04$).

Vignette Robustness

Figure 1 shows the relationship between researcher-defined factor levels and participant ratings. Participant ratings showed reliable differences in the predicted directions for all researcher-defined factor levels that were randomly allocated within the vignettes: family support, doctor-patient relationship, patient openness to ACP, and medical severity (all $P < 0.001$). For example, the vignette scenarios designed to represent low medical severity were assessed by the participants as having a low mortality risk (median score of 4.0) compared with 9.6 for the scenarios with high medical severity. This concordance showed that participant ratings were reliably influenced by the presentation of vignettes with different factor levels, as per the authors' intention. There was a significant main effect of disease type on participant ratings of mortality risk ($P < 0.001$), with osteoarthritis eliciting lower ratings of mortality risk across all levels of medical severity (all pair-wise comparisons $P < 0.001$). Participant ratings of mortality risk for malignant and cardiovascular disease types did not significantly differ across the different levels of medical severity.

Multivariate Analysis

Table 4 summarizes the intercepts, intraclass correlations, significant main effects, and significant two-way

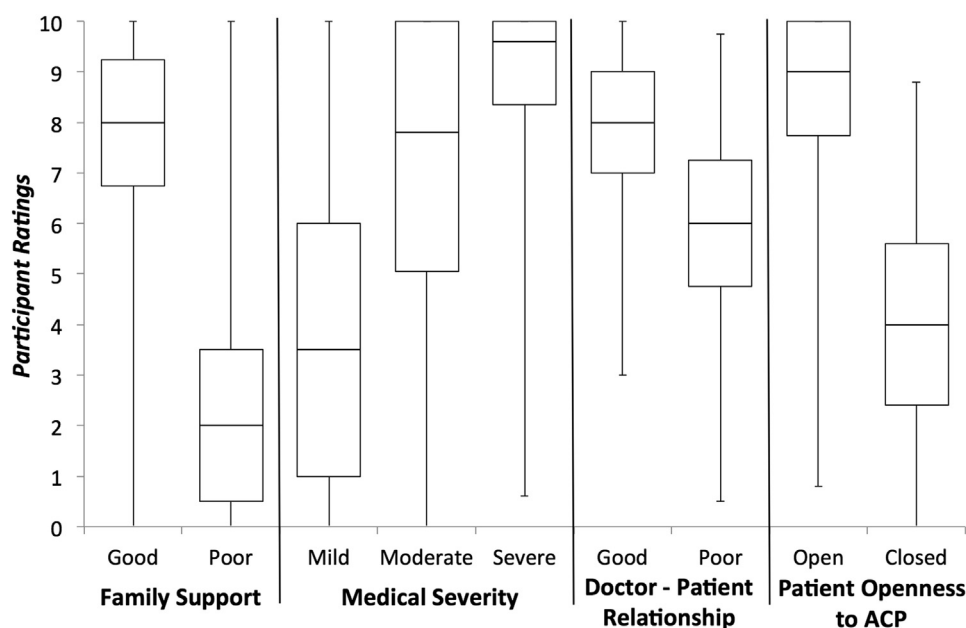


Fig. 1. Relationship between researcher-defined vignette factor levels (x-axis) and the accompanying participant ratings (family support, mortality risk, doctor-patient relationship, patient openness to ACP). Box and whisker plots show median (central line), interquartile range (outer bounds of boxes), and maxima/minima (outer bounds of whiskers). All comparisons of participant ratings of different factor levels were significant at $P < 0.001$. ACP = advance care planning.

Table 4

Model Intercept and Unstandardized Regression Coefficients of Significant ($P < 0.05$) Independent Variables as Predictors of the Three Dependent Variables (NeedACP, ImpACP, and LikelyACP)^a

	NeedACP	ImpACP	LikelyACP
Intercept	−0.21	−0.76	−2.88
Significant health professional-level predictors ($P < 0.05$)			
Attitudinal score (ACP efficacy) ^b	1.23	1.11	0.84
Attitudinal score (ACP confident) ^b			0.81
Significant vignette (patient) level predictors ($P < 0.05$)			
Medical severity (severe vs. mild)	5.37	4.46	3.95
Medical severity (moderate vs. mild)			1.52
Patient age (88 yrs vs. 52 yrs)	3.63	4.08	3.89
Patient age (72 yrs vs. 52 yrs)	1.44		1.97
Disease type (malignant vs. osteoarthritis)	2.57	1.77	2.49
Disease type (cardiovascular vs. osteoarthritis)	2.84	3.95	2.18
Doctor-patient relationship (good vs. poor)			0.89
Patient gender (female vs. male)			0.69
Family support (poor vs. good)			0.49
Significant two-way interactions ($P < 0.05$)			
Disease (malignant) × age (72 yrs)	−1.41		
Disease (malignant) × age (88 yrs)	−2.42	−1.08	−1.47
Disease (cardiovascular) × age (52 yrs)			
Disease (cardiovascular) × age (72 yrs)	−1.88	−1.49	−1.27
Disease (cardiovascular) × age (88 yrs)	−2.66	−1.96	−1.91
Disease (malignant) × severity (moderate)	1.29	2.16	1.61
Disease (cardiovascular) × severity (moderate)	1.26	2.30	2.39
Disease (cardiovascular) × severity (severe)		1.02	1.48
Disease (cardiovascular) × ACP efficacy ^b		−0.69	
Severity (severe) × age (88 yrs)	−2.05	−2.57	−2.67
Severity (severe) × age (72 yrs)	−1.14	−1.57	−1.58
Severity (moderate) × age (88 yrs)		−1.94	−1.36
Severity (moderate) × age (72 yrs)		−1.37	−1.16
Severity (severe) × ACP efficacy ^b	−0.64		
Age (72 yrs) × ACP efficacy ^b		0.50	
Family support (poor) × ACP efficacy ^b	−0.47		
Family support (poor) × age (72 yrs)	1.59	1.33	
Family support (poor) × disease (cardiovascular)		0.75	
Dr place of practice (metro) × ACP confident ^b	1.29		
Gender (female) × doctor-patient relationship (good)			−1.13
Gender (female) × openness to ACP (open)			−0.69
Openness to ACP (good) × ACP efficacy ^b			0.68

ACP = advance care planning.

^aRegression coefficients reflect the change in the dependent variable with each one-point change in the independent variable.

^bComponent scores derived from multiple Likert-scale items, measuring respondent attitudes regarding ACP.

interactions for the NeedACP, ImpACP, and LikelyACP variables. Independent variables were recoded to minimize the intercept value, with the reference category being a younger (52 yrs), male patient with osteoarthritis, mild medical severity, good family support, a poor doctor-patient relationship, and poor openness to ACP. Across all three models, the intraclass correlation was low (0.18–0.22), indicating that most of the variance in the unconditional model was attributable to within-subjects (patient level) variables, rather than between-subjects (health professional level) variables.

Factors Predicting Judgment That “This Patient Is in Need of ACP”

Participant ratings that a patient was in need of ACP were significantly increased, first in response to a patient with severe disease, then older age (72 yrs or 88 yrs), and then malignant or cardiovascular disease type. Ratings of NeedACP were also positively associated with doctor attitudes about ACP efficacy. These

main effects were moderated by a number of significant two-way interactions (Table 4).

Factors Predicting Judgment That “It Is Important to Initiate ACP Over the Coming Months”

Participant ratings of the importance of initiating ACP over the coming months were significantly increased, first in response to a patient with severe disease, then older age (88 yrs), and then cardiovascular or malignant disease type. Ratings of ImpACP also were positively associated with doctor attitudes about ACP efficacy. These main effects were moderated by a number of significant two-way interactions (Table 4).

Factors Predicting Judgment About “Likelihood of Initiating ACP at the Next Consultation”

Participant ratings of their likelihood of initiating ACP at the next consultation were significantly increased, first in response to a patient with moderate or severe medical severity, then older age (72 yrs or

88 yrs), then cardiovascular or malignant disease type, then a good doctor-patient relationship, then female gender, and then poor family support. Ratings of LikelyACP also were positively associated with doctor attitudes about ACP efficacy and their self-reported confidence in initiating ACP. These main effects were moderated by a number of significant two-way interactions (Table 4).

The model predicted the value of LikelyACP for an 88-year-old female patient with severe cardiovascular disease, good doctor-patient relationship, poor family support, and open to ACP discussion to be 9.5/10 (CI = 8.7–10.3). For a 52-year-old male patient with mild osteoarthritis, poor doctor-patient relationship, good family support, and closed to ACP discussion, the predicted value was 0.3/10 (CI = –0.7–1.3). Predicted values were calculated using significant main effects and two-way interactions; assuming average scores for the relevant continuous variables (ACP efficacy = 3.0 and ACP confident = 0.8).

Discussion

This study reports on Australian GPs' clinical judgments regarding ACP, in response to hypothetical vignette scenarios. Building on previous research,²⁵ this study used vignettes with rich clinical details and surveyed a population of health professionals with advanced medical training and an established professional role in ACP.

The strongest predictors of GP ratings relating to the need for ACP were patient age, medical severity, and disease type (cardiovascular or malignant). This suggests that GPs prioritized clinical information such as disease type and staging when formulating an assessment of the patient's need for ACP. This finding contrasts with previous research, in which pre-existing respondent attitudes and demographic variables were stronger predictors of professional judgments about the patient's need for ACP.²⁵ The use of vignettes with more clinical detail in this study may explain these findings. Furthermore, the GPs recruited in this study have more advanced, medically focused training than the sample of nurses and social workers recruited by Baughman et al. and hence may place greater emphasis on medical information in making professional judgments.

Although participant ratings were sensitive to the patient's clinical characteristics and health professional attitudes regarding ACP efficacy in all three models, it is of interest that the behaviorally focused measure "likelihood of initiating ACP at the next consultation" also was sensitive to a range of other psychosocial predictors, which did not feature in the

NeedACP or ImpACP models. The positive association between ACP confidence and likelihood of initiating ACP is supported by previous studies demonstrating associations between doctor attitudes and self-reported ACP behavior.^{23,36} It also suggests that appropriately targeted training, to increase confidence and shift attitudes about ACP efficacy, may facilitate ACP implementation.

In this study, female patients were more likely to receive prompt ACP. This effect was small in size and moderated by other interactions associated with the doctor-patient relationship and patient openness to ACP. It may reflect prevailing GP attitudes that female patients will respond more positively to ACP discussions. Gender effects have not received much attention in the ACP literature, although a recent population-based survey of older people in the U.K. indicated higher rates of advance directive completion among men.³⁷ From a social justice perspective, there does not appear to be a relevant reason why patient gender should influence ACP initiation, and health professionals should endeavor to provide equitable opportunities for ACP to all patients.

The finding that patients with a poor doctor-patient relationship were less likely to receive prompt ACP may relate to concerns about negatively impacting an already tenuous relationship.¹⁹ Although this concern may be well-founded, health professionals should be mindful of evidence that patients typically report increased satisfaction with their doctor following an ACP discussion,¹⁴ along with potential for negative outcomes associated with delaying ACP for too long (e.g., loss of decision-making capacity).

GPs were more prompt in initiating ACP among patients with poor family support. It could be that the GPs perceive a greater risk that without the support of close family members, this group of patients may be more likely to experience poor outcomes in EOL care and hence benefit more from proactive ACP. Alternatively, it may be that the GP incorporates factors from the patient's social history into their clinical judgment about mortality risk. It is known that social support is associated with life expectancy and avoidance of residential care admission among older people^{38,39}; hence, poor family support may influence ACP initiation through its impact on the GP's judgment of the patient's mortality risk. However, follow-up analysis found that the family support factor levels used in these vignettes did not predict the doctor's rating of patient mortality risk.

The finding that cardiovascular and malignant disease types prompted ACP more than osteoarthritis was expected. However, the higher ratings elicited by patients with cardiovascular disease, compared to malignant disease, were unexpected in light of previous

research.²⁵ Follow-up analysis suggested that both disease types elicited similar ratings of mortality risk across the different medical severities; hence, we are confident that these cases are adequately matched. In one study, examining Dutch GP perceptions of ACP, participants reported that heart failure was a condition in which ACP was indicated (because of its progressive nature and lack of curative options) despite challenges in identifying the “terminal phase.”²⁸ In the case of our study, it may be that the potential for cardiovascular disease to result in sudden, rapid deterioration led to GPs initiating ACP more proactively than in malignant cases, in which clinical deterioration could perhaps be more easily predicted.⁴⁰

Limitations

This study has some limitations. The sample size was small ($N = 68$), with a low response rate to hard-copy surveys and unknown online response rate. Hence, GPs with greater interest in ACP may be overrepresented in the sample. Although this would be problematic for a survey aiming to establish normative attitudes, the present factorial survey focuses specifically on how changes in patient characteristics influence judgments made by the same GP. The 68 participants yielded 408 observations for analysis, which is comparable to a previous similar study.²⁵

A second limitation is associated with the lack of inclusion of additional factors that may have contributed to professional judgments about ACP. Cultural background has been shown to be influential in attitudes toward ACP^{41,42}; however, the patients in this study were all described simply as “Caucasian.” Dementia is another factor that may be influential and has been described as a condition indicating the need for proactive ACP.⁴³ However, we were mindful of research showing how a dementia diagnosis can be a motivating factor for some GPs, and a barrier for others, with respect to initiating ACP.²⁸ Given these complexities, we omitted dementia from these vignettes. A future study may focus specifically on factors contributing to professional judgments about the need for ACP among patients with dementia.

Implications

This study showed that GPs emphasize clinical characteristics when identifying patients in need of ACP but are sensitive to a broader range of psychosocial variables, including their own confidence, when deciding to initiate ACP. Prompt ACP initiation was influenced by patient gender and the preexisting doctor-patient relationship, suggesting that clinicians should be mindful of how psychosocial factors might impact on equity in clinical practice. Appropriate educational interventions may be capable of

influencing clinical practice; however, they should include more than just prognostic guidelines (although this is not unimportant). Content also should apply ethical and social justice principles, foster positive attitudes toward ACP, and develop the communication skills that underpin clinician confidence in ACP.^{44–46}

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References

1. Sudore RL, Fried TR. Redefining the “planning” in advance care planning: preparing for end-of-life decision making. *Ann Intern Med* 2010;153:256–261.
2. Stein RA, Sharpe L, Bell ML, et al. Randomized controlled trial of a structured intervention to facilitate end-of-life decision making in patients with advanced cancer. *J Clin Oncol* 2013;31:3403–3410.
3. Bischoff KE, Sudore R, Miao YH, Boscardin WJ, Smith AK. Advance care planning and the quality of end-of-life care in older adults. *J Am Geriatr Soc* 2013;61:209–214.
4. Silveira MJ, Kim SYH, Langa KM. Advance directives and outcomes of surrogate decision making before death. *N Engl J Med* 2010;362:1211–1218.
5. Mack JW, Weeks JC, Wright AA, Block SD, Prigerson HG. End-of-life discussions, goal attainment, and distress at the end of life: predictors and outcomes of receipt of care consistent with preferences. *J Clin Oncol* 2010;28:1203–1208.
6. 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. *BMJ* 2010;340:c1345.
7. Bezzina AJ. Prevalence of advance care directives in aged care facilities of the Northern Illawarra. *Emerg Med Australas* 2009;21:379–385.
8. Brown M, Grbich C, Maddocks I, et al. Documenting end of life decisions in residential aged care facilities in South Australia. *Aust N Z J Public Health* 2005;29:85–90.
9. Nair B, Kerridge I, Dobson A, McPhee J, Saul P. Advance care planning in residential care. *Aust N Z J Med* 2000;30:339–343.

10. Taylor DM, Ugoni AM, Cameron PA, McNeil JJ. Advance directives and emergency department patients: ownership rates and perceptions of use. *Intern Med J* 2003;33:586–592.
11. Davison SN. Facilitating advance care planning for patients with end-stage renal disease: the patient perspective. *Clin J Am Soc Nephrol* 2006;1:1023–1028.
12. Johnston SC, Pfeifer MP, McNutt R. The discussion about advance directives—patient and physician opinions regarding when and how it should be conducted. *Arch Intern Med* 1995;155:1025–1030.
13. Maxfield CL, Pohl JM, Colling K. Advance directives: a guide for patient discussions. *Nurse Pract* 2003;28:338–347.
14. Tierney WM, Dexter PR, Gramelspacher GP, et al. The effect of discussions about advance directives on patients' satisfaction with primary care. *J Gen Intern Med* 2001;16:32–40.
15. Clayton JM, Hancock KM, Butow PN, Tattersall MH, Currow D. Clinical practice guidelines for communicating prognosis and end-of-life issues with adults in the advanced stages of a life-limiting illness, and their caregivers. *Med J Aust* 2007;186:S77–S107.
16. Royal Australian College of General Practitioners. Position statement: Advance care planning should be incorporated into routine general practice 2012. [28/2/2014]. Available at <http://www.racgp.org.au/your-practice/business/tools/support/acp/>.
17. Brown M. Participating in end of life decisions. The role of general practitioners. *Aust Fam Physician* 2002;31:60–62.
18. Cartwright C, Montgomery J, Rhee J, Zwar N, Banbury A. Medical practitioners' knowledge and self-reported practices of substitute decision making and implementation of advance care plans. *Intern Med J* 2014;44:234–239.
19. Rhee JJ, Zwar NA, Kemp LA. Advance care planning and interpersonal relationships: a two-way street. *Fam Pract* 2013;30:219–226.
20. Rhee JJ, Zwar NA, Kemp LA. Why are advance care planning decisions not implemented? Insights from interviews with Australian general practitioners. *J Palliat Med* 2013;16:1197–1204.
21. Escher M, Perrier A, Rudaz S, Dayer P, Perneger TV. Doctors' decisions when faced with contradictory patient advance directives and health care proxy opinion: a randomized vignette-based study. *J Pain Symptom Manage* 2015;49:637–645.
22. Black K. Health care professionals' death attitudes, experiences, and advance directive communication behavior. *Death Stud* 2007;31:563–572.
23. Hu W-Y, Huang C-H, Chiu T-Y, et al. Factors that influence the participation of healthcare professionals in advance care planning for patients with terminal cancer: a nationwide survey in Taiwan. *Soc Sci Med* 2010;70:1701–1704.
24. Lipson AR, Hausman AJ, Higgins PA, Burant CJ. Knowledge, attitudes, and predictors of advance directive discussions of registered nurses. *West J Nurs Res* 2004;26:784–796.
25. Baughman KR, Ludwick RE, Merolla DM, et al. Professional judgments about advance care planning with community-dwelling consumers. *J Pain Symptom Manage* 2012;43:10–19.
26. Ludwick R, Zeller RA. The factorial survey: an experimental method to replicate real world problems. *Nurs Res* 2001;50:129–133.
27. Ludwick R, Wright ME, Zeller RA, et al. An improved methodology for advancing nursing research—factorial surveys. *ANS Adv Nurs Sci* 2004;27:224–238.
28. De Vleminck A, Pardon K, Beernaert K, et al. Barriers to advance care planning in cancer, heart failure and dementia patients: a focus group study on general practitioners' views and experiences. *PLoS One* 2014;9:e84905.
29. Sinclair C, Auret KA, Burgess A. The balancing point: understanding uptake of advance directive forms in a rural Australian community. *BMJ Support Palliat Care* 2013;3:358–365.
30. Fried TR, Bullock K, Iannone L, O'Leary JR. Understanding advance care planning as a process of health behavior change. *J Am Geriatr Soc* 2009;57:1547–1555.
31. International Union Against Cancer. TNM classification of malignant tumours. Chichester, West Sussex: Wiley-Blackwell, 2010.
32. Vandenbroek SAJ, Vanveldehuisen DJ, Degraeff PA, et al. Comparison between New-York Heart Association Classification and peak oxygen-consumption in the assessment of functional status and prognosis in patients with mild to moderate chronic congestive-heart-failure secondary to either ischemic or idiopathic dilated cardiomyopathy. *Am J Cardiol* 1992;70:359–363.
33. Cacciatore F, Della-Morte D, Basile C, et al. Long-term mortality in frail elderly subjects with osteoarthritis. *Rheumatology (Oxford)* 2014;53:293–299.
34. Hawker GA, Croxford R, Bierman AS, et al. All-cause mortality and serious cardiovascular events in people with hip and knee osteoarthritis: a population based cohort study. *PLoS One* 2014;9:e91286.
35. Hox JJ, Kreft IGG, Hermkens PLJ. The analysis of factorial surveys. *Sociol Methods Res* 1991;19:493–510.
36. Snyder S, Hazelett S, Allen K, Radwany S. Physician knowledge, attitude, and experience with advance care planning, palliative care, and hospice: results of a primary care survey. *Am J Hosp Palliat Care* 2013;30:419–424.
37. Musa I, Seymour J, Narayanasamy MJ, Wada T, Conroy S. A survey of older peoples' attitudes towards advance care planning. *Age Ageing* 2015;44:371–376.
38. Noel-Miller C. Spousal loss, children, and the risk of nursing home admission. *J Gerontol B Psychol Sci Soc Sci* 2010;65:370–380.
39. Coward RT, Netzer JK, Mullens RA. Residential differences in the incidence of nursing home admissions across a six-year period. *J Gerontol B Psychol Sci Soc Sci* 1996;51:S258–S267.
40. Lunney JR, Lynn J, Hogan C. Profiles of older medicare decedents. *J Am Geriatr Soc* 2002;50:1108–1112.
41. Evans N, Pasman HR, Vega Alonso T, et al. End-of-life decisions: a cross-national study of treatment preference discussions and surrogate decision-maker appointments. *PLoS One* 2013;8:e57965.
42. Sinclair C, Smith J, Toussaint Y, Auret K. Discussing dying in the diaspora: attitudes towards advance care planning among first generation Dutch and Italian migrants in rural Australia. *Soc Sci Med* 2013;101:86–93.

43. Denning KH, Jones L, Sampson EL. Advance care planning for people with dementia: a review. *Int Psychogeriatr* 2011;23:1535–1551.
44. Weiner JS, Cole SA. ACare: a communication training program for shared decision making along a life-limiting illness. *Palliat Support Care* 2004;2: 231–241.
45. Detering K, Silvester W, Corke C, et al. Teaching general practitioners and doctors-in-training to discuss advance care planning: evaluation of a brief multimodality education programme. *BMJ Support Palliat Care* 2014;4:313–321.
46. Rao JK, Anderson LA, Inui TS, Frankel RM. Communication interventions make a difference in conversations between physicians and patients—a systematic review of the evidence. *Med Care* 2007;45:340–349.

*Appendix I***Clinical Information Used to Specify Levels of Each of the Psychosocial Factors**

Psychosocial factor	Level	Vignette text (patient names included as examples, all factor levels equally likely to appear as either gender, with names and pronouns adjusted accordingly)
Doctor-patient relationship	Poor	James has been a patient of yours for over five years now, however your main involvement with him has been in the period following his diagnosis. James doesn't like to reveal too much about himself, which can sometimes be a barrier to establishing effective communication.
	Good	Anne has been a patient of yours for over five years now, with regular check-ups. She is very compliant, friendly and you two enjoy each other's company.
Patient openness to ACP	Closed	Jeanette doesn't like to address issues concerning death or possible future incapacity, and she is difficult to approach on the topic.
	Open	Peter takes a very pragmatic approach to his own mortality. He willingly discusses death, and seems to have thought at length on how it may affect those around him.
Family support	Poor	Paula is a widow, her only child lives overseas and she does not have many friends who can assist her.
	Good	Richard has a very supportive partner and family, who are well informed as to his condition and seem to act only in his best interests.

ACP = advance care planning.

Appendix II
Clinical Information to Specify Medical Severity for Each of the Three Disease Types (Malignant, Cardiovascular, Osteoarthritis)

Disease Type	Medical Severity	Vignette Text
Malignant male: "James" female: "Paula"	Mild	James recently presented with a change in bowel habit, mild unexplainable weight loss, and a single episode of melena. A colonoscopy revealed a small polypoid adenocarcinoma in the sigmoid colon but failed to remove the polyp, which was later removed by partial colectomy. A CT excluded any metastatic disease and his cancer was given the TNM grading of T1N0M0. James is currently asymptomatic with an ECOG score of 0, but his oncologist recommends that he be kept under colonoscopy surveillance.
	Moderate	Paula received chemotherapy six years ago for colon cancer. One year ago she came to you complaining of abdominal pain, weight loss and occasional melena, and was found to have a local recurrence. As a result she had further surgical resection and chemotherapy. Unfortunately, a recent CT revealed a single metastatic lesion in the liver. Her oncologist has given her a T2N1M1 rating on the TNM scale and indicates 'potentially long-term disease control,' but maintains a somewhat guarded prognosis. Paula's current ECOG is 2.
	Severe	James has a 5-year history of colon cancer with metastasis detected 2 years ago (T4N1M1), and recent highly abnormal liver function tests indicating that the cancer burden in his liver is increasing. His main complaints are severe abdominal pain, loss of appetite (which has caused cachexia), and severe fatigue (which makes many activities of daily living almost impossible). His oncologist feels that since the disease has progressed despite 4th line treatments, that there is little he can do to help, suggesting palliative care. He is bedridden for >50% of the day and has an ECOG of 3–4.
Cardiovascular male: "Richard" female: "Anne"	Mild	Anne recently presented with occasional chest pain, and shortness of breath with moderate exertion. An echocardiogram showed left ventricular dysfunction with reduced ejection fraction. Her cardiologist classified her as Grade I on the New York Heart Association (NYHA) Classification; corresponding to "asymptomatic with ordinary activities." Anne is currently on ACE inhibitors and a diuretic, and care focuses on controlling risk factors such as cholesterol, blood pressure, and salt intake.
	Moderate	A left heart failure patient, Richard has been on ACE inhibitors and diuretics for a while now, but recently he has been complaining of dyspnoea, orthopnoea, fatigue and ankle swelling. As a result his cardiologist has increased his diuretic dosage and added a β -blocker to the regime. A recent echocardiogram shows left ventricular dysfunction with poor ejection fraction. Richard can still manage most activities of daily living on his own, but his condition has been upgraded to Grade IV on New York Heart Association (NYHA) Classification corresponding to "symptomatic at rest." His cardiologist wants to see him again in 6 weeks.
	Severe	A left heart failure patient, Anne is severely cachexic, reliant on Long Term Oxygen Therapy, and is chair bound for the majority of the day. She receives morphine for the dyspnoea, and is on maximal anti-failure treatment, but primarily her care is palliative. She is not a candidate for heart transplant, has a very poor ejection fraction and her cardiologist grades her at Grade IV on New York Heart Association (NYHA) Classification, corresponding to "symptomatic at rest".
Nondiseased osteoarthritis male: "Peter" female: "Jeanette"	Mild	Peter recently visited you complaining of pain in his left hip joint, which seem to be triggered with bouts of walking >10mins. After referral, the radiologist's report indicates grade II osteoarthritis of the left hip, characterised by definite joint space narrowing, defined osteophytes and some sclerosis, especially in the acetabular region. You have given him advice on weight loss and exercise to increase his hip's longevity. At present, paracetamol seems to be enough to control the pain.
	Moderate	Jeanette has osteoarthritis of the hip. Her most recent x-ray report, labels the severity at grade III, showing marked joint space narrowing, small osteophytes, some sclerosis and cyst formation and deformity of the femoral head and acetabulum. Her main complaints are constant throbbing pain and stiffness in the left hip, and sharp pains upon walking. She currently takes fish oil, glucosamine, paracetamol, NSAID and a low dose of opioid PRN. Her orthopedic surgeon has identified her as a suitable candidate for Total Hip Replacement and she has been placed on a 1-year waiting list.
	Severe	What appeared to be amenable osteoarthritis of the left hip, five years ago, is now inoperable. Peter has already had two total hip replacements and two surgical revisions in an attempt to ameliorate the deteriorating joint and loosening hip prosthesis. The consensus among his orthopedic surgeons is that there are no further surgical options available. He is currently wheelchair bound and receiving opioid-based analgesics.