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Acceptance of advance care planning among older adults in Mainland China: a national cross-sectional study

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Abstract

Background Acceptance of advance care planning (ACP) among older adults is important for the promotion of ACP. It is of great importance to explore the acceptance of ACP and associated influencing factors among older adults in China based on the health ecology model (HEM).

Methods Based on a national cross-sectional study in 2022, 4,180 older adults were included. Stepwise linear regression was used to analyze factors associated with acceptance of ACP using SPSS 26.0, based on the HEM. Acceptance scores were calculated based on a self-assessment visual analog scale (range, 0 ~ 100, with higher scores indicating higher acceptance of ACP).

Results 50.05% (2,092) of 4,180 participants were female. The median acceptance of ACP score was 64, and the range was (49, 81). In addition, the study found higher well-being index (β = 0.086; 95% CI, 0.199 to 0.535; $P < 0.001$) and health literacy (β = 0.054; 95% CI, 0.07 to 0.423; $P = 0.006$) scores, broader media use behaviors (β = 0.064; 95% CI, 0.127 to 0.419; $P < 0.001$), and a higher per capita monthly household income (β = 0.086; 95% CI, 1.827 to 3.825; $P < 0.001$) were associated with a higher acceptance of ACP, while participants with higher depression scores (β = -0.06; 95% CI, -0.435 to -0.129; $P < 0.001$), larger social network (β = -0.054; 95% CI, -3.289 to -0.937; $P < 0.001$), and health insurance (β = -0.04; 95% CI, -7.294 to -1.027; $P = 0.008$) demonstrated a lower acceptance of ACP.

Conclusions For the first time, this study revealed basic personal information, economic status, media use, social networks, health knowledge, and mental health as the main factors associated with acceptance of ACP among older adults in mainland China. These findings were of great significant for enhancing healthcare quality and the overall quality of life for older adults in China.

Keywords Acceptance of Advance Care Planning , Media Use, Health literacy, Older Adults in Mainland China, Health Ecology Model

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Background

Advance care planning (ACP) is a process that allows adults with decision-making capacity to share their future healthcare preferences [1]. Previous research indicates that ACP can improve healthcare professionals'understanding of individuals'preferences [2, 3], reduce use of invasive and ineffective treatments, and enhance the quality of end-of-life care for individuals [4]. Furthermore, ACP can alleviate the financial burden for families, and reduce anxiety, depression, and distress of family members [1–4]. Due to the decline in physical functioning and the complication of various chronic diseases, older adults approaching the end of life constitute a special group of particular interest for ACP [5, 6].

Since its introduction, developed countries have been actively promoting ACP to their citizens. According to a scoping review, citizens in Europe and the United States of America have a knowledge rate regarding ACP as high as 80–90% [7, 8]. Knowledge of ACP remains limited in Asia, particularly in China, due to the unevenness of economic development, historical and cultural context [9, 10]. This may also be attributable to the absence of death education, it was not until the 1980 s that the Chinese government and social organizations began to emphasize the promotion of death education [11].

Although there is considerable geographical variation in the extent of knowledge of ACP, in clinical and nursing practice, older adults from different countries often do not want to engage in ACP discussions with their families or healthcare providers before their death [12]. A review indicated that only 10 ~ 41% of respondents were willing to engage in, or had initiated, the ACP process [8]. Similarly, in China, fewer than 20% of older adults from Hong Kong would consider completing ACP in the future [13]. This was partly because of their perceived risks of emotional distress, fear, and mistrust [1, 7]. Studies identified reluctance to discuss death or dying were also reasons for low acceptance of ACP [7]. Especially in China, death has always been viewed as a taboo, with the far-reaching influence of the Confucian doctrine of "how to know death without knowing life", people are more focused on real-life issues and tend to avoid death-related topics, which often culminates in the neglect of ACP.

In countries with higher knowledge rates of ACP, general population are still experiencing low rates of ACP utilization, which may be attributed to lower acceptance of ACP among them. Given China's specific cultural and historical context mentioned above, as well as its background of the aging process and increasing incidence of chronic diseases, it is imperative to examine the acceptance of ACP among Chinese older adults. Previous studies primarily focused on the acceptance of ACP among healthcare professionals [4] or patients with chronic diseases [2] in Western countries [3] or on Chinese expatriates [1]. These studies concluded that acceptance of ACP was mainly related to the extent of their knowledge [1–3, 7, 8]. According to the ecological systems theory, life environment, social connections, and institutional regulations all influence health behavior such as ACP and make it more than just an individual decision [14]. However, to date, no studies have explored complicated factors such as sociological or psych behavioral factors associated with acceptance of ACP in older adults. What is more, research and practice related to ACP in China are still in the exploratory stage, and no studies have conducted a large-scale investigation of acceptance of ACP among Chinese older adults.

Consequently, we introduced the health ecology model (HEM) to comprehensively identify the associated factors. The HEM included individual characteristics, individual behaviors, interpersonal networks, life and work, and policy, and these five levels contribute to a comprehensive consideration of the factors associated with events from multiple perspectives [15]. The HEM has been widely used in the context of multiple aspects of health-related willingness. In addition, in comparison with other health behavior models, such as the Anderson model, the HEM has been shown to have a wide coverage and high recognition [14, 15]. Therefore, we conducted the first comprehensive survey in mainland China to gain insights into the acceptance of ACP among older adults. We also explored associated influencing factors based on the HEM, laying a foundation for promoting and implementing ACP in China.

Methods

Survey design and study participants

The information used in this study was acquired from the Psychology and Behavior Investigation of Chinese Residents (PBICR) study which was conducted from June 20 to August 31, 2022, covering a total of 780 townships and villages across 31 provinces, autonomous regions, and municipalities directly under the central government in China [16–18]. The study employed a multi-stage sampling method with a random digit table method based on the quota characteristics (i.e., gender, age, and urban–rural distribution) outlined in the data for each city in China's seventh national census. The specific quota method has been detailed in prior studies [17, 18].

A total of 21,916 individuals were included in the PBICR-2022 investigation. The investigators distributed the questionnaire via face-to-face or real-time video instruction using the web-based Questionnaire Star platform. The inclusion criteria for the initial PBICR participants were as follows: a. Signing an informed consent form with the researcher before voluntarily participating

in the study, which included the purpose of the study, anonymity, confidentiality, and other related rights; b. Chinese individuals aged ≥12 who volunteered to participate in the study; c. Participants who understood the meaning of all items in the questionnaire and could complete it independently; d. If participants were able to think but were not mobile enough to meet the questionnaire, the investigator conducted one-on-one interviews and provided non-interventional assistance. For this study, we extracted data for participants who were: a. Chinese aged ≥60 years; b. Permanent residents of China, with travel time ≤1 month per year. Based on the aforementioned inclusion criteria, a final sample of 4,180 cases was included (eFigure 1 in Supplement 1).

Quality control

Prior to the formal survey, the PBICR study underwent two rounds of pre-survey and two rounds of expert consultation. Following professional training, the surveyors distributed the questionnaires to the respondents individually, conducting face-to-face interviews and recording their unique codes for each participant. Regular summarization and evaluation of received questionnaires were conducted, with specific issues and prevailing situations being addressed through feedback mechanisms. Logic checks and data cleaning were independently carried out by two designated individuals. Once outliers were found in the data, original questionnaires were meticulously examined and cross-referenced with investigators to ensure data authenticity and reliability.

Ethical considerations

This study adhered to the principles outlined in the Declaration of Helsinki and obtained approval from the Ethics Research Committee of the Health Culture Research Center of Shaanxi (No. JKWH-2022–02). Prior to participating, all participants were mandated to provide informed consent. This study has been registered with the China Clinical Trial Registry (registration number ChiCTR2200061046||http://www.chictr.org.cn/) on June 15, 2022.

Research instruments

Based on the previous studies about HEM [1, 4, 6–8, 11, 15, 19–22], our questionnaire was divided into two parts in Table 1 and eFigure 2 in Supplement 1: dependent variable in this study included self-reported acceptance of ACP; independent variables in this study included factors across five levels: individual characteristics (gender, ethnicity, number of chronic diseases, well-being index, health literacy, self-efficiency), individual behaviors characteristics (religious belief, media use, depression, quality of life), interpersonal networks characteristics (urban–rural distribution, marital status, size of social network, perceived social support, living alone, family health, family type), life and work characteristics (education level, history of injuries, presence of debts, per capita monthly household income), and policy characteristics (possession of health insurance1, eligibility for subsidies).

After consulting professionals, we assessed older adults' acceptance of ACP by asking: "What is your acceptance level of advance care planning?". We used a visual analog scale (VAS) scoring from 0 to 100 to assess their acceptance of ACP, with higher scores indicating higher acceptance of ACP [23].

Participants themselves evaluated the size of their social network, and the original questionnaire defining categories as'0',1–4',5–9',10–19',20–49',50–99',100 or more'. For this study, response categories were consolidated as'< 20',20–49',50–99',100 or more'. Urban–rural distribution was determined based on the place of residence, where towns, suburbs, or central areas within the country were defined as urban, while villages and townships within the county (including the district) were defined as rural [18]. Types of families were classified into couple families (consisting of only a husband and wife), nuclear families (consisting of parents and unmarried children), main families (consisting of parents and married children), joint families (consisting of parents and two or more pairs of married children, or families in which siblings are married but not divided into separate households), and other forms of families.

Table 1 Associated factors of acceptance of ACP among older adults in China based on the HEM

Levels	Variables
Individual characteristics	Gender, Ethnicity, Number of chronic diseases, Well-being index, Health literacy, Self-efficiency
Individual behaviors	Religious belief, Media use, Depression, Quality of life
Interpersonal networks	Urban–rural distribution, Marital status, Size of social network, Perceived social support, Living alone, Family health, Family type
Life and work	Education level, History of injuries, Presence of debts, Per capita monthly household income
Policy	Possession of health insurance, Eligibility for subsidies

Single-parent families, Dink families (double income no kids), inter-generational families (consisting of two generations of grandparents and grandchildren), single-person families, and other forms of families were collectively defined'other forms of families'. The injury situation referred to whether the participant experienced an injury event in the last year, categorized as yes or no. The family debt situation was used to inquire about debt held by family members, including housing debt, education debt, automobile debt, business debt, financial debt, and other debt. If a participant had any of these debts, it was regarded as'being in debt'. Per capita monthly household income was defined as the total household income divided by the number of people in the household.

The Chinese version of a Short Form the Family Health Scale (FHS-SF) evaluates family health status, which was refined by Wang [24]. The FHS-SF comprises 4 dimensions, namely, (1) family, social, or emotional health processes; (2) family healthy lifestyle; (3) family health resources; and (4) family external social support, resulting in a total of 10 items. Total scores ranged from 10 to 50 points, with higher scores conveying greater family health. The Cronbach'α coefficient in this study was 0.78.

The Chinese version of the 5-item World Health organization Well-being Index (WHO-5) assesses the current state of well-being of the participants. The WHO-5 comprises of 5 items and is scored on a 6-point Likert scale. Each item score was multiplied by 4 for a total scale score ranging from 0 to 100 points, with higher scores indicating greater well-being [25]. The Cronbach'α coefficient in this study was 0.90.

The Chinese version of the Perceived Social Support Scale (PSSS) comprises 3 dimensions and 3 items, assessing perceived emotional support from friends, family, and others. Each item is scored on a 7-point Likert scale, with 1–7 points representing'strongly disagree'to'strongly agree'. Summed scores on the PSSS range from 3 to 21 points, with higher scores indicating higher levels of perceived social support [26]. The Cronbach'α coefficient in this study was 0.90.

The Chinese version of the European Quality of Life 5-Dimension 5-Level version (EQ-5D-5L) evaluates life quality. It comprises of 5 dimensions: (1) mobility; (2) capacity for self-care; (3) capacity for daily activities; (4) pain and discomfort; and (5) anxiety and depression. Each dimension is scored on a 5-point Likert scale. The summed scores of the EQ-5D-5L range from 5 to 25 points, with higher scores conveying greater levels of life quality [27, 28]. The Cronbach'α coefficient in this study was 0.73.

The Chinese version of the 12-item short-form health literacy scale (HLS-SF12) evaluates health literacy. The scale comprises of 12 items and is scored on a 4-point Likert scale, with 1–4 points indicating'very difficult'to'very easy'. The total score of the scale ranges from 12 to 48 points, with higher scores reflecting higher levels of health literacy [29]. The Cronbach'α coefficient in this study was 0.92.

The Chinese version of the Patient Health Questionaire-9 (PHQ9) assesses participants'depression symptoms. It consists of 9 items, each scored on a 4-point Likert scale, with 0–3 points representing'never'to'nearly every day'. The summed scores range from 0 to 27 points, with higher scores conveying more severe depressive symptoms [30]. The Cronbach'α coefficient in this study was 0.92.

The Chinese version of the New General Self-Efficacy Scale-Short Form (NGSES-SF) includes 3 items, including self-efficacy level, intensity, and universality. Each item is scored on a 5-point Likert scale, with 1–5 points indicating'strongly disagree'to'strongly agree'. The total score ranges from 3 to 15 points, with higher scores indicating greater levels of self-efficacy [31, 32]. The Cronbach'α coefficient in this study was 0.91.

The Media Use Scale (MUS) evaluates individuals'media consumption behaviors, which was developed by the PBICR survey of Peking University [33]. The scale comprises of 6 items: social communication, self-presentation, social action, leisure and entertainment, information acquisition through media, and commercial transactions. Each item was scored using a 5-point Likert scale, with 1–5 points representing'never used'to'always used'. The total score of the scale ranges from 6 to 30 points, with higher scores conveying higher levels of media use [33, 34]. The Cronbach'α coefficient in this study was 0.87.

Statistical methods

Initially, the Kolmogorov–Smirnov test was employed to assess the normality of continuous variables. As continuous variables exhibited a non-normal distribution, they were presented as the median and interquartile range (IQR). Categorical variables were reported as numbers and percentages. Non-normal distribution data were analyzed using non-parametric Wilcoxon rank sum test for comparison between two groups and Kruskal–Wallis -H -Test for comparison between multiple groups. Thirdly, the variance inflation factor was calculated to detect multicollinearity. Collinearity analysis in this study revealed no significant collinearity among the study variables (all variance inflation factor <5.00). Finally, a multiple stepwise regression analysis was performed to identify the association between variables and the willingness to engage in ACP, utilizing a stepwise method (entry criterion: $P< 0.05$, exit criterion: $P> 0.10$). The stepwise regression procedure systematically considered all

possible of variable combinations, selecting the best combination based on the fit criteria of the multiple regression model. The optimal model was chosen based on the R^2 values and the significance criterion ($P< 0.05$). This iterative process continued until no further enhancement in the model was achieved. All statistical analyzes were executed using SPSS (version 26.0).

Results

Sociological characteristics of the population

A total of 4,180 questionnaires were ultimately obtained. Among these, 2,092 (50.05%) respondents were male, 2,846 (68.00%) had attained an education level of high school or below, 2,332 (55.78%) resided in urban areas, and 3,939 (94.23%) had basic medical insurance. Additionally, 1,787 (42.75%) reported no chronic diseases, 3,487 (83.37%) were married and 2,630 (62.92%) reported a household income of less than 3000 yuan (Table 2).

Acceptance of ACP and related scale scores

The medium acceptability score of ACP in this study was 64 (range: 49, 81) (eFigure 3 in Supplement 1). The acceptance of ACP among participants appears to be relatively high, with variations observed across different provinces (Fig. 1). The scores of the scales included in this study were shown in eTable 1 and eResult 1 in Supplement 1.

One-way analysis of factors related to acceptance of ACP

The research findings indicated that religious belief ($H= -2.930$, $P= 0.003$), education level ($H= 14.080$, $P= 0.003$), number of chronic diseases ($H= 17.026$, $P= 0.001$), whether living alone ($H= -1.391$, $P= 0.042$), size of social network ($H= 20.856$, $P< 0.001$), possession of health insurance ($H= -2.186$, $P= 0.029$) and per capital monthly household income ($H= 30.524$, $P< 0.001$) were important factors related to acceptance of ACP among older adults (Table 2).

Multiple stepwise linear regression analysis of factors influencing acceptance of ACP

Multiple stepwise regression analysis revealed that higher scores on the WHO-5 ($\beta = 0.086$) and HLS-SF12 ($\beta = 0.054$) were related to higher acceptance of ACP at the personal characteristics level. At the individual behavior level, higher depression scores ($\beta = -0.06$) were associated to lower acceptance of ACP. At the interpersonal networks level, broader media use behavior ($\beta = 0.064$) was related to higher acceptance of ACP, while a larger size of social network ($\beta = -0.054$) was associated to lower acceptance of ACP. Higher per capita monthly household income ($\beta = 0.086$) was relevant to higher acceptance of ACP at the level of living and working. At the policy level, health insurance was associated to lower acceptance of ACP ($\beta = -0.04$; Table 3).

Discussion

Unlike previous studies of specific populations in one single center, this study is the first to explore the acceptance of ACP and the associated factors using the HEM framework among older adults through a nationwide survey in China. The median acceptable score of ACP was 64 (range: 49, 81), indicating a predominantly positive attitude towards ACP among older adults. Higher levels of health literacy and well-being at the individual level, lower levels of depressive symptoms at the individual behavior level, larger social networks and higher-frequency media use at the interpersonal network level, higher per capital monthly household income at the life and work level, and without medical insurance covering medical expenses at the policy level were associated with greater acceptance of ACP among older adults in China.

This study suggests that older adults are more likely to accept ACP when they have favorable economic resources and incomplete social security. Research has demonstrated that families with higher incomes are more capable of covering the expenses related to ACP and future healthcare costs [35]. Furthermore, previous research has shown that older adults with health insurance are less willing to undergo ACP [36]. In accordance with micro-economic theory, individuals will consider the costs and benefits when making a decision. When the marginal benefit exceeds the marginal cost, the individual will choose to engage in the behavior in question. Consequently, following the obtaining of health insurance, older individuals may perceive that they have secured sufficient health coverage, and the additional benefits of engaging in ACP may be outweighed by the costs (e.g., fear of death, financial burden) from their perspective. Understanding income levels and health insurance coverage can assist in identifying the preferences of different groups, developing targeted policies and interventions to promote ACP acceptance and implementation.

In this study, self-reported well-being index and depressive symptoms were significantly associated with older adults'acceptance of ACP. This result sheds light on the association between mental health and Chinese older adults'acceptance of ACP. According to Tsai et al., older adults with increased well-being index tended to accept ACP because they tended to hold more optimistic attitudes towards life, which may make them more confident and determined to face future challenges and uncertainties, and they were more willing to accept ACP for their future planning of medical affairs [37]. Additionally, depression may lead to negative future expectations and feelings of helplessness among older adults,

Table 2 Descriptive analysis of background characteristics ($n = 4,180$)

Variables		All ($N = 4,180$)	Acceptance score, Median (P25, P75)	H	*P* value
Level 1 Individual characteristics level					
Gender	Male	2,092 (50.05%)	63 (48, 81)	−0.117	0.906
	Female	2,088 (49.95%)	63 (49, 81)		
Ethnicity	Han nationality	3,793 (90.74%)	63 (48, 81)	−0.042	0.966
	Other nationality	387 (9.26%)	62 (46, 81)		
Number of chronic diseases	0	1,787 (42.75%)	65 (50, 83)	17.026	0.001
	1	1,244 (29.76%)	61(45, 80)		
	2	654 (15.65%)	61 (47, 79)		
	≥ 3	495 (11.84%)	63 (49, 81)		
Level 2 Individual behavior level					
Religious belief	No	3,842 (91.91%)	63 (49, 81)	−2.930	0.003
	Yes	338 (8.09%)	58 (43, 80)		
Level 3 Interpersonal networks level					
Urban–rural distribution	Rural	1,848 (44.21%)	63 (46, 80)	−2.032	0.042
	Urban	2,332 (55.78%)	63 (49, 81)		
Marital status	Divorced, widowed, or unmarried	695 (16.63%)	61 (46, 81)	−1.391	0.164
	Married	3,485 (83.37%)	63 (49, 81)		
Size of social network	< 20	3,857 (92.27%)	62 (48, 80)	20.856	< 0.001
	20–49	219 (5.24%)	72 (50, 93)		
	50–99	66 (1.58%)	69 (46, 87)		
	≥ 100	38 (0.91%)	80 (54, 92)		
Living alone	No	3,569 (85.38%)	63 (48, 81)	−0.436	0.663
	Yes	611 (14.62%)	62 (45, 83)		
Family type	Couple family	1,062 (25.40%)	62 (47, 82)	4.083	0.395
	Nuclear family	396 (9.47%)	60 (47, 79)		
	Main family	1,883 (47.05%)	64 (49, 81)		
	Joint family	257 (6.15%)	64 (49, 80)		
	Other	482 (11.53%)	63 (49, 80)		
Level 4 Life and work					
Education level	Junior high school and below	2,846 (68.09%)	62 (47, 80)	14.080	0.003
	High school and technical secondary school	751 (17.97%)	64 (49, 82)		
	Junior college	232 (5.55%)	65 (51, 83)		
	Bachelor degree or above	351 (8.39%)	66 (50, 84)		
History of injuries	No	3,630 (86.84%)	63 (48, 81)	−0.566	0.571
	Yes	550 (13.16%)	65 (49, 81)		
Presence of debts	No	3,424 (81.91%)	63 (47, 81)	−1.133	0.257
	Yes	756 (18.09%)	65 (50, 80)		
Per capita monthly household income (yuan)	≤ 3000	2,630 (62.92%)	61 (46, 80)	30.524	< 0.001
	3001–6000	910 (21.77%)	66 (50, 82)		
	≥ 6001	640 (15.31%)	68 (51, 82)		
Level 5 Policy level					
Possession of health insurance	No	241 (5.77%)	66 (50, 92)	−2.186	0.029
	Yes	3,939 (94.23%)	63 (48, 81)		
Eligibility for subsidies	No	2,838 (67.89%)	63 (47, 81)	−0.562	0.574
	Yes	1,342 (32.11%)	64 (49, 80)		

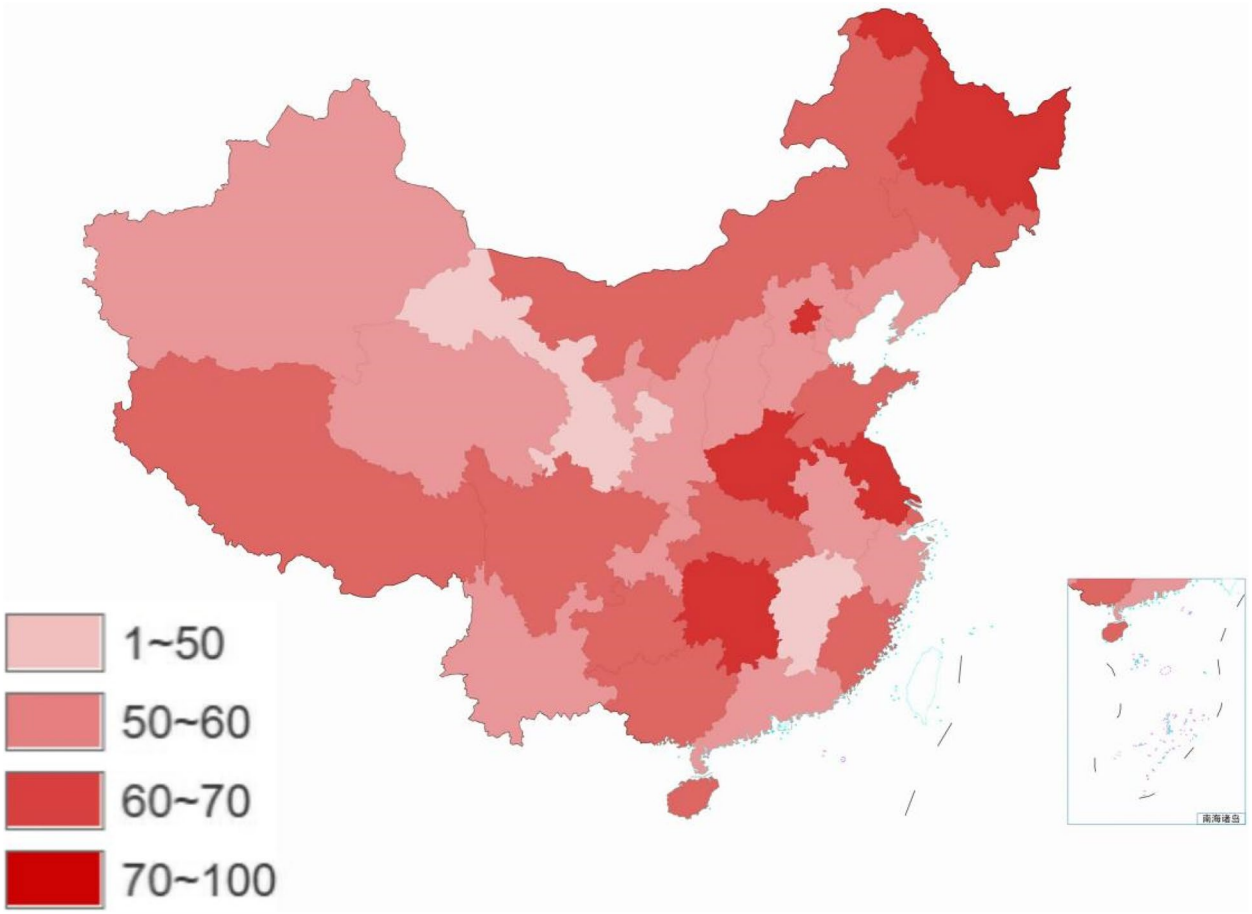

Fig. 1 The acceptance level of advance care planning among residents in different provinces. Scores can range from 0 to 100. Higher scores indicate higher acceptance of advance care planning

Table 3 Stepwise regression analysis of factors associated with acceptance of ACP ($n = 4,180$)

	Unstandardized coefficient		Standardized coefficient	t	*P*	95% *CI* for B		
	B	SE	Beta			Upper limit	Lower limit	VIF
	42.876	2.898		14.792	< 0.001	37.193	48.558	
Level 1 Individual characteristics level								
Well-being index	0.367	0.086	0.086	4.280	< 0.001	0.199	0.535	1.826
Health literacy	0.247	0.090	0.054	2.744	0.006	0.070	0.423	1.720
Level 2 Individual behavior level								
Depression	−0.282	0.078	−0.060	−3.619	< 0.001	−0.435	−0.129	1.221
Level 3 Interpersonal networks level								
Urban–rural distribution	−1.684	0.774	−0.034	−2.175	0.06	−3.201	−0.166	1.116
Size of social network	−2.113	0.600	−0.054	−3.522	< 0.001	−3.289	−0.937	1.044
	0.273	0.074	0.064	3.668	< 0.001	0.127	0.419	1.346
Level 4 Life and work								
Per capital monthly household income	2.826	0.509	0.086	5.548	< 0.001	1.827	3.825	1.088
Level 5 Policy level								
Possession of health insurance	−4.192	1.582	−0.040	−2.649	0.008	−7.294	−1.090	1.027

which may hinder their decision-making and planning [38, 39]. High levels of well-being and low depressive symptoms are both tangible signs of good mental health, and according to previous research, maintaining good mental health reduces anxiety about frailty and death in older adults [40], which has been proved to be associated with high acceptance of ACP. Therefore, to improve older adults'quality of life and future healthcare planning abilities, it is imperative to deepen our understanding of their mental health. We must concentrate on enhancing their well-being and alleviating depression, thereby fostering their acceptance of ACP.

This study identified a positive correlation between health literacy and older adults'acceptance of ACP, aligning with previous research and underscoring the pivotal role of health literacy in healthcare decision-making [41]. Health literacy refers to an individual's capacity to access, comprehend, and apply health-related information to sustain their well-being [28]. Insufficient health literacy can lead to a lack of understanding of one's medical condition, inadequate self-care, delayed healthcare seeking, and underutilization of preventive services [42]. Conversely, according to health promotion theory adequate health literacy, empowers older adults to gain insight into their health status, actively engage in ACP for personal health management, and make well-informed healthcare decisions [43, 44]. Moreover, studies have shown that health literacy, besides ACP, can aid individuals in making better informed choices regarding health-promoting behaviors such as gene therapy [17], organ donation [45], mobile medical devices [18], and hospice care [22]. Therefore, healthcare professionals and policymakers should offer easily understandable information and educational resources to assist older adults in grasping the significance of ACP and effectively utilizing these programs to safeguard their health.

Media use facilitates widespread access to information, potentially influencing older adults'perceptions of novel medical approaches by acquainting them with ACP or other health promotion initiatives [46, 47]. What is more, the impact of media use on older adults'acceptance of ACP to may vary depending on the information source [46]. Information released by official sources, such as health departments or medical organizations, is often authoritative and trustworthy [48]. In contrast, expert opinions and user-generated content on social media may provide older adults with more specific and relevant experiences and advice on ACP [49]. Therefore, to maximize the impact of media on acceptance of ACP among older adults, it is necessary to consider the characteristics and audience positioning of different media. Information should be designed and distributed in a targeted manner to meet older adults'diverse needs and preferences [50].

Interestingly, this study found a negative relationship between the acceptance of ACP and social networks. Indeed, studies conducted on social networks and acceptance of ACP are relatively limited [51]. A possible explanation is that due to the lack of knowledge or understanding about ACP and exposure to negative information, they concerned about the program within their social circles [52]. Moreover, according to the herd effect, older adults are more susceptible to being influenced by the opinions of others in social networks and may adopt the attitudes of the majority [53]. This phenomenon is known as assimilation [54]. For instance, if individuals in their social networks hold skeptical or opposing views about ACP, it may decrease their willingness to participate in the program [51]. In contrast, individuals with smaller social networks may need more access to health information and support from friends and family. In such cases, ACP can offer extra guidance and assistance [55]. Further research is required to elucidate the role of social networks on ACP intentions and the specific mechanisms involved. Therefore, when promoting ACP, it is essential to consider the role of social networks and take effective measures, such as raising awareness and understanding of ACP through education and publicity [56, 57]. This can encourage more older adults to actively engage and reap the benefits of ACP.

Several potential limitations of this study should be acknowledged. First, the research was conducted at the community level and did not include data analysis among hospitalized patients, which may limit the generalization performance of the findings. Second, the questionnaire in this study included self-report and self-assessment sections, which could introduce bias to the results. Third, this study used a cross-sectional design, which can only describe correlations rather than establish causality between factors. Finally, we measured the acceptance of ACP by a single item that may be understood differently by different participants.

Conclusions

This HEM-based, cross-sectional study provided insights into the acceptance of ACP by older adults in mainland China. The results indicated that economic status, media use, social networks, health literacy, and mental health were critical factors determining the acceptance of ACP among these older adults. Our findings suggested that disseminating accurate and easy-to-understand health information to the public through media channels might positively affect their acceptance of ACP. Consequently, enhancing older adults'levels of health literacy would increase their acceptance of ACP. Additionally, maintaining good mental health and living in urban areas were associated with improved acceptance of ACP among older adults. Conversely, lower economic status and less comprehensive social security might be associated with lower acceptance of ACP in older adults in China.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12889-025-22892-0.

Supplementary Material 1.

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Authors' contributions
Yisong Yao, Xinyue Zhang and Yumei Li shared the first authorship on this work. Conceptualization: Yisong Yao, Xinyue Zhang, Ling Jiang and Yibo Wu. Methodology: Yisong Yao, Xi Chen and Ling Jiang and Yumei Li. Data validation and analyses: Yisong Yao, Ling Jiang, Limin Li and Xiaoqian Xia. Data interpretation: All authors. Writing—original draft preparation: Yisong Yao, Ling Jiang and Xiaoqian Xia. Writing—review and editing: Yisong Yao, Yumei Li, Yibo Wu and Xicheng Song. Supervision: All authors. Final approval of manuscript: All authors.

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Data availability
No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate
The Ethics Research Committee of the Health Culture Research Center of Shaanxi approved this study (No. JKWH-2022–02). All participants provided informed consent before data collection, and all data were kept strictly confidential. All methods in our study were performed following the guidelines and regulations of the Declaration of Helsinki.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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