Factors Influencing Surrogate Decision-Makers' Participation in Advance Care Planning for Advanced Cancer Patients: A Mixed-Methods Systematic Review (Postprint)

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Abstract

Background Domestic research on Advance Care Planning (ACP) for surrogate decision-makers of advanced cancer patients is still in its infancy, with studies being fragmented and lacking specificity, and there is a dearth of systematic analysis of its influencing factors. Objective To systematically evaluate the influencing factors of ACP participation among surrogate decision-makers of advanced cancer patients, thereby providing a reference for subsequent research in this domain. Methods This study constitutes a mixed-methods systematic review. In April 2022, a computerized search was conducted across CNKI, Wanfang Data Knowledge Service Platform, PubMed, EmBase, the Cochrane Library, Web of Science, and CBM to retrieve studies concerning factors influencing ACP participation among surrogate decision-makers of advanced cancer patients. The search timeframe spanned from database inception to July 1, 2022. Following quality assessment and data extraction of included studies, the JBI mixed-methods systematic review guideline methodology was employed to separately extract data from quantitative and qualitative studies, integrate the data, induce themes, and derive the final influencing factors of surrogate decision-makers' ACP participation. Results Following literature screening and quality assessment, 11 studies were included, comprising 5 qualitative studies and 6 cross-sectional studies. Integration of quantitative and qualitative analysis results yielded four categories of synthesized findings: personal factors, external support, information acquisition, and disease status, with a total of 22 influencing factors extracted, including religious beliefs and clan culture, social networks, ACP awareness, and disease progression expectations. Conclusion The influencing factors of ACP participation among surrogate decision-makers of advanced cancer patients are multifaceted. Public awareness, communication, policies and regulations, and personal characteristics of surrogate decision-makers influence their ACP participation. Therefore, efforts should be made to strengthen relevant education to enhance public awareness, establish effective communication mechanisms among patients-surrogate decision-makers-healthcare providers, improve relevant policies and regulatory safeguards, and enhance guidance and intervention for modifiable factors.

Full Text

Abstract

Background: Research on Advance Care Planning (ACP) for surrogate decision-makers of advanced cancer patients in China remains in its infancy, with existing studies being fragmented and lacking targeted focus. Systematic analysis of influencing factors is notably absent.

Objective: To systematically review factors influencing ACP participation among surrogate decision-makers for advanced cancer patients, providing a reference for future research in this domain.

Methods: This study employed a mixed-methods systematic review approach. In April 2022, we conducted comprehensive database searches of CNKI, Wanfang Data, PubMed, EmBase, the Cochrane Library, Web of Science, and CBM for studies examining factors influencing ACP participation among surrogate decision-makers for advanced cancer patients. The search timeframe spanned from database inception to July 1, 2022. Following quality assessment and data extraction, we applied the JBI Mixed Methods Systematic Review methodology to integrate quantitative and qualitative data separately, then synthesized themes to identify final influencing factors.

Results: Eleven studies met inclusion criteria after screening and quality assessment—five qualitative studies and six cross-sectional studies. Integration of quantitative and qualitative analyses yielded four overarching categories: personal factors, external support, information acquisition, and disease status, encompassing 22 specific factors including religious beliefs and clan culture, social networks, ACP awareness, and disease progression expectations.

Conclusion: Multiple factors influence ACP participation among surrogate decision-makers for advanced cancer patients. Public awareness, communication patterns, policies and regulations, and personal characteristics of surrogate decision-makers all affect their ACP engagement. Therefore, efforts should strengthen public education to enhance awareness, establish effective communication mechanisms among patients, surrogate decision-makers, and healthcare providers, improve policy and regulatory protections, and provide targeted guidance and intervention for modifiable factors.

Keywords: Hospice care; Advance care planning; Terminally ill; Surrogate decision-maker; Influencing factors; Mixed-methods systematic review

Introduction

Advance Care Planning (ACP), also known as advance medical planning or advance care planning, constitutes a vital component of hospice-palliative care [1]. While ACP remains relatively unknown in China, public response has been generally positive, particularly among advanced cancer patients [2]. ACP represents a process through which terminally ill patients, armed with comprehensive information about their condition and end-of-life care options, express their medical preferences based on lived experience and personal values. Patients can establish tripartite communication mechanisms with family members and healthcare providers while conscious, negotiate treatment plans, and make timely modifications; alternatively, they may designate a surrogate decision-maker to express medical wishes when decision-making capacity declines, consciousness is lost, or the condition deteriorates rapidly [3].

In China, surrogate decision-makers are established according to Article 33 of the *Regulations on Administration of Medical Institutions* [4] and Article 1045 of the *Civil Code* [5], primarily comprising blood relatives. Investigations reveal that concealing medical conditions remains common in clinical practice for advanced cancer patients, with physicians more inclined to communicate with family members rather than directly informing patients [6]. This phenomenon results in patients lacking understanding of their own condition, making their end-of-life decisions and their implementation largely subject to family or clan influence. Low ACP participation among surrogate decision-makers may lead to ambiguity in patient-value-oriented care goals and medical priorities. Whether surrogate decision-makers actively participate in ACP is influenced by multiple external factors, personal conditions, and individual emotions [7]. Current ACP research primarily focuses on questionnaire adaptation, policy development, and factor analysis [8-9], with study populations concentrated on patients and healthcare professionals [10-11]. Research examining influencing factors of ACP participation from the surrogate decision-maker perspective remains controversial. This study employs mixed-methods methodology to systematically review included qualitative and quantitative research, thereby comprehensively identifying factors influencing ACP participation among surrogate decision-makers for advanced cancer patients and accumulating evidence for early intervention and policy development.

Methods

1.1 Inclusion and Exclusion Criteria

Inclusion criteria: (1) Study subjects were surrogate decision-makers (aged $ $18 years, legally designated, with advanced cancer patients as their wards [any cancer type]); (2) Study designs included cross-sectional studies and qualitative studies employing phenomenology, grounded theory, ethnography, and similar approaches; (3) Research content focused on factors influencing ACP participation among surrogate decision-makers; (4) Study results identified influencing factors; (5) Publications in Chinese or English.

Exclusion criteria: (1) Studies from which influencing factors could not be extracted; (2) When both a dissertation and journal article from the same research team reported identical content, the journal article was excluded; (3) Studies with incomplete data; (4) Case reports, policy documents, conference proceedings, etc.; (5) Duplicate publications.

1.2 Literature Search Strategy

In April 2022, we systematically searched CNKI, Wanfang Data, PubMed, EmBase, the Cochrane Library, Web of Science, and CBM for studies on factors influencing ACP participation among surrogate decision-makers for advanced cancer patients. The search timeframe extended from database inception to July 1, 2022. Chinese databases were searched using the subject terms: "cancer advanced/malignant tumor advanced/tumor advanced" AND "surrogate decision-maker/substitute decision-maker/agent" AND "advance care planning/advance directive/living will/ACP/AD/LW." English databases were searched using: "advance care planning/advance directive/living will/ACP/AD/LW" AND "surrogate decision/substitute decision/proxy decision/maker agent" AND "terminal/end-stage/advanced" AND "neoplasms/cancer/oncology/tumour/malignancy" AND "influencing factor*/influence factor*/*impact factor*/relevant factor*/*correlative factor*/relative factor*/*associated factor*/predictor*." The CNKI search strategy exemplified: ("cancer advanced" + "malignant tumor advanced" + "tumor advanced") AND ("surrogate decision-maker" + "substitute decision-maker" + "agent") AND ("advance care planning" + "advance directive" + "living will" + "ACP" + "AD" + "LW").

1.3 Literature Screening and Data Extraction

Two researchers independently conducted literature screening. Endnote software was first used to remove duplicates, followed by title and abstract review for initial screening, and finally full-text review for secondary screening. Disagreements were resolved by a third researcher or through group discussion. Data extraction included: paper title, author, sample size, publication date, data collection methods, and identified influencing factors from each study's results.

1.4 Literature Quality Assessment

We used JBI evidence-based healthcare center assessment tools to evaluate the quality of included cross-sectional and qualitative studies. The cross-sectional study tool contains nine items, while the qualitative study tool contains ten items [12]. Each item was rated as "not applicable," "unclear," "no," or "yes." Qualitative studies were graded based on philosophical foundation, methodology, and participant representativeness; cross-sectional studies were graded based on sampling methods, sample size, and data analysis approaches.

Cross-sectional study grading criteria: Studies meeting all items (minimal bias) were rated A; those meeting 6-8 items (moderate bias) were rated B; those meeting 3-5 items or none (highest bias) were rated C. **Qualitative study grading criteria:** Studies meeting all items were rated A; those meeting 1-9 items were rated B; those meeting none were rated C. Discrepancies between reviewers were resolved through discussion or third-party arbitration. Only studies rated A or B were included; C-rated studies were excluded.

1.5 Data Analysis Methods

The JBI Mixed Methods Systematic Review methodology integrates core concepts from realist synthesis and Bayesian approaches by separately integrating results from different research methods, then transforming quantitative synthesis results into qualitative descriptions to combine with qualitative synthesis findings [12-14]. This three-step process involves: (1) separately extracting data from quantitative and qualitative studies; (2) transforming quantitative integration results into qualitative descriptions by extracting data from quantitative studies and translating them into textual narratives, including descriptive statistics (means or percentages), cluster or factor analysis data, longitudinal variance components, and inferential statistics (linear or logistic regression) examining associations; (3) combining qualitative descriptions with qualitative integration results to determine integration categories, summarize themes, and derive final integrated findings. The methodology posits that quantitative and qualitative integration results address different aspects of research and cannot verify or refute each other but rather complement one another [12].

Results

2.1 Literature Search Results

The initial search yielded 4,156 relevant articles. After reference tracing, duplicate removal, and two rounds of screening, 12 articles were ultimately included (3 Chinese, 9 English). The screening process is illustrated in Figure 1 [Figure 1: see original paper].

2.2 Basic Characteristics and Quality Assessment of Included Studies

Following screening and quality assessment, 11 studies were included (3 Chinese, 8 English), all rated A or B in quality, with a total sample size of 9,070 participants. Twenty-two influencing factors were identified, including gender, age, economic capacity, and generational differences. Basic characteristics and factor types are presented in Table 1 . Among the 11 studies, five were qualitative (quality assessment in Table 2) and six were cross-sectional (quality assessment in Table 3).

2.3 Qualitative Meta-Integration Results

Analysis of included literature identified 58 findings, which were synthesized into 11 categories of influencing factors for surrogate decision-maker ACP participation. These were further integrated into four overarching results: (1) personal factors; (2) external support; (3) information acquisition; and (4) disease status.

2.3.1 Integration Result 1: Personal Factors Category 1: Religious Beliefs and Clan Culture. Some surrogate decision-makers held firm religious beliefs, trusting divine power to help patients overcome illness, while others held negative attitudes toward treatment, viewing disease suffering as "original sin" that should not be artificially intervened with, leading to reduced ACP participation ("Perhaps this is a trial they must endure; whether they wake up depends on God, as doctors have already provided the best treatment" [20]). In China, long-standing clan culture profoundly influences individual thinking. Concepts such as "harmony in the family brings prosperity," "parental kindness and filial piety," and "reporting good news but not bad" hinder discussions about illness among surrogate decision-makers, patients, and other family members, thereby reducing ACP participation ("I always avoid this topic; if I discuss it with him, he'll definitely think I don't want to treat him anymore" [16]).

Category 2: Economic Capacity. The income level of surrogate decision-makers or patient families directly affects medical treatment plans. Those with strong economic capacity, unconstrained by financial limitations, actively discuss patient conditions with physicians and seek advanced treatments, demonstrating higher ACP participation ("We use imported medications now; they're more effective than domestic ones, and we don't consider economic issues. The person in the next bed probably went home because they couldn't afford it, or perhaps there was simply no cure" [16]).

Category 3: Generational Differences. Younger surrogate decision-makers view ACP as a future societal trend and thus show higher participation; older individuals with more conservative thinking demonstrate lower ACP participation when serving as surrogate decision-makers ("My mother didn't receive much education and is quite conservative; young people like us are different" [15]).

2.3.2 Integration Result 2: External Support Category 4: Social Networks. When medical decisions communicated by surrogate decision-makers fail to gain approval from their interpersonal networks or even face public pressure, ACP participation decreases. Conversely, when surrogate decision-makers receive support and encouragement, their ACP participation increases ("If I give up treatment, family members will definitely say, 'Hey, Mom lives with you; how can you not rescue her when she's sick?' " [15]).

Category 5: Physician-Patient Communication. When surrogate decision-makers fail to proactively seek communication or when clinical healthcare providers, burdened by heavy workloads, cannot frequently and actively communicate with patients and surrogate decision-makers, both parties possess limited understanding of the condition. When patients experience rapid deterioration, surrogate decision-makers, lacking clear medical instructions and disease comprehension, question their own judgment and feel unqualified for decision-making, thereby reducing ACP participation ("If cancer cannot be cured and I cannot do this alone [i.e., discuss healthcare and cancer treatment], I need professional help" [20]).

Category 6: Policy and Regulatory Protection. ACP development in mainland China remains in its infancy. Documents prepared through ACP procedures lack legal binding force, and patients' wishes for medical care are not fully respected. Consequently, some surrogate decision-makers question ACP effectiveness, believing it lacks practical problem-solving functionality, leading to reduced participation ("What's the use of [ACP]? In the end, whether to resuscitate or not is decided by family members. [Without legal protection] what the patient says doesn't count, and nobody knows what they really think" [15]).

2.3.3 Integration Result 3: Information Acquisition **Category 7: ACP Awareness.** In mainland China, ACP suffers from low promotional penetration and high public cognitive bias. Some surrogate decision-makers and family members equate ACP with inducing patients to abandon treatment, resulting in low participation enthusiasm ("They're afraid that if family members are bad, they'll deliberately kill him; that's why our country doesn't have euthanasia" [16]).

Category 8: Surrogate Decision-Maker-Patient Communication. During ACP processes, patients' end-of-life treatment decisions, care goals, and priorities are thoroughly discussed, enabling surrogate decision-makers to better understand patient wishes. This avoids the psychological burden of making hasty medical decisions without understanding patient preferences and partially alleviates the responsibility burden of making decisions for others. Therefore, good communication between surrogate decision-makers and patients can enhance ACP participation ("If we hadn't discussed it, I don't think I could have made these decisions" [18]).

Category 9: Relevant Decision-Making Experience. Prior ACP participation experience or relevant medical decision-making experience constitutes an important influencing factor ("I lost both parents to the same thing, so I know how to talk to him. Having experienced this before greatly helped my decision-making this time" [18]).

2.3.4 Integration Result 4: Disease Status **Category 10: Patient Disease Progression Expectations.** Advanced cancer patients face complex conditions, rapid progression, poor clinical intervention outcomes, and difficult decision implementation, leaving patients and surrogate decision-makers with insufficient energy and emotional capacity to consider ACP development ("This disease can't be cured anyway; what's the use of planning? You can only take it one step at a time" [16]).

Category 11: Self-Health Status. Surrogate decision-makers' own health conditions affect their perspectives on ACP. If surrogate decision-makers suffer from serious illnesses or have experienced major medical events that exposed them to death-related fear, they may be unwilling to discuss ACP or other death-related topics with patients ("I have breast cancer myself, and my husband's condition is more severe… No one should be more empathetic than me in understanding his fear of disease" [18]).

2.4 Quantitative Research Results

2.4.1 Personal Factors **(1) Gender:** Five studies [17,21-23,25] examined the relationship between gender and ACP participation, with two studies [17,25] indicating gender as an influencing factor but reaching opposite conclusions ($P<0.05$). **(2) Age:** Four studies [21-23,25] assessed age, with two studies [21-22] showing age as an influencing factor—older age correlated with higher participation ($P<0.05$). **(3) Ethnicity:** One study [22] identified ethnicity as an influencing factor, with Caucasians showing higher ACP participation than other ethnic groups ($P<0.05$). **(4) Marital Status:** Three studies [22-23,25] evaluated marital status, with one study [22] indicating marital status as an influencing factor—unmarried individuals showed higher participation than married individuals ($P<0.05$). **(5) Education Level:** Three studies [21-23] assessed education level, with one study [21] demonstrating that higher education correlated with higher ACP participation ($P<0.05$). **(6) Economic Capacity:** Three studies [21-23] evaluated economic capacity, with one study [22] showing that those refusing to disclose financial status had higher participation ($P<0.05$), while two studies [21,23] found no relationship between income and ACP participation. **(7) End-of-Life Attitudes:** Two studies [21,24] indicated that surrogate decision-makers' attitudes toward end-of-life care and supportive treatment influenced participation—more positive attitudes correlated with higher participation ($P<0.001$).

2.4.2 External Support **(1) Family Relationships:** One study [23] showed that relationships between surrogate decision-makers and family members influenced participation—those with poor family relationships or not living with family demonstrated lower participation ($P<0.05$). **(2) Family Member Count:** One study [25] indicated that the number of family members was an influencing factor—more family members correlated with lower ACP participation ($P<0.05$). **(3) Policy and Regulatory Protection:** One study [24] demonstrated that policy and regulatory protection influenced participation—lack of ACP implementation safeguards reduced participation ($P<0.05$).

2.4.3 Information Acquisition **(1) ACP Awareness:** Three studies [17,23-24] showed that surrogate decision-makers' ACP knowledge level influenced participation—higher awareness correlated with higher participation ($P<0.05$). **(2) HPC Awareness:** One study [21] indicated that hospice-palliative care (HPC) awareness was an influencing factor—higher HPC awareness correlated with higher ACP participation ($P<0.001$). **(3) Relevant Decision-Making Experience:** One study [17] demonstrated that prior end-of-life medical decision-making experience increased ACP participation compared to those without such experience ($P<0.05$).

2.4.4 Disease Status **(1) Disease Progression Expectations:** One study [24] showed that expectations regarding disease progression in advanced cancer patients influenced participation—more negative expectations correlated with higher ACP participation ($P<0.05$). **(2) Illness Uncertainty:** Two studies [17,24] indicated that illness uncertainty was an influencing factor—greater uncertainty correlated with lower participation ($P<0.05$). **(3) Cancer Disease Course:** One study [23] demonstrated that longer cancer disease course correlated with higher ACP participation ($P<0.05$).

2.5 Integration of Qualitative and Quantitative Results

Integrating quantitative and qualitative analyses yielded four final categories: personal factors, external support, information acquisition, and disease status, encompassing 22 influencing factors such as religious beliefs and clan culture, social networks, ACP awareness, and disease progression expectations. Specific results are illustrated in Figure 2 [Figure 2: see original paper].

ACP represents a self-management process for current and future health threats. When patients designate surrogate decision-makers, it requires surrogates to enhance their understanding of objective patient conditions and participate in decision-making. Their ACP participation relates to the interaction between perception and behavior [26].

Discussion

3.1 Impact of Personal Factors on Surrogate Decision-Maker ACP Participation

In clinical practice, surrogate decision-maker participation is influenced by religious beliefs and clan culture, economic capacity, generational differences, gender, age, ethnicity, marital status, education level, and end-of-life attitudes, though current findings remain controversial. Festinger's cognitive dissonance theory [27] posits that exposure to information inconsistent with existing beliefs creates psychological discomfort, explaining how surrogate decision-makers from different gender, age, ethnic, and marital backgrounds exhibit biased information processing when facing patients' end-of-life ACP needs due to cognitive conflict effects [28]. This phenomenon is particularly common among surrogate decision-makers with firm religious beliefs, deep clan cultural influences, conservative views, lower education levels, or negative end-of-life attitudes, manifesting as avoidance of death-related discussions including ACP due to psychological factors like "taboo" or "jinx" concerns [29], and as fear-based avoidance of ACP decision-making pressure and dilemmas, consistent with Li et al.'s findings [7].

3.2 Impact of External Support on Surrogate Decision-Maker ACP Participation

This study identified social networks, physician-patient communication, policy and regulatory protection, family relationships, and family member count as influencing factors. ACP emphasizes disease discussion processes among patients, surrogate decision-makers, and healthcare providers, aiming to reduce decisional conflict at life's end, improve death quality, and alleviate family anxiety and suffering [30-31]. Since China has not incorporated ACP into routine healthcare processes and lacks corresponding legal and regulatory safeguards (only Shenzhen has enacted ACP-related laws), effective ACP communication pathways have not been established. The public lacks systematic ACP understanding, with widespread cognitive bias equating ACP with treatment withdrawal or euthanasia, which intensifies public pressure on surrogate decision-makers regarding illness discussion and medical decision-making, fostering avoidance psychology [29]. Previous research shows China's general education lacks open discussion of death, and unfavorable public opinion environments hinder ACP promotion and implementation [29]. Additionally, surrogate decision-maker participation is affected by their knowledge and information mastery. Faced with professional disease care and medical choices, surrogate decision-makers may blindly follow medical advice or even abandon participation due to lack of medical knowledge. ACP communication is typically initiated by healthcare providers as information sources. Good physician-patient communication processes help surrogate decision-makers understand objective patient status and enhance ACP participation, similar to Wang et al.'s findings [32]. In China's family-oriented society, surrogate decision-makers and patients prefer a "family-centered" decision-making model. Bell [33] notes this model should be implemented after comprehensive family assessment, where factors including family relationships, economic capacity, and member count influence surrogate decision-making behavior. Tighter family relationships and more family members create greater pressure from collective family will on surrogate decision-makers, making decisional balance difficult to achieve and negatively impacting their decision-making behavior.

3.3 Impact of Information Acquisition on Surrogate Decision-Maker ACP Participation

This study found ACP awareness, HPC awareness, relevant decision-making experience, and surrogate decision-maker-patient communication as influencing factors. Michie et al.'s Behavior Change Wheel (BCW) theory [34] analyzes individual behavior mechanisms and influencing factors, proposing that behavior formation requires capability, opportunity, and motivation. When surrogate decision-makers fully understand ACP and HPC concepts and possess relevant medical decision-making experience, they demonstrate capability for ACP participation, consistent with Xing et al.'s findings [35]. Since surrogate decision-makers are designated by patients, their emotional and interest bonds are relatively strong. When surrogate decision-makers communicate sufficiently with patients, understand patients' medical care wishes, and reach consensus on care plans, they possess both opportunity and motivation for ACP participation.

3.4 Impact of Disease Status on Surrogate Decision-Maker ACP Participation

This study identified disease progression expectations, self-health status, illness uncertainty, and cancer disease course as influencing factors. Advanced cancer not only severely impacts patients' physical and mental health but also serves as a stressor significantly affecting surrogate decision-makers [36]. Mishel's Uncertainty in Illness Theory [37] proposes that surrogate decision-makers' lack of information regarding disease processes and prognosis interferes with their ability to seek disease-related information and make corresponding decisions. When surrogate decision-makers hold pessimistic disease expectations, they further avoid illness discussions. Longer cancer disease courses provide patients and surrogate decision-makers with cumulative disease experience, enhancing their disease knowledge and increasing communication opportunities, thereby better preparing them psychologically for ACP participation. Additionally, patients gradually emphasize death quality through prolonged suffering, increasing the likelihood of discussing death perspectives with surrogate decision-makers, consistent with Yin et al.'s findings [38].

3.5 Coping Strategies

Based on these multifactorial influences: (1) **Surrogate decision-maker ACP understanding is key to improving participation:** At the educational level, existing ACP education models should be integrated with local cultural characteristics to develop culturally adapted ACP education programs and expand ACP knowledge access channels, such as the nurse-led ACP education program proposed by Hilgeman et al. [39]. At the public opinion level, multiple promotional channels including ACP brochures and WeChat public accounts should be utilized to disseminate ACP knowledge, improve public acceptance, and foster a favorable public opinion environment [40]. (2) **Policy and legal implementation provides safeguards for surrogate decision-maker ACP participation:** In-depth research should clarify public cognitive deficits, facilitators, and barriers to ACP, accelerating law and policy development and implementation. (3) **Smooth information flow between surrogate decision-makers, healthcare providers, and patients forms the foundation for ACP implementation:** Regarding surrogate decision-maker-patient communication, beyond public opinion campaigns and health education, healthcare providers can guide discussions to improve surrogate decision-makers' motivation to obtain patient medical preference information, reduce their decisional dilemmas, and enhance ACP participation willingness. Regarding physician-patient communication, healthcare providers as information sources should actively strengthen communication with surrogate decision-makers. Additionally, inter-family communication should be enhanced, with family members prioritizing patient interests, actively understanding objective conditions, and discussing to select surrogate decision-makers with higher medical and ACP knowledge for efficient communication with healthcare providers. (4) **Accurate grasp of patient condition status is prerequisite for surrogate decision-maker ACP participation:** Healthcare providers should provide accurate disease information to surrogate decision-makers and offer appropriate guidance to facilitate ACP discussions. Surrogate decision-makers for newly diagnosed advanced cancer patients or those experiencing illness themselves should promptly seek psychological counseling to transition from disease denial to acceptance, avoiding avoidance behaviors stemming from stress responses.

In summary, this mixed-methods systematic review integrated quantitative and qualitative findings to comprehensively understand factors influencing ACP participation among surrogate decision-makers for advanced cancer patients, providing additional evidence for clinical nursing practice. Limitations include: (1) Some data loss during quantitative-to-qualitative transformation; (2) Few high-quality quantitative studies included, potentially impacting results; (3) Non-Chinese/English literature was not evaluated; (4) Few longitudinal studies were included, preventing presentation of dynamic factor development. Future longitudinal studies should be conducted to further understand influencing factors.

Author Contributions: Han Zhihao proposed the research direction, conducted literature searches and screening, and drafted the manuscript; Ma Xiaoqin participated in literature screening and was responsible for manuscript revision, supervision, and review.

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References

[1] Yang P, Zhang CH. Research status of advance care planning practice for terminally ill patients [J]. Modern Clinical Nursing, 2021, 20(3): 79-84. DOI: 10.3969/j.issn.1671-8283.2021.03.014.

[2] Qiu YY, Zhang JH, Miao JR, et al. Research progress on ACP intervention models for advanced cancer patients [J]. Chinese General Practice, 2019, 22(21): 2524-2529. DOI: 10.12114/j.issn.1007-9572.2019.00.072.

[3] Suryadevara CM, Desai, Farber SH, et al. Preventing lck activation in CAR T cells confers treg resistance but requires 4-1BB signaling for them to persist

and treat solid tumors in nonlymphodepleted hosts [J]. Clin Cancer Res, 2019, 25(1): 358-368. DOI: 10.1158/1078-0432.CCR-18-1211.

[4] Xuan SY, Tian K, Zang YS, et al. Discussion on the application of self-determination rights and emergency treatment rights: Exploring Article 33 of the Regulations on Administration of Medical Institutions [J]. Medicine and Philosophy, 2019, 40(8): 72-74. DOI: 10.12014/j.issn.1002-0772.2019.08.18.

[5] Pan JJ. Research on close relatives system: Starting from Article 1045(2) of the Civil Code [D]. Chongqing: Southwest University of Political Science and Law, 2021.

[6] Zheng C, Zhang XL, Zhou YH, et al. Qualitative study on disease communication status between cancer patients and family members [J]. Chinese Medical Ethics, 2022, 35(9): 949-954. DOI: 10.12026/j.issn.1001-8565.2022.09.04.

[7] Li DM, Chen JL, Li L, et al. Analysis of current status and influencing factors of ACP participation among surrogate decision-makers for 300 chronic disease patients [J]. Journal of Nursing, 2023, 30(2): 67-72. DOI: 10.16460/j.issn1008-9969.2023.02.067.

[8] Xing BY, Miao QF, Zhang JS, et al. Research status of ACP from community perspectives at home and abroad [J]. Chinese General Practice, 2021, 24(34): 4324-4329. DOI: 10.12114/j.issn.1007-9572.2021.00.216.

[9] Liu XB, Chen H, Liu DL, et al. Translation and psychometric testing of the Surrogate Decision-Maker ACP Participation Questionnaire [J]. Journal of Nursing Science, 2021, 36(17): 97-100. DOI: 10.3870/j.issn.1001-4152.2021.17.097.

[10] Wang HY, Zhao XS, Xu YT. Research progress on living wills practice at home and abroad [J]. Chinese Nursing Management, 2019, 19(8): 1262-1266. DOI: 10.3969/j.issn.1672-1756.2019.08.031.

[11] Chen YY, Cheng QQ, Wang Y, et al. Analysis of knowledge, attitudes, and practices regarding ACP among nursing staff and countermeasures [J]. Chinese Nursing Management, 2019, 19(3): 334-340. DOI: 10.3969/j.issn.1672-1756.2019.03.004.

[12] Stern C, Lizarondo L, Carrier J, et al. Methodological guidance for the conduct of mixed methods systematic reviews [J]. JBI Evid Synth, 2020, 18(10): 2108-2118. DOI: 10.11124/JBISRIR-D-19-00169.

[13] Crandell JL, Voils CI, Chang Y, et al. Bayesian data augmentation methods for the synthesis of qualitative and quantitative research findings [J]. Qual Quant, 2011, 45(3): 653-669. DOI: 10.1007/s11135-010-9375-z.

[14] Bian W, Chen YL, Liao JM, et al. Introduction to mixed methods systematic reviews [J]. Chinese Journal of Evidence-Based Medicine, 2019, 19(4): 498-503.

[15] Wang LY, Lu ZQ, Hu Y, et al. Qualitative study on family members' attitudes toward implementing ACP for advanced cancer patients [J]. Journal of

Nursing Science, 2012, 27(17): 47-50. DOI: 10.3870/hlxzz.2012.17.047.

[16] Deng ZJ. Study on experiences of advanced cancer patients and family members participating in ACP [D]. Zunyi: Zunyi Medical University, 2021.

[17] Wang TH, Wang W, Shen WT, et al. Study on ACP participation and influencing factors among surrogate decision-makers of hematologic tumor patients [J]. Chinese General Practice, 2022, 25(7): 859-866. DOI: 10.12114/j.issn.1007-9572.2021.00.332.

[18] Vig EK, Starks H, Taylor JS, et al. Surviving surrogate decision-making: What helps and hampers the experience of making medical decisions for others [J]. J Gen Intern Med, 2007, 22(9): 1274-1279. DOI: 10.1007/s11606-007-0252-y.

[19] Andreassen P, Neergaard MA, Brogaard T, et al. The diverse impact of advance care planning: A long-term follow-up study on patients' and relatives' experiences [J]. BMJ Support Palliat Care, 2017, 7(3): 335-340. DOI: 10.1136/bmjspcare-2015-000886.

[20] Shen MJ, Gonzalez C, Leach B, et al. An examination of Latino advanced cancer patients' and their informal caregivers' preferences for communication about advance care planning: A qualitative study [J]. Palliat Support Care, 2020, 18(3): 277-284. DOI: 10.1017/S1478951519000890.

[21] Keam B, Yun YH, Heo DS, et al. The attitudes of Korean cancer patients, family caregivers, oncologists, and members of the general public toward advance directives [J]. Support Care Cancer, 2013, 21(5): 1437-1444. DOI: 10.1007/s00520-012-1689-z.

[22] Ho GW, Skaggs L, Yenokyan G, et al. Patient and caregiver characteristics related to completion of advance directives in terminally ill patients [J]. Palliat Support Care, 2017, 15(1): 12-19. DOI: 10.1017/S147895151600016X.

[23] Zhang Q, Xie CB, Xie SH, et al. The attitudes of Chinese cancer patients and family caregivers toward advance directives [J]. Int J Environ Res Public Health, 2016, 13(8): 816. DOI: 10.3390/ijerph13080816.

[24] Park HY, Kim YA, Sim JA, et al. Attitudes of the general public, cancer patients, family caregivers, and physicians toward advance care planning: A nationwide survey before the enforcement of the Life-Sustaining Treatment Decision-Making Act [J]. J Pain Symptom Manage, 2019, 57(4): 774-782. DOI: 10.1016/j.jpainsymman.2020.03.017.

[25] Shaku F, Tsutsumi M, Nakamura A, et al. Factors relating to caregivers' preference for advance care planning of patients in Japan: A cross-sectional study [J]. Am J Hosp Palliat Care, 2019, 36(8): 727-733. DOI: 10.1177/1049909119844517.

[26] Leventhal H, Phillips LA, Burns E. The Common-Sense Model of Self-Regulation (CSM): A dynamic framework for understanding illness

self-management [J]. J Behav Med, 2016, 39(6): 935-946. DOI: 10.1007/s10865-016-9782-2.

[27] Festinger L. A theory of cognitive dissonance [M]. Redwood City: Stanford University Press, 1957.

[28] Cen YH, Wang XS, Wan Q, et al. Empirical study on individual information cognitive processing and attitude formation mechanisms [J]. Chinese Journal of Management, 2016, 13(6): 880-888. DOI: 10.3969/j.issn.1672-884x.2016.06.011.

[29] He HY. Readiness for advance care planning and influencing factors among chronic heart failure patients [D]. Dalian: Dalian Medical University, 2021.

[30] Wang SB, Yang L, Chen LL, et al. Role positioning of nurses in advance care planning [J]. Journal of Nursing Science, 2019, 34(17): 94-97. DOI: 10.3870/j.issn.1001-4152.2019.17.094.

[31] Spelten ER, Geerse O, Van Vuuren J, et al. Factors influencing the engagement of cancer patients with advance care planning: A scoping review [J]. Eur J Cancer Care (Engl), 2019, 28(3): e13091. DOI: 10.1111/ecc.13091.

[32] Wang JQ, Li HS, Wang YY, et al. Meta-integration of experiences of cardiovascular disease patients and family members participating in ACP [J]. Military Nursing, 2022(12): 1-5.

[33] Bell JM. Family nursing is more than family centered care [J]. J Fam Nurs, 2013, 19(4): 411-417. DOI: 10.1177/1074840713512750.

[34] Michie S, Van Stralen MM, West R. The behaviour change wheel: A new method for characterising and designing behaviour change interventions [J]. Implementation Sci, 2011, 6(1): 42. DOI: 10.1186/1748-5908-6-42.

[35] Xing SJ, Chen HF, Hu MD, et al. Study on current status and influencing factors of cancer patient participation in drug clinical trials [J]. Chinese Journal of New Drugs, 2022, 31(12): 1201-1208. DOI: 10.3969/j.issn.1003-3734.2022.12.011.

[36] Li JQ, Zhu BJ, Wu T, et al. Analysis of anticipatory grief status and influencing factors among primary family caregivers of advanced cancer patients [J]. Chinese Nursing Management, 2019, 19(4): 547-552. DOI: 10.3969/j.issn.1672-1756.2019.04.014.

[37] Mishel MH. Uncertainty in illness [J]. Image J Nurs Scholarsh, 1988, 20(4): 225-232. DOI: 10.1111/j.1547-5069.1988.tb00082.x.

[38] Yin XT, Zhu LY, Wang Y, et al. Study on ACP acceptance status and influencing factors among young and middle-aged cancer patients [J]. Chinese Journal of Nursing, 2022, 57(7): 834-840. DOI: 10.3761/j.issn.0254-1769.2022.07.011.

[39] Hilgeman MM, Uphold CR, Collins AN, et al. Enabling advance directive completion: Feasibility of a new nurse-supported advance care planning

intervention [J]. J Gerontol Nurs, 2018, 44(7): 31-42. DOI: 10.3928/00989134-20180614-06.

[40] Su C, Zhuang BS, Li CW, et al. Research progress on advance care planning in intensive care units [J]. Chinese Nursing Research, 2022, 36(4): 674-678. DOI: 10.12102/j.issn.1009-6493.2022.04.020.

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Note: Figure translations are in progress. See original paper for figures.