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Surrogate Decision-Making Confidence Across Acute and General Scenarios: Predictors and Ethical Reasoning in a Mixed-Methods Study

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Abstract

Background

Surrogate decision-makers are called upon to act for millions of adults who can no longer direct their own care, yet the factors that shape their confidence remain understudied. Most research has focused on acute clinical settings, leaving general, everyday surrogate decision-making largely overlooked. This study investigated whether surrogate decision-making confidence varies by decision type and identified cognitive, psychological, experiential, and demographic predictors of that confidence.

Methods

An online survey (N = 301) administered via Amazon Mechanical Turk presented participants with eight surrogate decision-making scenarios: four general (routine decisions) and four acute (high-stakes, time-sensitive, or ethically complex decisions). Confidence was rated on a 5-point Likert scale. We isolated predictors for each outcome using a four-step hierarchical multiple regression. Variables were entered sequentially in the following blocks: (1) demographics, (2) cognitive reflection, (3) self-efficacy, and (4) decision-making and caregiving experience. Qualitative ethics coding using the four principles identified by Beauchamp and Childress applied to two purposively selected scenarios.

Results

Participants reported significantly higher confidence for general decisions ($M = 3.78$, $SD = 0.73$) than for acute decisions ($M = 3.12$, $SD = 0.77$), $t(300) = 16.68$, $p < 0.001$, $d = 0.96$. Self-efficacy was the strongest predictor of confidence in both outcome types (Acute Scenario: $\beta = 0.426$, $p < 0.001$ and General Scenario: $\beta = 0.393$, $p < 0.001$). Higher cognitive reflection predicted lower acute confidence ($\beta = -0.141$, $p = 0.017$). Race/ethnicity ($\beta = -0.162$, $p = 0.006$) and income ($\beta = 0.196$, $p = 0.001$) predicted general but not acute confidence. For both the general and acute scenarios, ethics coding revealed that autonomy and beneficence were the dominant principles applied across both scenario types, with nonmaleficence more prominent in the acute scenario.

Conclusions

Surrogate decision-making confidence is systematically sensitive to decision type and is shaped by modifiable individual characteristics, particularly self-efficacy. Preparation efforts targeting general coping confidence delivered before crises arise in community and clinical settings may meaningfully improve surrogate decision-making readiness across both routine and high-stakes decisions.

Introduction

Many chronically ill patients, including many of those at the end of life, are unable to participate fully in decisions about their own care. In 2024, approximately 1.91 million Medicare beneficiaries in the United States received hospice care [1], and nearly 25.7 million people require palliative care at the end of life globally each year [2]. A substantial proportion of these individuals lose the cognitive or communicative capacity to direct their own care as illness progresses and unavoidably rely on others to speak on their behalf. Studies estimate that surrogate decision-makers guide treatment decisions for approximately 40% of hospitalized adults, 70% of older adults, and up to 95% of critically ill adults of any age [3]. A surrogate decision-maker can be either a family member, close acquaintance, a person formally designated through a surrogate consent law or appointed as an agent under power of attorney [4]. As populations age and chronic illness prevalence rises, the scale and importance of surrogate decision-making will only grow.

Surrogate decisions span a wide range of domains, from routine daily activities to complex medical and surgical interventions and end-of-life care [5], and individuals called upon to make them vary considerably in their level of preparation and prior experience. A systematic review analyzed 40 studies on 2,854 surrogate decision-making cases and reported that more than half of decision-makers are family members of patients [6]. Thrust into consequential decisions often without warning, at least one third of surrogates in quantitative studies and many or most in qualitative accounts reported a negative emotional burden as a direct result of their decision-making responsibilities [6]. The most common factors contributing to these negative emotions include decision makers unprepared for their role and responsibilities, lacking of information about decision and treatment options, uncertainty about the personal preferences, and too little support from health care professionals [5].

The normative framework governing surrogate decisions is anchored by two standards described by Buchanan and Brock (1989) [7]. The *substituted judgment standard* directs decision-makers to express the patient's known preferences and values based on their understanding of the patient's conditions and prognosis. The *best interest standard* applies when no prior wishes are known, requiring the surrogate to act in whatever way most benefits the patients. In practice, applying either standard is complicated by emotional distress, relational pressures, and limited information [8, 9]. Even when patients have completed advance care planning documents, compliance is far from guaranteed. Gotanda et al. [10] found that among people living with dementia, rates of advance care planning completion did not increase over a 15-year period, and life-prolonging treatments were frequently pursued despite documented preferences to the contrary. This study underscored the limits of formal planning tools and the importance of the surrogate's own psychological resources in navigating these situations.

General Versus Acute Scenario-Based Decisions

A dimension that has received comparatively little empirical attention is how the type of decision, specifically its urgency and stakes, shapes the surrogate's confidence. General or day-to-day surrogate decisions involve routine or non-urgent tasks, such as coordinating a patient's medical appointments, resolving an insurance dispute, managing household finances on behalf of another, or balancing a

patient's social needs against competing family obligations. Despite being a near-constant feature of many surrogates' lives, particularly those caring for older adults with progressive cognitive decline or chronic illness, these decisions have received substantially less empirical attention than their acute counterparts. Tunney and Ziegler [11] proposed that surrogates operate within a decision-making framework influenced by psychological distance, perceived accountability, and emotional empathy. In acute settings, these forces converge rapidly under pressure and high emotional intensity. In general settings, they unfold more gradually, yet their cumulative weight should not be underestimated, as repeated decisions made over time can impose a sustained psychological toll that rivals the burden associated with singular acute events [6]. Whether surrogates experience meaningfully different levels of confidence across these two decision types, and what individual characteristics predict that confidence, remains an open empirical question that this study directly addresses.

Acute surrogate decisions, by contrast, are among the most psychologically demanding situations a family member can face. A well-documented example is post-intensive care syndrome-family (PICS-F), which describes the range of psychological, cognitive, and physical health impairments experienced by family members of critically ill patients [12]. Across decision contexts ranging from intensive care to end-of-life treatment to placements, surrogates consistently report experiences of struggle, reluctance, guilt, and emotional exhaustion, and frequently identify the absence of adequate communication and support from healthcare professionals as a compounding burden [13]. Importantly, surrogates do not approach these situations uniformly. Hwang et al. [14] found that surrogate decision-makers for patients with severe brain injury could be distinguished by the concerns they prioritized most, including prognostic uncertainty, cost of long-term care, family consensus, and religious values. This demonstrates that even within a single high-stakes decision context, surrogates bring meaningfully different perspectives and priorities. Ultimately, this heterogeneity underscores the role that individual characteristics play in shaping how surrogate experience and navigate the decision-making process.

Individual Predictors of Surrogate Decision Confidence

Two key psychological characteristics are hypothesized to explain why confidence varies among surrogates across decision contexts. The first is self-efficacy, which refers to an individual's belief in their own capacity to organize and execute the actions required to navigate challenging situation [15]. Surrogates who hold strong beliefs in their general coping ability are expected to approach both routine and high-stakes decision with greater assurance, and instruments such as the Family Decision-Making Self-Efficacy Scale has been developed precisely because low surrogate confidence can undermine the ability to advocate effectively for patient-center care [16]. The second is cognitive reflection that indicates the tendency to override an intuitive first response in favor of deliberate, analytical reasoning [17]. Although deliberate thinking generally leads to a more careful weighing of consequences, it may paradoxically lower a decision maker's expressed confidence. In this calibrated effect, highly reflective individuals may become more acutely aware of the limits of their own knowledge, in which greater analytical ability is associated with greater perceived uncertainty. This dynamic has not previously been examined in the surrogate decision-making literature.

Beyond internal psychological factors, a surrogate's experiential background also serves as an important foundation for confidence. Research in the Intensive Care Unit (ICU) setting has identified a lack of prior surrogate experience and the absence of prior discussion with patient about treatment preferences as independent predictor of lower role confidence [18]. Although prior exposure to decision-making situation is expected to bolster a surrogate's readiness, caregiving experience presents a more complex influence. While primary caregivers often possess a deep, practice-based knowledge of a care recipient's value that might be expected to strengthen confidence, this advantage can be offset by cumulative toll of sustained caregiving. The physical, emotional, and logistical burdens of caregiving role can deplete a decision maker's psychological resources over time, potentially triggering the very confidence that experience might otherwise build. Whether prior decision-making and caregiving experience contribute meaningfully to surrogate confidence and whether their effects differ across general and acute decision types are questions this study is designed to answer.

Despite the growing clinical importance of surrogate decision-making, three gaps in the existing literature remain unaddressed: research has focused predominantly on acute clinical settings, leaving general, everyday surrogate decisions largely understudied; no prior study has directly compared surrogate decision confidence across general and acute decision types using a scenario-based methodology; and individual-level predictors, such as self-efficacy, cognitive reflection, prior decision-making experience, and caregiving experience have not been examined together alongside demographic factors across both decision types simultaneously. The present study addresses these gaps directly via two hypotheses: (a) surrogate decision confidence varies by decision type, such that individuals report significantly higher confidence when managing general decisions compared to acute decisions; and (b) confidence in both decision types is predicted by cognitive ability, self-efficacy, prior decision-making experience, caregiving experience, and demographic characteristics, with the contribution of these factors differing across acute and general decision contexts.

Methods

Participants

This study was approved by IRB #19–499. Participants were recruited through Amazon Mechanical Turk (MTurk), with questionnaire packages administered via Qualtrics. Of the 344 individuals who accessed the survey, 301 provided complete responses and were included in the final analysis (43 excluded for answering fewer than 11 questions). The final sample (N = 301) consisted of 167 females (55.5%), 132 males (43.9%), and 2 individuals identifying as other (0.7%). Participants' average age is 40.03, (SD = 13.50). The majority identified as White or Caucasian (n = 241, 80.1%), with smaller proportions identifying as Black or African-American (n = 25, 8.3%), Asian (n = 14, 4.7%), and Hispanic or Latino (n = 12, 4.0%). Most participants had completed at least some college education (88.0%), with the largest group holding a bachelor's degree (n = 119, 39.5%). Annual household income was distributed across six categories, with the largest group reporting between $50,000 and $74,999 (n = 63, 20.9%). Nearly half had previously made an informal surrogate decision regarding finances, living arrangements, or medical

treatment (n = 146, 48.5%). Additionally, 103 (34.2%) participants currently served as a primary caregiver. Sample characteristics are summarized in Table 1.

Table 1
Demographic and Background Characteristics of Study Participants

Variable	Category	n (%)	M (SD)
Gender			
	Female	167 (55.5)	—
	Male	132 (43.9)	—
	Other/Missing	2 (0.7)	—
Race/Ethnicity			
	White, Caucasian	241 (80.1)	—
	Black, African-American	25 (8.3)	—
	Asian	14 (4.7)	—
	Hispanic or Latino	12 (4.0)	—
	Native American or Alaska Native	3 (1.0)	—
	Other	3 (1.0)	—
	No primary group	3 (1.0)	—
Education			
	Less than high school diploma	1 (0.3)	—
	High school degree or equivalent	35 (11.6)	—
	Some college, no degree	70 (23.3)	—
	Associate degree	40 (13.3)	—
	Bachelor's degree	119 (39.5)	—
	Master's degree	30 (10.0)	—
	Professional's degree	3 (1.0)	—
	Doctorate	3 (1.0)	—
Annual Household Income			
	Less than $20,000	37 (12.3)	—
	$20,000–$34,999	58 (19.3)	—

Variable	Category	n (%)	M (SD)
	$35,000–$49,999	59 (19.6)	—
	$50,000–$74,999	63 (20.9)	—
	$75,000–$99,999	51 (16.9)	—
	Over $100,000	33 (11.0)	—
Decision-Making Experience			
	Yes	146 (48.5)	—
	No	155 (51.5)	—
Caregiving Experience	Yes	103 (34.2)	—
	No	198 (65.8)	—
Continuous Measures			
Age (years)		—	40.03 (13.50)
Cognitive Reflection Test (0–3)		—	1.54 (0.92)
Self-Efficacy Mean (1–4)		—	3.28 (0.48)
Decision Confidence: Acute (1–5)		—	3.12 (0.77)
Decision Confidence: General (1–5)		—	3.78 (0.73)

Sample Characteristics (N = 301)

Note: Categorical variables reported as n (%); continuous variables reported as M (SD). Dashes (—) indicate the statistic is not applicable for that variable type. CRT = Cognitive Reflection Test (Frederick, 2005); GSE = General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995).

Measures

Participants responded to eight scenario-based questions developed by the research team for this study (see Supplementary File 1) that depicted situation requiring surrogate or caregiving decisions. For each scenario, participants rated their confidence in managing the situation on a 5-point Likert-type scale ranging from 1 (not at all) to 5 (extremely). Following each scenario confidence question, we asked participants to provide specific actions they would take to handle the presenting situation.

Scenarios were classified into four general and four acute situations based on the nature of the decision. General or routine decision scenarios involved everyday caregiving dilemmas with lower urgency. Questions included in scenarios are navigating a parent's health insurance billing dispute; balancing a planned personal vacation against a parent's expressed loneliness; deciding whether to be available to a parent awaiting minor medical test results versus attending a social event; and managing a scheduling conflict between a parent's medical appointment and a work obligation. Acute decision scenarios included high-stakes, time-sensitive, or ethically complex situations, such as honoring or overriding a prior directive of an older adult with cognitive impairment who now expresses conflicting wishes regarding life-prolonging treatment; making a care decision for a terminally ill, suicidal sibling who is refusing food and fluids; intervening in a financially exploitative relationship involving a vulnerable parent; and addressing an elderly parent's unsafe driving behavior and potential self-neglect.

Cognitive ability was assessed using the three-item Cognitive Reflection Test (CRT) [19]. Each item was scored as correct (1) or incorrect (0), and scores were summed to produce a total score ranging from 0 to 3. The CRT is designed to measure the tendency to override an intuitive but incorrect response in favor of reflective reasoning.

Self-efficacy was measured using the 10-item General Self-Efficacy Scale (GSE) [20]. Item were rated on a 4-point scale from 1 (not at all true) to 4 (exactly true), with one response option ("Unknown") treated as missing. A mean composite score was computed for participants with valid responses on at least 6 of 10 items.

Two binary variables captured each participant's experience with decision-making and caregiving. Decision-making was assessed with a single item asking whether participants had ever made a decision on behalf of another person regarding finances, living arrangements, or medical treatment. Caregiving experience was assessed with a single item asking whether participants currently serve as a primary caregiver for another individual.

Statistical Analysis

Data were analyzed using Python. Internal consistency of GSE and the scenario-based confidence composite were evaluated using Cronbach's alpha prior to hypothesis testing. To test hypothesis 1, a paired-samples t-test was used to compare mean confidence between the acute and general decision composites. To test hypothesis 2, hierarchical multiple regression was conducted separately for acute and general confidence outcomes. The predictors were entered in four sequential blocks: demographic variables, CRT, GSE, and decision-making and caregiving experience. Model fit was assessed via R^2,ΔR^2, and *F*-change statistics. Variance inflation factors (VIF) were examined to assess multicollinearity.

Prior to regression, education was recoded from an 8-category ordinal variable into 5-point scale to address cells with very small frequencies. Specifically, participants with less than a high school diploma (n = 1) was collapsed with those holding a high school degree or equivalent (n = 35). At the upper end, master's degree (n = 30), professional's degree (n = 3), and doctorate (n = 3) holders were combined into

a single “graduate or professional degree” category (n = 36). The resulting scale ranged from 1 (high school or less) to 5 (graduate or professional degree). Racial/ethnic minority groups were retained as a binary variable (White/Caucasian vs. non-White) to consolidated groups with small cell sizes.

Ethics Analysis

From the survey, the research team chose one general scenario and one acute scenario to code as a group. The team selected the vacation scenario (general) because team members believed the decision to be a very common issue that presented itself (i.e., how to prioritize time). The team chose the acute scenario related to driving because it represents a common yet difficult problem that confronts many older adults and their children at some point in their lives. The team coded the general and acute scenarios using a group of students trained in how to code, with oversight from a faculty bioethicist and a graduate research student. The team used the four ethical principles (e.g., autonomy, beneficence, nonmaleficence, justice) identified by Beauchamp and Childress [21] to determine the principles reflected in the decisions of the research participants. The team met regularly to discuss coding of the responses, including resolving cases of disagreement and difference.

Findings

Scale Reliability

The internal consistency of the study measures was evaluated using Cronbach’s alpha. The 10-item GSE demonstrated excellent reliability (α = 0.90, n = 280). The 8-item confidence composite across all decision scenarios demonstrated acceptable internal consistency (α = 0.78, n = 301). At the subscale level, the acute confidence subscale yielded α = 0.65 and the general confidence subscale yielded α = 0.67, both approaching acceptable thresholds for exploratory research. These values indicate moderate internal consistency within each scenario type that are designed to capture a range of decision contexts rather than a single latent construct.

Hypothesis 1: Confidence Varies by Decision Type

Descriptive statistics across the eight decisions are presented in Table 2. Figure 1 illustrates the full distribution of confidence rating across all eight scenarios. Among the four general decision scenarios, confidence was consistently higher. The question about the decision on whether to be available to a parent awaiting minor medical test results versus attending a social event received the highest confidence rating in the sample (M = 4.13, SD = 0.86), with 76% of participants reporting “very much” or “extremely” confident. The question about an insurance billing dispute was the only general scenario with a mean below 3.50 and showed greater variability (SD = 1.22) than others in its category. Among the four acute decision scenarios, the question involving a terminally ill, suicidal sibling refusing food and fluids yielded the lowest confidence in the entire sample (M = 2.38, SD = 1.14), with about 59% of participants rating their confidence as “not at all” or “a little.” In contrast, the other three acute scenarios

showed moderate confidence ratings. A paired-samples t-test showed that participants reported significantly higher confidence for general decisions (M = 3.78, SD = 0.73) than for acute decisions (M = 3.12, SD = 0.77), t(300) = 16.68, p < .001, 95% CI [0.59, 0.74].

Table 2: Frequency Distribution of Confidence Ratings Across Acute and General Decision Scenarios

Scenario	Not at all	A little	Moderately	Very much	Extremely	M (SD)
Acute Scenarios						
A 90-year-old woman with mild cognitive impairment living in a nursing home has slow-progressing cancer. Surgery will make her uncomfortable but will prolong her life about a year. Earlier, and for the five years that you have served as her guardian, she stressed that she did not want any more intensive medical procedures, saying that she had lived a good life and was satisfied with her life. She now says that she wants to live as long as she can.	**17** (5.6%)	**45** (15.0%)	**111** (36.9%)	**90** (29.9%)	**38** (12.6%)	**3.29** (1.05)
You are the Agent under Power of Attorney for your 69-year-old brother. A year and a half ago, he presented with a malignant mass in his leg and underwent surgery for its removal. A former athlete, your brother's leg is extremely painful; he can no longer drive. Now your brother is depressed, and a week ago, he underwent an operation to remove a tumor in his lung, indicating the cancer has spread. Your brother has been suicidal at points. Back in the hospital, he is refusing to eat or drink.	**74** (24.6%)	**103** (34.2%)	**78** (25.9%)	**27** (9.0%)	**19** (6.3%)	**2.38** (1.14)
You are the only child and primary caregiver for your mother, who is 75 and still living in your family home. Your dad died a couple of years ago, and your mom has met a new friend at church. He has asked to borrow $5,000 from your mom — the second time he has asked for money in the past 3 months. You think this is a disturbing, recurring trend. Your mom wants to help and keep him around.	**17** (5.6%)	**55** (18.3%)	**91** (30.2%)	**75** (24.9%)	**63** (20.9%)	**3.37** (1.17)

Scenario	Not at all	A little	Moderately	Very much	Extremely	M (SD)
Your dad, an 85-year-old man who highly values his independence, has been in a few car accidents over the past year. Over the past year, your father ran into a wall, ran a stop sign, and ran into someone turning left. No one was hurt, but the car has required major work each time. You are worried and think he should stop driving. When you visited him recently, you found nothing in the refrigerator. You are your dad's Agent under Power of Attorney.	**10** (3.3%)	**45** (15.0%)	**108** (35.9%)	**84** (27.9%)	**54** (17.9%)	**3.42** (1.05)
General Scenarios						
Your mother is due to receive the results of a medical test shortly after you finish your workday; however, a friend you have not seen in some time invites you to Happy Hour. You would love to go, but your mother usually chats with you immediately after her hospital visits to discuss potential treatments. To the best of your recollection, the test she had today was fairly minor.	**1** (0.3%)	**8** (2.7%)	**63** (20.9%)	**108** (35.9%)	**121** (40.2%)	**4.13** (0.86)
You are new at your job and are preparing for a monthly meeting at your workplace that starts early the next morning. During the day, your father calls you to ask for a ride to the doctor's office for an appointment that starts the same time as your meeting. If you drive him, you would likely be late or miss the meeting.	**6** (2.0%)	**22** (7.3%)	**86** (28.6%)	**97** (32.2%)	**90** (29.9%)	**3.81** (1.01)
You booked a vacation that will be your first break from work in a brutal year. Just before you are due to leave, you receive a call from your mother. She confesses that she is lonely and would like	**5** (1.7%)	**23** (7.6%)	**72** (23.9%)	**111** (36.9%)	**90** (29.9%)	**3.86** (0.99)

Scenario	Not at all	A little	Moderately	Very much	Extremely	M (SD)
you to visit her during your vacation time.						
During a recent call, your father expresses frustration because his health insurance won't reimburse a recent medical bill. The insurer determined the service rendered was 'optional.' Your father asks you to help him figure out who to reach out to next.	**27** (9.0%)	**50** (16.6%)	**80** (26.6%)	**84** (27.9%)	**60** (19.9%)	**3.33** (1.22)

Sample Characteristics (N = 301)

Note. Values in frequency columns represent n (%). M (SD) values are based on a 5-point Likert scale (1 = Not at all confident, 5 = Extremely confident).

Hypothesis 2: Predictors of Decision Confidence

Hypothesis 2 (Table 3) predicted that confidence in surrogate decision-making would be associated with cognitive ability, self-efficacy, decision-making and caregiving experience, and demographic characteristics. Due to listwise deletion across all predictor variables, the regression analyses were conducted on a complete-case sample of n = 298.

Table 3: Hierarchical Regression Predicting Acute and General Confidence Composites

	Acute Confidence			General Confidence		
Block / Predictor	**B (SE)**	**β**	**p**	**B (SE)**	**β**	**p**
Block 1: Demographics	*R^2 =0.025, ΔR^2 = 0.025,* *F(5, 292) = 1.525, p =0.182*			*R^2 = 0.069, ΔR^2 = 0.069,* *F(5, 292) = 4.355, p < 0.001*		
Age	0.003 (0.003)	0.061	0.309	0.004 (0.003)	0.079	0.178
Gender (female)	-0.120 (0.090)	−0.078	0.181	-0.125 (0.083)	−0.086	0.133
Race (White)	-0.191 (0.113)	−0.100†	0.091	**-0.293 (0.105)**	**−0.162****	0.006
Education	-0.024 (0.037)	−0.038	0.520	-0.012 (0.034)	−0.021	0.721
Income	0.047 (0.030)	0.095	0.117	**0.092 (0.028)**	**0.196****	0.001
Block 2: + Cognitive Reflection (CRT)	*R^2 = 0.044, ΔR^2 =0.019,* *F(1, 291) = 5.759, p =0 .017*			*R^2 = 0.076, ΔR^2 = 0.006,* *F(1, 291) = 2.020, p = 0.156*		
CRT total score	**-0.117 (0.049)**	**−0.141***	0.017	-0.065 (0.046)	−0.082	0.156
Block 3: + Self-Efficacy (GSE)	*R^2 = 0.214, ΔR^2 = 0.170,* *F(1, 290) = 62.637, p <0 .001*			*R^2 =0.220, ΔR^2 = 0.144,* *F(1, 290) = 53.527, p <0.001*		
Self-Efficacy (GSE)	**0.690 (0.087)**	**0.426*****	< 0.001	**0.604 (0.083)**	**0.393*****	< 0.001
Block 4: + Decision-Making Experience	*R^2 = 0.229, ΔR^2 =0 .015,* *F(2, 288) = 2.855, p = 0.059*			*R^2 = 0.221, ΔR^2 = 0.002,* *F(2, 288) = 0.296, p = 0.744*		
Decision-Making Experience	0.164 (0.084)	0.108†	0.051	0.006 (0.080)	0.004	0.940
Caregiving Experience	0.074 (0.088)	0.047	0.401	-0.064 (0.084)	−0.042	0.447

Note. B = unstandardized coefficient; SE = standard error; β = standardized coefficient. Block-level p-values derived from F-change statistic: F(df1, df2) where df1 = predictors added in that block and df2 = n − total predictors − 1. Predictor-level p-values are two-tailed. Race coded 1 = White/Caucasian, 0 = non-White. Gender coded 1 = female, 0 = other. Experience variables coded 1 = Yes, 0 = No. † p < .10. * p < .05. ** p < .01. *** p < .001.

Under the general decision scenarios, the demographic factors explained 6.9% of the variance in general confidence (R^2 = 0.069, p < 0.001). Race/ethnicity (β = −0.162, p = 0.006) and income (β = 0.196, p <

0.001) were significant predictors, with White/Caucasian participants reporting lower general confidence than non-White participants, and higher-income participants reporting greater confidence. Adding CRT in Block 2 did not produce a significant increment, $\Delta R^2 = 0.006$, $p = 0.156$. In Block 3, self-efficacy produced the largest single increment, $\Delta R^2 = 0.144$, $p < 0.001$. Higher self-efficacy was strongly associated with greater general confidence ($\beta = 0.393$, $p < 0.001$). Race/ethnicity and income remained significant. The addition of experience variables in Block 4 did not produce a significant increment, $\Delta R^2 = 0.002$, $p = 0.744$. Neither decision-making ($\beta = 0.004$, $p = 0.940$) nor caregiving experience ($\beta = -0.042$, $p = 0.447$) reached significance. In the final model, two predictors were statistically significant: self-efficacy ($\beta = 0.397$, $p < 0.001$) and race/ethnicity ($\beta = -0.142$, $p = 0.008$). Income was marginally significant ($\beta = 0.113$, $p = 0.04$). The negative coefficient for race/ethnicity indicates that non-White participants reported higher general decision confidence than White participants after controlling for other factors.

Under acute decision scenarios, the demographic factors did not explain a significant portion of the variance in acute confidence $R^2 = 0.025$, $F(5, 292) = 1.525$, $p = 0.182$. No individual demographic predictor reached statistical significance. The addition of CRT total score in Block 2 produced a significant increment, $\Delta R^2 = 0.019$, $p = 0.017$. Higher CRT scores were associated with lower acute confidence ($\beta = -0.141$, $p = 0.017$), suggesting that individuals with greater cognitive reflectivity reported modestly less confidence in acute decision scenarios. Block 3 added GSE which produced the largest increment in explained variance, $\Delta R^2 = 0.170$, $p < 0.001$. Self-efficacy was a strong positive predictor of acute confidence ($\beta = 0.426$, $p < 0.001$). The addition of experience variables in Block 4 did not significantly improve model fit, $\Delta R^2 = 0.015$, $p = 0.059$. Decision-making experience showed a borderline association with acute confidence ($\beta = 0.108$, $p = 0.051$), while caregiving experience was not significant ($\beta = 0.047$, $p = 0.401$). In the final model, self-efficacy ($\beta = 0.402$, $p < 0.001$) and CRT ($\beta = -0.141$, $p = 0.009$) were the only statistically significant predictors of acute confidence.

VIF were examined for all predictors across all blocks; all VIF values < 1.2.

Ethics Coding of the General Scenario

We asked participants to respond to this general scenario and provide a brief rationale for their decisions.

You booked a vacation that will be your first break from work in a brutal year of work. Just before you are due to leave, you receive a call from your mother. She confesses that she is lonely and would like you to visit her during your vacation time.

From the 300 respondents to the survey, 73 (24%) indicated that they would visit their mother instead of going on the trip, 71 (24%) decided that they would visit their mom upon returning from the trip. Additionally, 50 (17%) of participants wrote that they would bring their mother on the trip, 34 (11%) would visit her before and after the trip, and 24 (8%) would leave their mother and go on the vacation.

Reflected in their explanations, the discrete ethical principle reflected by their decision most commonly was autonomy, shown by the responses of 229 (76%) respondents. Responses reflecting autonomy when coded by the team were these.

I would go visit her before or after I come back from vacation, since money is involved probably in cancelling or ask her to come with me.

I would tell her I would see her when I got back.

If the mom is a good mom go see her. If she isn't then you do you.

I would tell her that I would love to get together with her, but due to the nature of my vacation, it would have to be a different time.

The second most common discrete principle coded was that of beneficence, reflected in 199 (66%) decisions. Examples of beneficent comments are reflected in the following explanations:

I would visit, include her in some of the things I had planned.

I would visit Mom.

I would visit her and take her somewhere where she could potentially meet other people, like a club or class.

Both autonomy and beneficence were reflected in 174 (58%) decision responses. Choices that include both principles are illustrated by the decision reasoning below.

First, I'd try to arrange for her to join me wherever I planned to go for vacation and make a fun trip out of it for both of us. If that wasn't possible then I'd cancel my plans and go see her.

If she is near where I'm going for vacation, then I will visit her. If not, I'll visit her when I come back.

Definitely, I will go on vacation to my mom’s home; we spend together for some days. After that, we make a plan and go for somewhere like to refresh our lives.

I would reassure my mother that I love her very much. I would tell her that I cannot come at this exact time but invite her to vacation with me. If she could not go, I would make plans about when I could visit.

Occurring less than 1% was a combination of explanations reflecting autonomy and justice: I might take a vacation and visit her at the same time. I might tell her about my grueling work. Similarly, an example of a response reflecting beneficence and nonmaleficence was “I would feel guilty for not visiting my mom but disappointed for not taking my trip. Would go to Mom's.”

Ethics Coding of the Acute Scenario

Your dad, an 85-year-old man who highly values his independence, has been in a few car accidents over the past year. Your parents divorced once you finished high school. Your dad never remarried. Over the past year, your father ran into a wall, ran a stop sign, and ran into someone turning left. No one was hurt in any of the accidents, but the car has required major work each time. Fortunately, in the little town in which he lives, the speed limit never gets above 35, but you are worried and think that he should stop driving. Also, when you went to visit him a couple of weeks ago, you found nothing in the refrigerator. Nothing. You are your dad's Agent under Power of Attorney.

The 300 decisions concerning the acute situation scenario were that participants would offer their father some form of help 117 (39%). A second response was that participants would offer hired help 95 (32%). A decision reflecting the least number of participants was that they would tell their father to be more careful but declined to offer him any help 40 (13%).

For the acute decisional scenario and shown in the answers of 300 participants, the discrete ethical principle reflected most was beneficence, reflecting responses of 207 (69%) of participants. When beneficence alone was coded, answers included these:

I would visit him more often and go grocery shopping with him. This way he'd have help, and an incentive to go, but his independence would not be imposed on. As to the driver's license, I am not sure how to approach it.

My dad and I would sit down and discuss the situation and work out something that will be beneficial for both of us.

It is time to be frank with dad and say that he needs to give up driving but provide him with alternatives from the community to get around.

This is the time for a complete physical to see if your dad can manage on his own. Good luck taking away the keys! He will not give up his independence as long as his mind functions well enough to turn the key.

The second most common discrete principle coded was that of autonomy, reflected in 153 (51%) of decisions. Example comments are reflected in the following responses:

It's fairly obvious that he shouldn't drive. An accident at even 35 mph can be fatal. The exact solution depends on his personality and other details, but it sounds as if he needs someone to keep an eye on him on an ongoing basis. If there are other family members around, it can be a shared responsibility.

I think it would be so tough to convince my father not to drive again. But I have to try hard.

I would have him move in with me or vice versa in order to keep an eye on him.

Nonmaleficence only was coded in 132 (44%) of responses. Examples reflecting this reasoning are below.

It would be hard to try to have a talk with my dad about his driving. I'm sure he wouldn't want to stop so it's hard to say how things would go.

I will request my father to not to drive car because of the age and so many accidents are accumulated in their path.

I think I have to step in before he kills himself.

I would explain to my dad that I think he may be having trouble driving and staying on the road. I would talk to him about no food in the fridge.

I think he should call it quits. He is 85 years old. Great job, but it’s time to transition to something else.

As with the general scenario, autonomy and beneficence were shown in 77 (26%) of answers and included the following:

Filling the refrigerator should be a relatively straightforward task, but preventing my father from driving or making independent decisions might be difficult. I would do my best to take care of things that are within my scope and power and not get hung up on things outside of my control.

I would tell him to stop driving. I would try to support him and tell him he should probably be considering moving to a nursing home since he is having issues. I want him to be cared for.

This is a moment to have a talk with my father and offer him an aid to help him get around and run errands. He obviously cannot do it on his own.

Another, but less often used combination of decision justification was that of beneficence and nonmaleficence, revealed in 15% of decision rationales.

I would talk to my father about surrendering his license, I would also suggest that he either hire a home aid or move to an assisted living facility.

I would sit down with my dad and explain to him that he's no longer capable of driving, not only for his own safety but for the safety of other drivers and pedestrians on the road. I would consider placing him in a retirement home where he could be looked after by professionals who have the time to dedicate to him.

I would suggest to my dad to get a companion or aide to drive for him, shop and cook for him, so that he can continue living at home.

I would likely say that if he crashes the car again, that the government would likely take his license away anyway. I'd also question why his fridge was empty when he clearly has the money to replace his car three times in a year.

Discussion

This study examined how confidence in surrogate decision-making varies by decision type and what individual-level factors predict that variation. Using a scenario-based methodology, we found support for both hypotheses: individuals reported significantly higher confidence when managing general decisions than acute decisions. Self-efficacy emerged as the dominant predictor of confidence across both decision types, with cognitive reflection, race/ethnicity, income, and prior decision-making experience contributing differentially across contexts. The findings from acute scenarios affirm what clinicians have long observed: decision-makers feel fundamentally less prepared when decisions carry life-or-death consequences and require immediate action. We also found that this effect was not confined to a single acute scenario. When scenarios involved financial exploitation and cognitive impairment, they produced lower confidence than the most challenging general scenario. Self-efficacy was the strongest and most consistent predictor of confidence across both scenarios, accounting for the largest single increment in explained variance in both regression models. The belief that one can cope with demanding situations (self-efficacy) appears to transfer directly to surrogate decision-making confidence regardless of scenario type or stakes. In this case, interventions targeting general coping confidence may meaningfully improve surrogate readiness. Another notable finding is that higher cognitive reflection predicted lower confidence in acute, but not general, scenarios. This calibration effect depicted more analytical individuals appear to have a clearer sense of how much they do not know when facing high-stakes decision, and their lower confidence reflects that awareness rather than a lack of capability.

The finding that race/ethnicity and income predict general, but not acute, decision confidence is also noteworthy. After controlling for other variables, non-White participants reported higher general confidence than White participants. This direction may reflect the reality that many non-White communities have historically relied more heavily on informal, family-based decision-making networks and that caregiving roles are more normatively embedded in those contexts [22]. Higher-income participants also reported greater general confidence, plausibly reflecting greater familiarity with navigating insurance systems, financial institutions, and professional service providers [22]. However, these demographic effects disappeared in acute scenarios, where self-efficacy and CRT dominated. This result highlights that socioeconomic resources confer practical advantages in routine decisions but that high-stakes acute decisions activate a more universal psychological response in which general coping belief becomes the primary resource.

The ethics coding uncovered participants' moral reasoning driving surrogate decisions in different contexts. In the vacation scenario, autonomy emerged as the primary guiding principle. Rather than reflexively subordinating their own interests, participants framed these decisions as a balance between their personal rights and preferences and their mother's needs. Beneficence was also highly prevalent, as the two principles co-occurred in over half of responses. This frequent overlap suggests that most decision makers instinctively seek "win-win" solutions that honor the interests of both parties under general decision-making scenarios.

By contrast, the acute scenario shifted the ethical landscape. Beneficence became the dominant concern, followed by autonomy and, to a lesser extent, nonmaleficence. One of the most striking findings was that a small percentage of participants would simply advise their father to be careful without actually intervening, which is a choice that prioritizes autonomy even at the risk of engendering harm. This distribution perfectly mirrors the professional tensions in healthcare, where the duty to protect a vulnerable person must be weighed against the obligation to respect their right to take risks.

Limitations and Future Work

Our work is one of the first investigations into the differential considerations individuals may have when facing general and acute surrogate decision-making scenarios and the dispositional correlates of confidence in those scenarios. Thus, while our findings may help elucidate some of the many possible cognitive, motivational, and demographic characteristics driving confidence in one's ability to make different types of surrogate decisions, it also represents one of the first inquiries in the space. At the time of our data collection, existing surrogate decision-making scales focused exclusively on a single context; typically acute clinical or end-of-life settings, and none had been developed or validated to compare surrogate confidence across both acute and general, non-clinical decision scenarios. Notably, however, there are now several scales that focus on different aspects of surrogacy decision-making in different contexts. The Surrogate Decision Making Self-Efficacy Scale (SDM-SES) is one measure that has undergone initial validation in both the United States and China, but it is focused specifically on making surrogate decisions specifically for individuals with advanced dementia [23, 24]. Other relatively new measures that have undergone initial validation or evaluation studies and explore different aspects of surrogate decision- making, or older measures have been used more recently in a surrogate decision-making context, include the Family Decision-Making Self Efficacy Scale (FDMSE) [25], Advance Care Planning Engagement Survey for Surrogate Decision Makers [26], the Decisional Conflict Scale [27] and the Decision Regret Scale [28]. This growing corpus represents an opportunity for more comprehensive validation work and may also facilitate more in-depth investigations into different dimensions of surrogate decision making.

An important feature of the current study, however, is the inclusion of both dispositional and cognitive measures and qualitative responses, coded by ethical principles, to facilitate a mixed methods-approach. We note that additional psychological and demographic measures, such as motivational scales, scales of financial security, previous decision making, etc, may be helpful in further exploring the correlates of confidence in surrogate decision-making. Additionally, the classification of scenarios into acute and general surrogate decision-making scenarios was based on theoretical and face validity judgement by the research team rather than empirical validation. While Cronbach's alpha values for both subscales approach acceptable thresholds for exploratory research, the inclusion of additional scenarios in a validation study might help further ground the concept of more general and more acute surrogate decision categories.

We also note that the present study included thematic analyses for only two of the scenarios, one each from the general and acute categories. These were chosen as representative examples, but a future study may benefit from a more in-depth analysis, or possibly additional mixed-methods techniques, in understanding how qualitative responses might help better explain the underlying psychological mechanisms supporting one's confidence in a decision, as well as the type of decision one ultimately makes when faced with a difficult choice as a surrogate.

Finally, we note that there are some limitations related to the use of Amazon's Mechanical Turk in the present study. While the use of open-ended responses in the present study may have limited the presence of bots [29], other means of online recruitment, including pre-screened samples such as those from Prolific (Prolific; https://www.prolific.com); or recruitment from specific interest groups and online forums for surrogate decision makers, may be useful for future studies in this space.

In the present study, we found that people are generally more comfortable making surrogate decisions with lower stakes. When decisions involve confronting life and death outcomes, surrogate decision makers may have much less confidence in their choices. Our results have the potential to facilitate the development of curricula and programming designed to support surrogate decision makers both before and during these difficult choices, offering scaffolding that could improve their self-efficacy around their decisions as well as the outcomes for patients, their families, and themselves.

Abbreviations

CRT: Cognitive Reflection Test; GSE: General Self-Efficacy Scale; PICS-F: Post-Intensive Care Syndrome-Family; ICU: Intensive Care Unit; SD: Standard Deviation; VIF: Variance Inflation Factor.

Declarations

Ethics approval and consent to participate

This study was reviewed by the Virginia Tech Institutional Review Board (Human Research Protection Program, FWA00000572) and was determined to be exempt from IRB review under 45 CFR 46.104(d), category 2(i) (IRB Protocol #19-499). All study procedures were performed in accordance with the relevant institutional and federal guidelines and regulations governing research with human participants. Participants were recruited through Amazon Mechanical Turk and were presented with an information sheet describing the study's purpose, procedures, risks, compensation, voluntary nature, and confidentiality protections prior to beginning the survey; no identifiable information was collected, and proceeding with the online survey constituted consent to participate. Participants were required to be 18 years of age or older to take part.

Consent for publication

Not applicable.

Availability of data and materials

The datasets generated and analyzed during the current study are not publicly available. As part of the IRB-approved study protocol, participants were assured that their data would remain confidential and would be stored securely with access limited to the investigators; the protocol did not include provisions for public data sharing or deposit in a repository. Data may be made available from the corresponding author upon reasonable request, consistent with these confidentiality protections.

Competing Interests

The authors declare that they have no competing interests, or other interests that might be perceived to influence the results and/or discussion reported in this paper.

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Authors' contributions

Yuxin Zhao, Pamela Teaster, and Benjamin Katz drafted and revised the manuscript. Yuxin Zhao led the quantitative analyses. Onyinye Mbanefo led the qualitative analysis with support from Sean Lawrence and Nethra Rajeshkumar under the supervision of Pamela Teaster and Benjamin Katz. Yuxin Zhao, Pamela Teaster, and Benjamin Katz designed the study and oversaw the research. All authors read and approved the final manuscript.

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Clinical Trial Number

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Figures

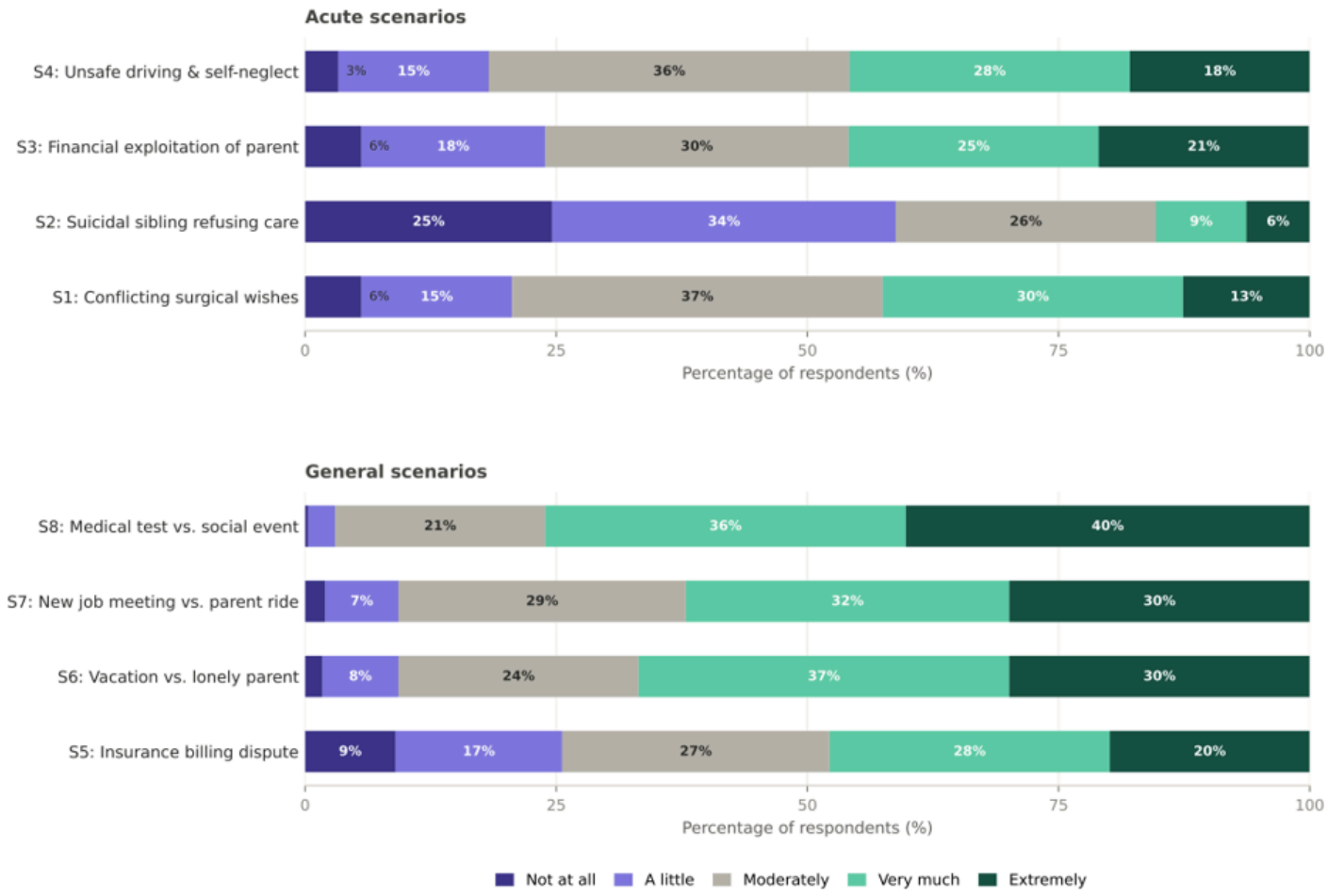


Figure 1

Distribution of Confidence Ratings Across Acute and General Surrogate Decision Making Scenarios

Note: Narrow segments (3%–5%) display percentage labels outside the bar to the right. Segments below 3% are represented in the chart but are too small to label; exact values are available in Table 2.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- SupplementaryFile1Questionnaire.docx