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# The Relationship Among Emotional Intelligence, Self-Efficacy, and Attitude Toward Death in Family Caregivers of Patients with Advanced Cancer

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**Research Article**

**Keywords:** Emotional intelligence, Self efficacy, Attitude toward death, Cancer, Family caregivers

**Posted Date:** May 15th, 2026

**DOI:** https://doi.org/10.21203/rs.3.rs-9277009/v1

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**Additional Declarations:** No competing interests reported.

# Abstract

**Background** As the global incidence of cancer continues to rise, most patients are diagnosed at an advanced stage because early symptoms are often nonspecific or overlooked. In the care of patients with advanced cancer, family caregivers assume the primary caregiving responsibilities. At the same time, they must confront end-of-life and death-related events, which place considerable demands on their emotional and caregiving capacities. However, research examining how family caregivers' emotional intelligence influences their attitudes toward death through self-efficacy remains very limited.

**Aims** To explore the associations among emotional intelligence, self-efficacy, and attitudes toward death in family caregivers of patients with advanced cancer, and to analyze the mediating role of self-efficacy in these relationships.

**Methods** This quantitative cross-sectional study used convenience sampling to recruit 365 family caregivers of patients with advanced cancer from three hospitals in Hunan Province, China. The Wong and Law Emotional Intelligence Scale (WLEIS), the General Self-Efficacy Scale (GSES), and the Attitude Toward Death Profile-Revised (DAP-R) were used to assess participants.

**Results** Among family caregivers of patients with advanced cancer, emotional intelligence was positively correlated with self-efficacy and with the neutral acceptance dimension of attitudes toward death, and negatively correlated with death fear. Self-efficacy was negatively correlated with death fear and positively correlated with neutral acceptance. Self-efficacy played a partial mediating role in the relationships between emotional intelligence and attitudes toward death.

**Conclusion** This study found significant associations among emotional intelligence, self-efficacy, and attitudes toward death in family caregivers of patients with advanced cancer, with self-efficacy partially mediating these relationships.


# Background

According to the latest 2022 report from the Global Cancer Observatory (GLOBOCAN), there were approximately 19.97 million new cancer cases and about 9.74 million cancer-related deaths worldwide. China accounted for approximately 24% of global new cases and 26% of global deaths [1], representing nearly one-quarter of the world's total burden. Moreover, most cancer patients exhibit no obvious symptoms in the early stages, and by the time of diagnosis, they are often already in the middle or advanced stages of the disease. Effective curative treatments are limited in clinical practice, and as the disease progresses, patients rapidly enter the terminal phase of their illness [2, 3].

Cancer not only brings immense suffering to patients but also imposes unprecedented physical and emotional strain on family caregivers. According to the American Cancer Society, family caregivers are primarily individuals who live with the patient, provide unpaid assistance with daily living activities, participate in decision-making, and bear primary responsibility for patient care [4, 5]. With the advancement of holistic care models that emphasize a "patient-centred" approach, family caregivers are now recognized as playing an indispensable role throughout cancer treatment and long-term adaptation to the illness [6]. Furthermore, caregivers' responses

and behaviors significantly influence patients' outcomes. Therefore, research that excludes family caregivers may fail to develop comprehensive support systems that are truly effective for patients.

When terminal cancer patients approach the end of life, their family caregivers are inevitably confronted with end-of-life realities and topics surrounding death. In traditional Chinese culture, which emphasizes life while shunning death, discussions about death have long been considered taboo. People generally avoid talking about or even encountering death, believing such topics or experiences bring misfortune [7]. However, death is an inescapable part of life. Within this cultural context, attitudes toward death have emerged as a key area of focus in palliative care research. Death attitudes refer to an individual's emotional responses, psychological tendencies, and evaluations concerning death and the dying process, encompassing their views on both their own death and the death of others [8]. Research indicates [9, 10] that caregivers with positive death attitudes are more proactive in caring for terminally ill patients. Conversely, negative death attitudes among caregivers not only reduce their own quality of life but also compromise the quality of patient care [11, 12], ultimately affecting the patients' quality of end-of-life experiences [13]. Therefore, caregivers' death attitudes constitute a critical factor in end-of-life care.

Moreover, family caregivers of terminally ill patients often experience negative emotions such as anxiety and sadness when facing death [14, 15]. Previous studies [16] have shown that more negative perceptions of death are associated with greater difficulty in adapting to life after the patient's passing. Furthermore, caregivers' fear and taboos surrounding death can influence clinical decision-making at the end of life [17]. Thus, to improve the quality of care and the quality of dying for terminally ill patients, support caregivers' psychological well-being, facilitate their post-loss adaptation, and promote appropriate end-of-life decisions, it is essential to understand caregivers' attitudes toward death.

Emotional intelligence refers to an individual's ability to recognize their own emotions and those of others, to discriminate among different emotional states, and to use emotional information to guide thinking and behavior [18]. Research demonstrates that emotional intelligence significantly predicts caregivers' death attitudes [19]. Individuals with higher emotional intelligence tend to exhibit less negative and stronger positive attitudes toward death, as well as more adaptive responses to terminal illness events [20].

Self-efficacy denotes an individual's belief in their capacity to execute specific tasks successfully and achieve desired outcomes [21]. Higher self-efficacy enables individuals to exert better control over their thoughts about death and is associated with improved psychological and social functioning, as well as enhanced well-being [22, 23]. Tzamakos et al. [24] suggested that self-efficacy constitutes a component of one's death attitude and can be applied within this domain. Similarly, Li et al. [25] found that individuals with lower self-efficacy tend to hold more negative views on death.

The ABC-X model of family stress, proposed by Reuben Hill, the father of family stress theory, in 1949, remains a comprehensive framework for understanding stress [26]. According to this model, when an individual experiences a stressful event, the combination of the stressor itself, available resources, and cognitive appraisal determines whether the outcome is positive or negative. Grounded in this theoretical framework, this study examines the relationships among emotional intelligence, self-efficacy, and death attitudes within the context of end-of-life caregiving. The study proposes three hypotheses, and the hypothesized model is presented in Fig. 1.

H1: Emotional intelligence is positively correlated with self-efficacy among family caregivers of patients with advanced cancer.

H2: Emotional intelligence is correlated with death attitudes among family caregivers of patients with advanced cancer.

H3: Self-efficacy mediates the relationship between emotional intelligence and death attitudes.

## Objectives

This study aims to explore the relationships between emotional intelligence, self-efficacy, and death attitudes in family caregivers of advanced cancer patients, and to investigate the mediating role of self-efficacy.

## Methods

# Study design

A quantitative, cross-sectional study.

## Study setting and sampling

This study employed a convenience sampling method. Between April 2025 and November 2025, a questionnaire survey was conducted among family caregivers of patients with advanced cancer from three tertiary Grade A hospitals in Hunan province.

## Inclusion Criteria:

 The cared-for patient was clinically and pathologically diagnosed with stage III/IV cancer and had experienced disease progression;

 Aged 18 years or older, and aware of the patient's actual diagnosis;

 A relative of the patient;

 Possessed effective communication and comprehension skills;

 Served as the primary caregiver, having provided continuous care for more than four weeks recently. Only one caregiver per patient was enrolled;

 Provided informed consent and voluntarily participated in the study.

## Exclusion Criteria:

 Presence of a severe physical illness;

 Severe psychological illness

A total of 365 questionnaires were ultimately distributed according to the method of MacCallum et al. [27].

# Measures

Data were collected using a questionnaire comprising four parts: a demographic information sheet, the Wong and Law Emotional Intelligence Scale (WLEIS), the General Self-Efficacy Scale (GSES), and the Death Attitude Profile-Revised (DAP-R).

## Demographic information

Caregiver data encompassed gender, age, education level, monthly income, marital status, employment status, region, exposure to death education, engagement in death-related discussions, and bereavement history. Patient data included gender, age, year of diagnosis, and awareness of their diagnosis.

**Wong and Law Emotional Intelligence Scale (WLEIS)**
The Wong and Law Emotional Intelligence Scale (WLEIS) was originally developed in English by Wong et al. [28] in 2004 within the Hong Kong, China context as a self-report instrument. In 2010, Wang et al. translated and adapted the scale, creating a Chinese version [29].The scale consists of 16 items divided into four subscales: Others' Emotion Appraisal, Self-Emotion Appraisal, Use of Emotion, and Regulation of Emotion. Participants rate their agreement on a 7-point Likert scale (from "strongly disagree" to "strongly agree"), yielding item scores of 0–6 and a total score range of 0–96. A higher total score reflects a greater level of emotional intelligence. For the present sample, the scale's Cronbach's α was 0.861.

# General Self-Efficacy Scale (GSES)

The General Self-Efficacy Scale (GSES), developed by German psychologist Schwarzer [30], is a 10-item instrument that has gained widespread international and domestic application. The Chinese version was translated and validated by Wang et al. [31]. Responses are recorded on a 4-point Likert scale, anchored at 1 ("Completely incorrect") and 4 ("Exactly correct"). The total score is interpreted such that higher scores reflect stronger self-efficacy. Based on the total score, self-efficacy is classified into three levels: low (< 20), moderate (20–30), and high (> 30). For the present study, the Cronbach's alpha for this scale was 0.948.

# Attitude toward death profile-revised (DAP-R)

The Attitude toward death Profile-Revised (DAP-R) is 32-item measure with five subscales: fear of death (negative), death avoidance (negative), neutral acceptance(positive), approach acceptance (positive), and escape acceptance (positive). Scores for positive or negative dimension are averaged by the number of items, and the scale does not calculate a total score but rather interprets attitudes based on individual dimension scores. Item with scores ranging from 1 (totally disagree) to 5 (totally agree), the total score is the sum of the scores for each attitude subscale, higher scores indicate a stronger tendency towards the attitude represented

by each dimension [32]. Tang et al. [33] translated DAP-R in China. DAP-R in this study has a Cronbach's alpha of 0.869.

# Data collection

The survey was administered online via "Wenjuanxing", China's leading e-questionnaire platform. Following explanations of the study and obtained consent from the nursing department directors of three hospitals in Hunan provinces, our research team distributed the questionnaire link to potential participants who met the inclusion criteria. The questionnaire's first page contained a detailed description and an informed consent question; only participants who selected "Yes, I agree to join" were granted access to the subsequent sections.

# Data analysis

Data were analyzed using SPSS version 27.0. Descriptive statistics were used to summarize the participants' characteristics and variables. Stepwise regression analysis was used to investigate the mediating effects, and Pearson correlation coefficients were employed to examine the correlations among variables. The mediation effect of self-efficacy in the relationship between emotional intelligence and death attitudes was tested using the PROCESS macro for SPSS. A bias-corrected percentile bootstrap method with 5,000 resamples was used to generate a 95% confidence interval (CI) for the indirect effect. The mediation effect was considered statistically significant if the 95% CI did not include zero.

# Ethical consideration

The study was approved by the Ethics Committee of Hunan Normal University (with the code 2025469) and adhered to the principles of the Declaration of Helsinki [34]. We explained the study's purpose and process in the consent form, as well as the voluntary nature and anonymity. Written informed consent and assent were obtained from all the eligible participants. Lastly, all data were securely stored on a password-protected computer accessible only to team members.

## Results

# Participants

A total of 365 family caregivers of patients with advanced cancer were invited to participate in the survey. Among these, 355 questionnaires were returned, all of which were valid, yielding an effective response rate of 97.26%. The baseline characteristics are as follows: Among the family caregivers, 151 (42.5%) were male and 204 (57.5%) were female. The majority of caregivers were aged between 18–44 (38.3%) and 45–59 (38.6%). Regarding the patients with advanced cancer, 194 (54.6%) were male and 161 (45.4%) were female, with a mean age of 63.03 ± 12.52 years. Other detailed information is presented in Tables 1 and 2.

Table 1
Caregiver Demographic Information

| Item | Category | Number | Proportion (%) |
|---|---|---|---|
| Gender | Male | 151 | 42.5 |
| | Female | 204 | 57.5 |
| Age | 18–44 | 136 | 38.3 |
| | 45–59 | 137 | 38.6 |
| | 60–74 | 49 | 13.8 |
| | ≥ 75 | 33 | 9.3 |
| Relationship with patients | Spouse | 138 | 38.9 |
| | Children | 168 | 47.3 |
| | Parents | 28 | 7.9 |
| | Other relatives | 21 | 5.9 |
| Duration of care | 1–3 months | 158 | 44.5 |
| | 4–6 months | 89 | 25.1 |
| | 7–12 months | 44 | 12.4 |
| | 1 year or more | 64 | 18.0 |
| Religious beliefs | Yes | 40 | 11.3 |
| | No | 301 | 88.7 |
| Education | Below Primary Education | 12 | 3.4 |
| | Primary School | 41 | 11.5 |
| | Middle School | 63 | 17.7 |
| | High School | 81 | 22.8 |
| | Associate's Degree | 92 | 25.9 |
| | Bachelor's Degree | 44 | 12.4 |
| | Master's Degree or Above | 22 | 6.2 |
| Personal monthly income | ≤ 1500 | 31 | 8.7 |
| | 1501–3499 | 132 | 37.2 |
| | 3500–5499 | 135 | 38.0 |
| | 5500–7500 | 25 | 7.0 |
| | ≥ 7500 | 32 | 9.0 |

| Item | Category | Number | Proportion (%) |
|---|---|---|---|
| Receiving death education | Yes | 63 | 17.7 |
| | No | 292 | 82.3 |
| Immediate family bereavement experience | Yes | 186 | 52.4 |
| | No | 169 | 47.6 |
| Chronic disease | Yes | 58 | 16.3 |
| | No | 297 | 83.7 |
| Discussing the topic of death | Yes | 163 | 45.9 |
| | No | 192 | 54.1 |
| Marital status | Unmarried | 40 | 11.3 |
| | Married | 286 | 80.6 |
| | Divorce | 29 | 8.2 |
| Full-time care | Yes | 140 | 39.4 |
| | No | 215 | 60.6 |

Table 2
General demographic data of patients

| Item | Category | Number | Proportion (%) |
|---|---|---|---|
| Gender | Male | 194 | 54.6 |
| | Female | 161 | 45.4 |
| Age | 63.03 ± 12.52 | | |
| Medical Payment Methods | Urban and Rural Residents' Medical Insurance | 232 | 65.4 |
| | Urban and rural employee medical insurance | 75 | 21.1 |
| | Out-of-pocket | 48 | 13.5 |
| Disease recurrence | Yes | 171 | 48.2 |
| | No | 184 | 51.8 |
| Illness awareness | Aware | 316 | 89 |
| | Unware | 39 | 11 |
| Accept palliative care | Yes | 34 | 9.6 |
| | No | 321 | 90.4 |

# Descriptive statistics for variables

Negative Attitude Toward Death (39.25 ± 8.25), Positive Attitude Toward Death (61.16 ± 12.54), Fear of Death(23.09 ± 6.14), Death avoidance（16.16 ± 3.82）, Approach Acceptance (29.05 ± 7.55), Neutral Acceptance

(17.43 ± 4.26), Escape Acceptance (14.67 ± 3.72), Emotional Intelligence (63.72 ± 14.76), Self-Efficacy (29.65 ± 7.48). Other detailed information is presented in Tables 3. The descriptive statistics for variables are shown in Table 3.

Table 3
Descriptive statistics for variables

| Variable | Dimensions | Score range | Mean ± SD |
|---|---|---|---|
| Attitude Toward Death | Negative Attitude Toward Death | 12–60 | 39.25 ± 8.25 |
| | Fear of Death | 7–35 | 23.09 ± 6.14 |
| | Death avoidance | 5–25 | 16.16 ± 3.82 |
| | Positive Attitude Toward Death | 20–100 | 61.16 ± 12.54 |
| | Approach Acceptance | 10–50 | 29.05 ± 7.55 |
| | Neutral Acceptance | 5–25 | 17.43 ± 4.26 |
| | Escape Acceptance | 5–25 | 14.67 ± 3.72 |
| Emotional Intelligence | Overall | 0–96 | 63.72 ± 14.76 |
| | Regulation of Emotion | 0–24 | 16.73 ± 4.75 |
| | Self-Emotion Appraisal | 0–24 | 16.29 ± 5.11 |
| | Others' Emotion Appraisal | 0–24 | 16.07 ± 5.17 |
| | Use of Emotion | 0–24 | 14.61 ± 5.89 |
| Self-Efficacy | Overall | 10–40 | 29.65 ± 7.48 |

# Correlations for variables

A correlation analysis was conducted on the five dimension scores of death attitudes, emotional intelligence, and self-efficacy among family caregivers of late-stage cancer patients. The results of the correlation analysis are shown in Table 4. The analysis revealed that emotional intelligence was significantly positively correlated with self-efficacy ($r = 0.598$, $P < 0.01$); fear of death was significantly negatively correlated with both emotional intelligence ($r = -0.593$, $P < 0.01$) and self-efficacy ($r = -0.564$, $P < 0.01$); and acceptance of natural death was significantly positively correlated with both emotional intelligence ($r = 0.570$, $P < 0.01$) and self-efficacy ($r = 0.539$, $P < 0.01$). The specific results are presented in Table 8. The findings of this study indicate: (1) higher total emotional intelligence scores are associated with higher self-efficacy, lower fear of death, and higher neutral acceptance; (2) higher self-efficacy is associated with lower fear of death and higher neutral acceptance.

Table 4
Correlation among emotional intelligence, self-efficacy, and attitude toward death

| 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | | | | | | | | | |
| 2 | .331** | | | | | | | | | | |
| 3 | .028 | .287** | | | | | | | | | |
| 4 | − .471** | − .043 | .368** | | | | | | | | |
| 5 | − .032 | .220** | .604** | .331** | | | | | | | |
| 6 | − .593** | − .091 | .086 | .570** | .051 | | | | | | |
| 7 | − .564** | − .038 | .064 | .539** | .077 | .598** | | | | | |
| 8 | − .409** | − .053 | .060 | .384** | .027 | .689** | .452** | | | | |
| 9 | − .472** | − .118* | .005 | .384** | − .037 | .725** | .401** | .305** | | | |
| 10 | − .413** | − .052 | .091 | .435** | .067 | .715** | .433** | .359** | .357** | | |
| 11 | − .369** | − .025 | .098 | .411** | .098 | .690** | .406** | .300** | .300** | .359** | |

Note: **: P < 0.01, *: P < 0.05; 1: Fear of death; 2: Death avoidance; 3: Approach acceptance; 4: Neutral acceptance; 5: escape acceptance; 6: emotional intelligence; 7: self-efficacy; 8: Self-Emotion Appraisal; 9: Use of Emotion; 10: Regulation of Emotion; 11: Others' Emotion Appraisal.

# Regression Analysis of Emotional Intelligence, Self-Efficacy, and Fear of Death

Table 5 shows how self-efficacy mediates the relationship between emotional intelligence and fear of death. In step 1, emotional intelligence predicted fear of death ($\beta$=-0.5640, $P$ < 0.001 ). In step 2, emotional intelligence predicted self-efficacy ($\beta$ = 0.4852, $P$ < 0.001 ). In step 3, when the mediator self-efficacy was included, the regression coefficient between emotional intelligence and fear of death decreased from ($\beta$=-0.5640) to ($\beta$=-0.3784, $P$ < 0.001 ).

Table 5
Regression analysis for emotional intelligence, self efficacy and Fear of Death (n = 355)

| Dependent variables | Independent variables | β | t | F | $R^2$ | *P* |
|---|---|---|---|---|---|---|
| Fear of Death | Emotional Intelligence | −0.564 | −13.882 | 191.058 | 0.351 | <0.001 |
| Self-Efficacy | Emotional Intelligence | 0.485 | 14.035 | 196.983 | 0.358 | <0.001 |
| Fear of Death | Self-Efficacy | −0.382 | −6.426 | 127.081 | 0.419 | <0.001 |
| | Emotional Intelligence | −0.378 | −7.842 | | | <0.001 |

# Mediation analysis of emotional intelligence, self-efficacy, and fear of death

Table 6 illustrates the path coefficients of the direct (-0.3784) and indirect (-0.1856) impacts of Emotional intelligence on Fear of Death, indicating that a self efficacy has a partially mediate role.

Table 6
Mediation analysis of emotional intelligence, self-efficacy, and fear of death

| Model pathways | | Estimated effect | 95%CI | |
|---|---|---|---|---|
| | | | Lower | Upper |
| Total effect of X on Y | Emotional Intelligence → Fear of Death | −0.5640 | 0.0408 | −0.6443 |
| Direct effect | Emotional Intelligence → Fear of Death | −0.3784 | 0.0483 | −0.4733 |
| Indirect effect | Emotional Intelligence → Self-efficacy→Fear of Death | −0.1856 | 0.0303 | −0.2448 |

# Regression Analysis of Emotional Intelligence, Self-Efficacy, and Neutral acceptance

Table 7 shows how self-efficacy mediates the relationship between emotional intelligence and neutral acceptance. In step 1, emotional intelligence predicted fear of death ($\beta$ = 0.5273, $P$ < 0.001). In step 2, emotional intelligence predicted self-efficacy ($\beta$ = 0.4852, $P$ < 0.001 ). In step 3, when the mediator self-efficacy was included, the regression coefficient between emotional intelligence and neutral acceptance decreased from ($\beta$ = 0.5273) to ($\beta$ = 0.3574, $P$ < 0.001 ).

Table 7
Regression analysis for emotional intelligence, self efficacy and Neutral acceptance (n = 355)

| Dependent variables | Independent variables | β | t | F | $R^2$ | *P* |
|---|---|---|---|---|---|---|
| Neutral acceptance | Emotional Intelligence | 0.527 | 13.049 | 170.298 | 0.325 | <0.001 |
| Self-Efficacy | Emotional Intelligence | 0.485 | 14.035 | 196.983 | 0.358 | <0.001 |
| Neutral acceptance | Self-Efficacy | 0.350 | 5.891 | 110.635 | 0.386 | <0.001 |
| | Emotional Intelligence | 0.357 | 7.416 | | | <0.001 |

# Mediation Analysis of Emotional Intelligence, Self-Efficacy, and Attitudes Toward Death

Table 8 illustrates the path coefficients of the direct (0.3574) and indirect (0.1699) impacts of Emotional intelligence on Neutral acceptance, indicating that a self efficacy has a partially mediate role.

Table 8
Mediation Analysis of Emotional Intelligence, Self-Efficacy, and Attitudes Toward Death

| Model pathways | | Estimated effect | 95%CI | |
|---|---|---|---|---|
| | | | Lower | Upper |
| Total effect of X on Y | Emotional Intelligence →Neutral acceptance | 0.5273 | 0.0404 | 0.4478 |
| Direct effect | Emotional Intelligence → Neutral acceptance | 0.3574 | 0.0482 | 0.2626 |
| Indirect effect | Emotional Intelligence→Self-efficacy→Neutral acceptance | 0.1699 | 0.0335 | 0.1035 |

## Discussion

# Correlation analysis of emotional intelligence, self-efficacy, and attitude towards death

This study contributes to the literature by addressing specific limitations and providing valuable data. This is achieved through conducting the first systematic exploration, which is guided by the ABC-X theory, of the linkages between emotional intelligence, self-efficacy, and death attitudes in family caregivers of advanced cancer patients.

The results of this study indicate that emotional intelligence is associated with death attitudes. Specifically, emotional intelligence was negatively correlated with death fear and positively correlated with natural acceptance among caregivers, which aligns with the findings of Li Yuqi et al. [20]. This suggests that individuals with low emotional intelligence may experience adverse effects on their mental health, including more negative self-evaluations and higher anxiety. Consequently, they may be more prone to fear the unknown, leading to increased fear and anxiety toward death [35]. Furthermore, individuals with high emotional intelligence possess better emotional regulation and adjustment abilities, enabling them to manage and utilize their emotions more effectively in challenging situations. This contributes to maintaining their mental and emotional stability [20]. Therefore, caregivers with high emotional intelligence can consistently perceive emotional changes in the cancer patients they care for and respond promptly to provide high-quality care.

The emotional intelligence of caregivers of advanced cancer patients showed a significant positive correlation with self-efficacy, which is consistent with the findings of Tzamakos et al. [24]. Karimi et al. noted [36] that emotional intelligence serves as a protective factor in an individual's ability to cope with stress. Individuals with higher emotional intelligence are better equipped to handle emotional stress in caregiving, maintain a positive psychological state, and exhibit greater confidence and determination to overcome difficulties, thereby enhancing their self-efficacy. Additionally, individuals with high emotional intelligence perform better in interactions with patients, gaining more recognition and support. This positive external feedback further strengthens their self-efficacy [37].

According to Bandura's self-efficacy theory, self-efficacy represents an individual's belief in their ability to take action when facing difficulties [21]. The results of this study indicate that the self-efficacy of caregivers of advanced cancer patients is associated with death attitudes. Specifically, self-efficacy was negatively correlated

with death fear and positively correlated with natural acceptance. Liu et al. pointed out [38] that an individual's perception of death is influenced by their perception of their own abilities [39]. Therefore, in death-related contexts, higher self-efficacy typically implies stronger problem-solving and emotional regulation abilities, which help buffer negative attitudes toward death and provide psychological resources for positive death attitudes.

## The Mediating Role of Self-Efficacy in the Relationship Between Emotional Intelligence and Attitudes Toward Death

Existing research indicates that self-efficacy plays a significant role in patients with advanced cancer. It can function not only as a primary predictor or an outcome variable but also as a mediator among various psychological constructs [40]. Based on this understanding, the present study investigated whether self-efficacy mediates the relationship between emotional intelligence and death attitudes.

The results reveal that self-efficacy serves as a partial mediator between emotional intelligence and death attitudes. More specifically, it partially mediates the relationship between emotional intelligence and both death fear and natural acceptance. This finding suggests that an individual's perception of death is influenced by their perception of their own capabilities, which in turn partially shapes the formation of their death attitudes. Family caregivers of cancer patients constitute a distinct group often characterized by frequent exposure to death and a substantial caregiving burden. When confronting the patient's death, these caregivers may experience self-doubt regarding their capabilities, which can subsequently lead to more negative attitudes toward death.

The earlier correlation analysis demonstrated significant pairwise relationships among emotional intelligence, self-efficacy, and death attitudes. Subsequent path analysis and mediation testing provided further clarification. Self-efficacy was found to partially mediate the link between emotional intelligence and death fear, accounting for 32.90% of the total effect. Similarly, it partially mediated the relationship between emotional intelligence and natural acceptance, explaining 32.20% of the total effect. These findings indicate that emotional intelligence influences death attitudes through two distinct pathways: a direct effect on death fear and natural acceptance, and an indirect effect mediated through self-efficacy. Given their frequent exposure to death and high caregiving burden, family caregivers of advanced cancer patients are particularly vulnerable to self-doubt in death-related situations, which fosters negative attitudes [41]. This insight suggests a dual-intervention strategy for healthcare professionals. They can aim to improve caregivers' death attitudes not only by directly enhancing their emotional intelligence but also, by leveraging the mediating role of self-efficacy, indirectly through interventions that boost caregivers' self-efficacy levels. Such an approach may help caregivers face end-of-life events more positively and reduce adverse psychological reactions following bereavement.

Self-efficacy is a core concept within social cognitive theory. For family caregivers of advanced cancer patients, it refers to their judgment and confidence in their ability to perform specific caregiving tasks within an end-of-life context. Research has established self-efficacy as a key factor influencing death attitude beliefs, as well as behavioral changes and maintenance, among cancer caregivers [24, 41]. Consequently, improving caregivers' self-efficacy levels can effectively enhance their attitudes when confronting end-of-life events. Therefore, it is crucial to focus on enhancing the self-efficacy of these caregivers throughout the prolonged disease trajectory to help them face death-related events more positively and improve their psychological state.

This underscores the need for healthcare providers to extend their support beyond direct patient care. They should also assist caregivers in better adapting to the negative changes brought about by the patient's terminal condition. Efforts should be made to strengthen caregivers' confidence in providing end-of-life care and to encourage their active participation in disease management and symptom alleviation.

## Conclusion

This study identified significant associations between emotional intelligence, self-efficacy, and attitudes toward death among family caregivers of patients with advanced cancer. Self-efficacy partially mediated the relationships between emotional intelligence and both death fear and natural acceptance, highlighting self-efficacy as a key psychological pathway through which emotional intelligence shapes caregivers' responses to death. These findings underscore the importance of developing emotional intelligence–oriented death education (e.g., training in emotional awareness, regulation, and communication) and providing targeted caregiving knowledge and skills training to enhance caregivers' self-efficacy. Such strategies may help reduce death-related fear, promote more adaptive acceptance of death, and ultimately support caregivers' psychological well-being. Moreover, these results offer a theoretical and empirical basis for integrating caregiver-focused emotional and efficacy-enhancing interventions into palliative care practice and for guiding future research aimed at improving family-centered end-of-life care.

# Limitation

This study has several limitations. First, the use of a cross-sectional design prevents the establishment of causal relationships and limits the ability to clarify how emotional intelligence and self-efficacy influence attitudes toward death. Second, all participants were recruited from a single province in China, which may restrict the generalizability of the findings to other regions and cultural contexts. Third, although anonymity and confidentiality were assured, talking about death is often considered taboo in Chinese culture, and respondents may have concealed their true thoughts when completing the questionnaires, introducing potential response bias. Therefore, future research could adopt qualitative methods or longitudinal, multicenter designs to further explore the relationships among emotional intelligence, self-efficacy, and attitudes toward death in family caregivers of patients with advanced cancer.

## Declarations

**Acknowledgements**

We would like to express our heartfelt gratitude to all the participants. This study would not have been possible without their contributions.

**Author contributions**

H.S: Methodology, Data curation; Formal analysis; Investigation; Methodology; Writing - original draft; Writing - review & editing.

K.T: Methodology,Supervision, Resources; Writing - original draft; Review & editing.

**Funding**

no funding

**Data availability**

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

**Ethics approval and consent to participate**

This study was approved by the Ethics Committee of Hunan Normal University (Approval No.: 2025469). All procedures performed in this study involving human participants were in accordance with the ethical standards of the Ethics Committee of Hunan Normal University and with the Declaration of Helsinki [34]. Informed consent was obtained from all individual participants included in the study. Participants were informed that they could withdraw at any time without consequence. Anonymity and confidentiality were guaranteed.

**Consent for publication**

Not applicable.

**Competing interests**

The authors declare no competing interests.

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## Figures

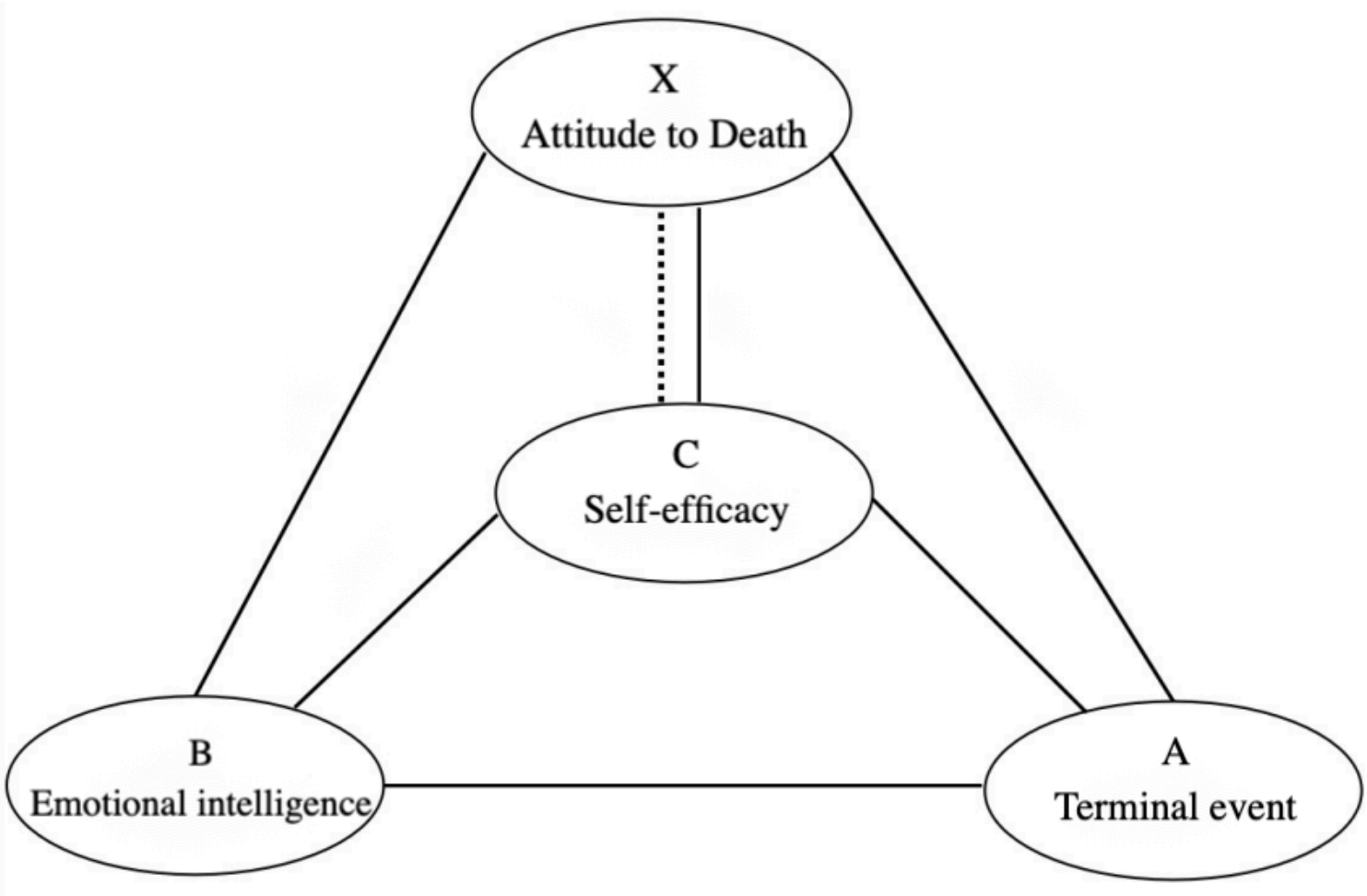


**Figure 1**

The hypothesized model