Structural Equation Modeling of Attitudes Toward Tanatological Attention: Ethical Dilemmas, Dimensional Structure, and Psychometric Validation

*[1]Leticia María González Velásquez, [2]Cruz García Lirios, [3]Sonia Sujell Velez Baez

[1] *Teaching Feculty, Universidad de Sonora (USON)*

[2] *Teaching Feculty, Universidad de la Salud (UNISA)*

[3] *Teaching Feculty, Universidad Autónoma de Querétaro (UAQ)*

Abstract

This article expands the theoretical and empirical specification of attitudes toward tanatological attention by integrating a state-of-the-art review, structural equation modeling, and analysis of ethical dilemmas inherent to end-of-life care. Based on a three-dimensional model of affective, cognitive, and intentional components, a survey was administered to 130 residents of Cuernavaca, Mexico. Factor analyses and structural equations confirmed a second-order attitudinal factor explaining 74 percent of the variance. Ethical dilemmas emerged around autonomy, informed consent, emotional vulnerability, and the limits of psychological intervention. Findings reinforce the centrality of multidimensional attitudes in understanding tanatological engagement and emphasize the need for ethically grounded clinical practices.

Keywords: Attitudes; Thanatology; Structural equations; Ethical dilemmas; Cognitive factors.

Introduction

Tanatological attention has evolved from humanistic psychological approaches, which dominated the second half of the twentieth century, toward integrated biopsychosocial interventions designed to offer emotional, cognitive, and behavioral support in the context of terminal illness. Early work by Freud, Klein, Fromm, Rogers, and Jung influenced therapeutic practices by emphasizing subjective suffering among families and health professionals confronted with death. Over time, the complexity of terminal care revealed high levels of burnout, depersonalization, and emotional exhaustion among medical staff, creating a need for systematic psychosocial models capable of understanding the determinants of engagement with tanatological services.

Attitudes toward tanatological attention have become a key variable for understanding adherence, acceptance, and resistance to support services. Theoretical developments in attitudinal research demonstrate a progression from unidimensional views to tripartite models integrating emotions, beliefs, and behavioral intentions. The Theory of Reasoned Action and the Theory of Planned

Behavior consolidated the role of intentions as the proximal determinant of behavior, while contemporary models highlight the interdependence of cognitive appraisals and emotional evaluations. In tanatological settings, attitudes are shaped by grief, family dynamics, existential meaning, and cultural frameworks regarding death.

Tanatological attention has progressively evolved from mid-twentieth century humanistic psychology toward a comprehensive biopsychosocial model that seeks to address the emotional, cognitive, and behavioral needs of individuals facing terminal illness. Early therapeutic traditions, influenced by figures such as Freud, Rogers, Klein, and Jung, emphasized empathic listening, affective containment, and symbolic interpretation of suffering among patients and relatives coping with impending death (García, 2020). Over time, clinical observations revealed that health professionals involved in terminal care frequently experienced emotional exhaustion, depersonalization, and burnout syndromes associated with sustained exposure to death-related stressors (García, 2019). These findings prompted the transition toward integrated psychosocial frameworks capable of explaining how individuals interpret, assimilate, or resist tanatological interventions.

Central to this shift is the role of attitudes, conceptualized as multidimensional constructs that influence receptivity to psychosocial support services. Classical research debated whether attitudes should be understood as unidimensional evaluations or as combinations of affective, cognitive, and behavioral components (Ajzen, 2001; Javiedes, 2004). Contemporary perspectives, particularly the Theory of Reasoned Action and the Theory of Planned Behavior, position intentions as the proximal determinant of behavior and demonstrate the interaction of beliefs, emotions, and behavioral dispositions in shaping human action (Ajzen & Fishbein, 1974; Ajzen, 1991). In the context of terminal illness, these dimensions gain special relevance as individuals navigate fear, uncertainty, existential questioning, and family pressures.

Although several studies have examined the emotional and cognitive correlates of grief, few have modeled their structural interrelations in tanatological contexts or incorporated the ethical dilemmas that shape decision-making at the end of life. Ethical tensions surrounding autonomy, informed consent, cultural expectations, and the influence of professionals may modulate attitudinal responses in ways not captured by traditional psychological scales. Therefore, the present study seeks to specify a structural model of attitudes toward tanatological attention by integrating affective, cognitive, and intentional components alongside an ethical reflection on dilemmas emerging in clinical practice.

Research on attitudes toward tanatological attention has expanded over the past two decades, documenting the interplay of emotional, rational, and intentional components in shaping engagement with end-of-life services. Emotional responses, including fear, ambivalence, avoidance, and acceptance, have been identified as powerful determinants of participation in grieving interventions, often predicting greater variance than cognitive beliefs (Hernández, 2019). Cognitive factors, such as perceived usefulness of tanatological support, explanatory models of illness, and beliefs about the inevitability of death, contribute to shaping expectations and judgments regarding professional care (Ajzen, 2001). Intentional dispositions, understood as behavioral commitments to seek or recommend support, mediate the translation of emotions and beliefs into concrete actions (Pallí & Martínez, 2004).

This tripartite structure is consistent with major attitudinal theories. The Theory of Reasoned Action highlights the mediating role of intentions between beliefs and behavior, whereas the Theory of Planned Behavior incorporates perceived control to enhance predictive accuracy (Ajzen & Fishbein, 1974; Ajzen, 1991). Empirical studies on grief, illness adaptation, and palliative care similarly reveal that attitudes integrate emotional appraisals, cognitive evaluations, and behavioral intentions, forming a coherent yet complex system of psychological reactions (Blaness, 2019; Bustos, 2019). These findings support the use of multidimensional models to understand how individuals confront terminal situations and decide whether to participate in supportive interventions.

Latin American studies provide additional insight, identifying cultural values, family dynamics, and collective expectations as significant contextual factors modulating attitudes toward death and professional help-seeking (Laca, 2005; Sánchez, 2019). In this regional context, attitudes often reflect tensions between religious beliefs, medical authority, and family responsibility. This complexity reinforces the importance of structural models capable of capturing both shared and differentiated dimensions of attitudinal functioning.

Despite these advances, limited research has incorporated ethical dilemmas into the analysis of attitudes toward tanatological attention. Decisions about disclosure, family mediation, autonomy, emotional vulnerability, and distributive justice remain underexamined, even though they shape how individuals evaluate and respond to end-of-life support. Integrating ethical considerations into attitudinal models thus represents a necessary step for advancing theoretical, clinical, and methodological work in tanatology.

The present study extends previous work by specifying structural equations linking affective, cognitive, and intentional components to a higher-order attitudinal factor. It incorporates an ethical dimension, recognizing that tanatological care raises dilemmas concerning patient autonomy, informed decision-making, family mediation, and the emotional boundaries of professionals. Understanding attitudes therefore requires both psychological and ethical considerations.

Current research on attitudes toward tanatological attention identifies three persistent lines of inquiry. The first concerns emotional responses to grief, including fear, avoidance, guilt, and acceptance, which influence willingness to engage in tanatological support. The second line examines cognitive appraisals, such as beliefs about the nature of terminal illness, responsibility for care, and perceived usefulness of professional intervention. The third line concerns intentional dispositions that guide concrete actions, including attending sessions, supporting family members, and complying with treatment recommendations.

Empirical studies consistently demonstrate that attitudes act as mediators between the stress of loss and health outcomes. Research on psychosocial determinants of adherence to palliative care reveals that attitudes combine cultural expectations, prior experiences with health systems, and personal values regarding autonomy and death. Structural models applied in Latin American contexts show that emotional factors often have stronger effects on engagement than cognitive ones, though both contribute significantly to behavioral intentions.

The literature also emphasizes ethical tensions: decisions about disclosure of diagnosis, conflicts between patient wishes and family preferences, and the limits of professional intervention. These

dilemmas modulate attitudes and illustrate the inseparability of psychological constructs and ethical reasoning in end-of-life settings.

How do affective, cognitive, and intentional components structurally integrate into a second-order attitudinal factor toward tanatological attention, and what ethical dilemmas arise from this attitudinal configuration?

The structure of attitudes toward tanatological attention is tridimensional, and the affective, cognitive, and intentional components exhibit significant direct effects on a second-order general attitude factor, with positive covariances among all first-order factors.

Method

The methodological design followed a non-experimental, cross-sectional, and correlational approach, consistent with attitudinal research in psychosocial and health contexts (Ajzen, 1991; Hernández, 2019). The objective was to estimate the structural relations among affective, cognitive, and intentional dimensions of attitudes toward tanatological attention and to validate the measurement model through multivariate statistical procedures, including exploratory factor analysis and structural equation modeling.

Participants

The participants were 130 residents of Cuernavaca, Morelos (Mexico), recruited at the tanatological service of a public hospital. Demographic characteristics indicated a majority of men, predominantly married, with heterogeneous educational and income levels.

The study included 130 adults residing in Cuernavaca, Morelos (Mexico), who attended a public hospital's tanatological service during the data collection period. Recruitment occurred through non-probabilistic convenience sampling in the hospital waiting room. Although non-probabilistic sampling is common in clinical and hospital-based studies due to accessibility constraints, the minimum required sample size was estimated using Cochran's formula for continuous variables to ensure statistical adequacy (Cochran, 1977).

The minimum sample size was determined using the standard Cochran formula:

$$n_0 = \frac{Z^{2} \cdot p \cdot q}{e^{2}}$$

Where:
Z = 1.96 for 95% confidence,
p = .50 (maximum variability),
q = 1 – p,
e = .05 margin of error.

Substituting values:

$$n_0 = \frac{1.96^{2}(0.50)(0.50)}{0.05^{2}} = 384.16$$

Because the study applied a non-probabilistic approach and expected a smaller accessible population of users attending the service, the target of at least 100 participants was considered acceptable for factor analysis and structural modeling according to recommendations by Kline (2016) and Bentler (2007), who indicate that a sample of 100–150 participants is commonly adequate for models of low-to-moderate complexity. The obtained sample of 130 individuals therefore met minimum analytical requirements.

Procedure

Participants were approached in the tanatological service waiting area, informed about the study, and invited to complete the questionnaire. Data were reviewed for completeness, and respondents were encouraged to participate in subsequent hospital sessions.

Participants were approached before or after attending tanatological sessions and were informed about the purpose of the study, voluntary participation, confidentiality, and the estimated duration of 15 minutes. After consent, respondents completed a printed questionnaire individually. All responses were reviewed for completeness, and missing values were addressed immediately. The study adhered to ethical standards established for psychosocial research on sensitive topics, particularly confidentiality, anonymity, and respect for participants' emotional vulnerability (García, 2020).

Instrument

The Attitude Toward Tanatological Attention Scale consisted of 15 items distributed into three dimensions: affective, cognitive, and intentional attitudes. Each dimension included five items with four response options ranging from negative to positive evaluations. Items were tested for distributional adequacy, resulting in the removal of one skewed item. Psychometric analysis included exploratory factor analysis, reliability testing, and structural modeling.

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Exploratory factor analysis was applied using principal axis factoring with oblique rotation, given theoretical expectations of correlation among dimensions. Adequacy was evaluated through Kaiser–Meyer–Olkin (KMO) coefficients and the Bartlett test of sphericity. Reliability for each subscale was examined using Cronbach's alpha, adopting .70 as a recommended threshold for internal consistency (Nunnally & Bernstein, 1994).

Data analysis

Data were processed using multivariate procedures to specify and estimate the structural relationships among the three dimensions of attitude. Factor validity and structural relations were

assessed through structural equation modeling, which allows simultaneous estimation of measurement and structural components of latent constructs (Kline, 2016).

The relationship among the first-order factors and the second-order general attitude factor was estimated using a standard structural equation model expressed as:

$$\eta = \Gamma \xi + \zeta$$

Where:
η = endogenous latent variable (General Attitude), ξ = vector of exogenous latent variables (Affective, Cognitive, Intentional factors), Γ = matrix of structural coefficients linking exogenous to endogenous variables, ζ = error term representing unexplained variance.

Expanded, the model is represented as:

$$\text{General Attitude} = \gamma_{1}(\text{Affective}) + \gamma_{2}(\text{Cognitive}) + \gamma_{3}(\text{Intentional}) + \zeta$$

Covariances among first-order factors were also estimated:

$$\phi_{12} = \text{Cov}(\text{Affective}, \text{Cognitive})$$
$$\phi_{13} = \text{Cov}(\text{Affective}, \text{Intentional})$$
$$\phi_{23} = \text{Cov}(\text{Cognitive}, \text{Intentional})$$

Factor loadings for measurement indicators were expressed as:

$$x = \Lambda_x \xi + \delta$$

Where:
x = observed variables (items), Λ_x = matrix of factor loadings, δ = measurement error.

The model included three first-order factors (Affective, Cognitive, Intentional) and one second-order factor (General Attitude). Factor loadings were above .300 and significant.

Equation 1. First-order latent variables

$$\text{Affective} = \lambda_1 X_1 + \lambda_2 X_2 + \lambda_3 X_3 + \lambda_4 X_4 + \lambda_5 X_5 + \delta$$
$$\text{Cognitive} = \lambda_6 X_6 + \lambda_7 X_7 + \lambda_8 X_8 + \lambda_9 X_9 + \lambda_{10} X_{10} + \delta$$
$$\text{Intentional} = \lambda_{11} X_{11} + \lambda_{12} X_{12} + \lambda_{13} X_{13} + \lambda_{14} X_{14} + \lambda_{15} X_{15} + \delta$$

Equation 2. Second-order factor

General Attitude = γ_1(Affective) + γ_2(Cognitive) + γ_3(Intentional) + ζ

Equation 3. Covariances

Cov(Affective, Cognitive) = φ_{12}

Cov(Affective, Intentional) = φ_{13}

Cov(Cognitive, Intentional) = φ_{23}

The model was evaluated through significance of factor loadings, magnitude of path coefficients, and proportion of explained variance. Fit indices—such as χ^2, CFI, NFI, and RMSEA—could not be computed due to limitations in the student version of the software but were theoretically expected to improve with larger sample sizes (Bentler, 2007).

Results

Descriptive statistics appear in Table 1, while factor structure and reliability appear in Table 2. Structural equations are presented afterward.

Table 1. Descriptive Statistics of Attitudinal Dimensions (n = 130)

Dimension	Mean	SD	Skewness	Kurtosis
Affective	3.42	0.8	−0.41	−0.55
Cognitive	3.57	0.7	−0.28	−0.61
Intentional	3.21	0.8	−0.33	−0.48
General attitude	3.4	0.8	−0.37	−0.52

All paths were positive and significant, and the model explained 74 percent of the variance, confirming the multidimensional structure (see Table 2).

Table 2. Factor Analysis and Reliability Results

Factor	KMO	χ^2 (df)	Variance Explained	α
Affective	0.84	118.50 (10), p < .001	67%	0.8
Cognitive	0.81	112.13 (10), p < .001	64%	0.8
Intentional	—	—	72%	0.8
Second-order	0.68	48.02 (3), p < .001	71%	0.9

Discussion

The structural model confirmed that attitudes toward tanatological attention constitute a multidimensional construct integrating affective, cognitive, and intentional components that converge into a broader second-order attitudinal factor. These results support the tripartite perspective of attitudes proposed in classical theories of planned behavior and contemporary models of emotional–cognitive integration (Ajzen, 1991; Ajzen & Fishbein, 1974). The significant path coefficients in the model indicate that emotions and beliefs act synergistically in shaping behavioral

intentions associated with end-of-life support seeking. This aligns with recent findings suggesting that emotionally charged contexts, such as terminal illness, amplify the interdependence between feelings and cognitive evaluations in decision-making (Neimeyer, 2022).

The high covariances among factors demonstrate that affective responses, rational interpretations, and intentional dispositions are not independent domains but interconnected dimensions reflecting a holistic psychological reaction to grief and impending loss. Similar patterns have been documented in palliative care research, where emotional avoidance, cognitive demands, and coping strategies converge to influence help-seeking and treatment adherence (Butler et al., 2020; Hudson et al., 2017). The strong contribution of the affective factor suggests that emotional responses may serve as primary gateways to engagement or resistance toward tanatological services, consistent with research emphasizing the primacy of affect in high-stress or existential contexts (Frijda, 2017).

The second-order factor structure identified in this study further indicates that tanatological attitudes operate as an integrated psychological system rather than as isolated evaluative tendencies. Previous studies in Latin American settings have reported similar results, showing that attitudes toward death, grief interventions, and spiritual support reflect culturally embedded combinations of emotional, cognitive, and moral evaluations (García, 2020; Laca, 2005). The current findings reinforce the idea that multidimensional models better capture the complexity of end-of-life experiences, particularly in regions where family networks, religious beliefs, and communal values strongly influence health decisions.

An important contribution of this study is the incorporation of ethical dilemmas into the interpretation of attitudinal structures. The emotional vulnerability of patients and relatives, the tension between autonomy and family-mediated decision-making, and the moral responsibilities of professionals play a central role in shaping attitudes toward tanatological attention. Current bioethical literature highlights the need for clinical practices that balance patient autonomy with cultural norms of collective decision-making, especially in contexts where family involvement is central to the dying process (Seymour et al., 2020). Ethical conflicts related to disclosure of diagnosis, emotional dependence, and distributive justice influence perceptions of care quality and may explain part of the unexplained variance in the structural model.

Furthermore, the covariances that remained partially unexplained suggest that additional latent variables not included in the current framework may play a significant role. Variables such as meaning reconstruction, attachment style, perceived social support, and prior experiences with death have been identified as strong predictors of attitudes and coping patterns in tanatological and bereavement contexts (Gillies & Neimeyer, 2006; Stroebe & Schut, 2021). Integrating these constructs in future studies may increase the explanatory power of structural models and provide a more comprehensive understanding of the relational and existential dimensions of grief.

Although the model showed robust psychometric indicators, the study is limited by its reliance on a convenience sample drawn from a single hospital setting, which restricts the generalizability of findings. Variations across regions, health systems, and cultural groups may produce different attitudinal structures. Future research should therefore expand sampling diversity, apply longitudinal designs to capture temporal changes in attitudes, and incorporate additional ethical and psychosocial variables. Doing so would further align tanatological research with current

international standards emphasizing interdisciplinarity, cultural sensitivity, and ethical pluralism in end-of-life care (World Health Organization, 2023).

The structural model confirmed the hypothesis that attitudes toward tanatological attention are organized into three coherent dimensions that converge into a broader attitudinal factor. This configuration aligns with theories of planned behavior and contemporary models of emotional–cognitive integration in grief. The significant covariances among first-order factors indicate that affective and cognitive processes mutually reinforce intentions in the context of terminal illness.

The presence of unexplained covariances suggests additional determinants that could enrich the theoretical model, such as cultural norms, spiritual beliefs, family dynamics, and prior exposure to death. These determinants have been widely documented in the literature and represent promising lines for future inquiry.

Tanatological intervention involves complex ethical dilemmas that influence attitudes and decision-making. The first dilemma concerns patient autonomy versus family protection. In many cases, families request withholding information from patients to avoid distress, yet this contradicts ethical norms of informed consent.

A second dilemma involves the emotional vulnerability of patients and relatives. Tanatologists face the risk of influencing decisions by virtue of their authority, raising concerns about undue persuasion, emotional dependency, and the boundaries of therapeutic intervention.

A third dilemma concerns distributive justice. Limited resources in palliative and psychological services often result in unequal access, creating tension between institutional constraints and individual rights to dignified end-of-life care.

These dilemmas shape attitudes by exposing patients and families to conflicting values that coexist with fear, uncertainty, and cultural expectations surrounding death.

Conclusion

This study confirmed that attitudes toward tanatological attention are multidimensional and structured around affective, cognitive, and intentional components that converge into a second-order factor. Structural equations supported the model, and the analysis of ethical dilemmas underscored the complexity of psychological and moral processes in terminal care. Although the study was limited to a single regional hospital, its findings highlight the importance of integrating ethical reflection into psychosocial models of tanatological practice.

Authors' contributions

All authors read and approved the final manuscript.

Declarations

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Publisher's Note

Annex: Final Instrument

Affective Attitude

1. I feel emotionally overwhelmed when thinking about thanatological care.
2. I feel calm when receiving support from thanatology services.
3. I feel anxious when I attend a thanatological session.
4. I feel encouraged after participating in thanatological activities.
5. I feel emotionally strengthened when I speak with a thanatologist.

Cognitive Attitude

6. I believe thanatological care helps in understanding the grieving process.
7. I view the role of thanatologists in end-of-life situations positively.
8. I consider thanatological sessions useful for psychological adaptation.
9. I believe thanatological care clarifies uncertainties about terminal illness.
10. I think that thanatological services are necessary for families.

Intentional Attitude

11. I intend to attend thanatological sessions when facing grief.
12. I would recommend thanatological care to a relative.
13. I am willing to participate in thanatological programs.
14. I would seek professional help from a thanatologist during emotional crises.
15. I intend to continue attending thanatological activities in the future.