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Flourishing, Cinematic Self, and Sense of Self as Predictors of Death Anxiety: A Gender-Invariant Model

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Abstract

This research delved into the intricate landscape of death anxiety, a profound psychological phenomenon that deeply influences individuals' perceptions and responses to mortality. Through a meticulous examination of key psychological factors – flourishing, cinematic self, and sense of self – we aimed to unravel the complexities surrounding this existential concern. With a diverse sample of 327 Portuguese participants, our study sheds light on the significant role these constructs play in shaping individuals' experiences of death anxiety. Notably, we highlight the profound impact of a robust sense of self in mitigating anxiety levels. Additionally, our exploration of gender dynamics revealed consistent patterns across diverse groups, underscoring the universal nature of these psychological processes. By providing a nuanced understanding of death anxiety and its determinants, our study offers valuable insights for the development of tailored interventions aimed at alleviating psychological distress and promoting well-being in individuals facing existential concerns.

Keywords

death anxiety, flourishing, cinematic self, sense of self, multi-group analysis, gender

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Introduction

The psychological study of death anxiety, which involves fear and unease regarding death, has attracted researchers. It is suggested that life and death are interconnected, with death serving as an underlying trigger for anxiety (Nyatanga & de Vocht, 2006). This apprehension encompasses multiple dimensions, including emotions, cognitions, experience, development, sociocultural shaping, and motivation (Lehto & Stein, 2009). Rising from the fundamental fear of extinction, originated from limbic structures crucial for survival, death anxiety holds attitudes, predictive ability regarding the future, awareness of death's significance, beliefs, thoughts about dying, and images of being dead. Cultural factors and life experiences shape these cognitive aspects. Individual experiences and developmental stages also shape the experiential dimension of death anxiety. It may emerge from tensions between our temporal conditions and aspiration for immortality, leading to psychological defences and effects on behaviour in various aspects of life (Lehto & Stein, 2009).

This multidimensional process seems to be individually appropriated. The majority of individuals feel negative emotions and have negative, disruptive thoughts when facing the possibility of dying, and have developed defensive mechanisms that help them cope with this idea (Firestone & Catlett, 2009; Letzner, 2024). According to Cai et al. (2017), physical, cognitive, and emotional reactions are anticipated when thinking of dying, promoting a state of anxiety. There is the classification and measurement of dysphoria, death intrusion, fear of death, and avoidance of death. Dysphoria relates to physical symptoms and emotional isolation when contemplating death. Death intrusion involves nightmares, intrusive thoughts, and recurring images of death. Fear of death is the fundamental anxiety caused by awareness of death, leading to emotional and behavioural reactions. Death avoidance encompasses cognitive and behavioural symptoms resulting from death anxiety, including avoiding thoughts and situations related to death.

Death anxiety as been observed have a pervasive influence across a spectrum of mental health disorders, positing it as a transdiagnostic factor that contributes to the onset and persistence of conditions such as anxiety, depression, OCD, PTSD, and eating disorders (Menzies et al., 2024; Menzies & Menzies, 2023).

However, some individuals seem to have "unusual courage and are able to turn the issue of death's inevitability to an advantage, giving greater meaning to their lives and more consideration and respect for the life of others" (Firestone & Catlett, 2009, p. 18). The awareness of mortality seems to influence psychological processes and behaviour, where cultural beliefs, self-esteem, and relationships in managing existential anxiety seems to play an important role. Adherence to cultural worldviews that gives life meaning and order, offering explanations about existence, morality, and the afterlife, and the pursuit of self-esteem act as buffers against the fear of death, promoting psychological resilience (Arrowood & Cox, 2020). Also, it was found that the meaning of life is negatively correlated with death anxiety through the mediating role of loneliness (Yousefi Afrashteh et al., 2024). In other words, individuals with a greater

sense of meaning in life tend to experience less loneliness, which in turn leads to lower levels of death anxiety. This suggests that having a clear sense of purpose and value in life can help elderly individuals cope with issues related to death more realistically and with less anxiety.

The complex relationship between the fear of death and the potential for personal growth raises intriguing questions about the underlying mechanisms that determine an individual's experience of death anxiety.

To explore these mechanisms, our study aimed to examine the roles of flourishing, the cinematic self, and the sense of self as potential determinants of death anxiety. Flourishing (Diener et al., 2010), which encompasses psychological well-being and life satisfaction, may provide resilience against death anxiety by fostering a sense of purpose and fulfillment.

The cinematic self (Dirghangi & Wong, 2022; Wong et al., 2021), or the perception of one's life as a coherent narrative, can help individuals integrate life experiences and accept mortality, potentially reducing anxiety. Cinematic self is a new concept, yet to be clearly associated with death anxiety. However, the comprehensive model of death anxiety proposes three immediate antecedents: past-related regret, future-related regret, and meaningfulness of death. These factors are influenced by coping mechanisms such as life review, life planning, and self-transcending processes (Tomer & Eliason, 2000), which shows the possible relation to perceiving life as a coherent narrative.

Finaly, a robust sense of self (Flury & Ickes, 2007; Lichtenberg, 1975) contributes to personal identity stability, which can mitigate existential fears by providing a consistent framework for interpreting life's challenges. However, research suggests a complex relationship between death anxiety, sense of self, and flourishing, in some ways accounting for exploring these as new relations. For example, contrary to expectations, Aronow et al. (1981) found that higher self-value correlated with lower death anxiety. A strong sense of self, characterized by high ego strength and self-esteem, is associated with lower death anxiety (Davis et al., 1983; Tomer & Eliason, 2000). However, this relationship is nuanced and benefits of further studies. Maffly-Kipp et al. (2023) found that meaning in life is most protective against death anxiety when combined with low self-alienation, indicating the importance of a clear, connected sense of self. Interestingly, for those with high self-alienation, meaning in life may actually increase death anxiety. Gender differences have been observed, with males showing higher self-esteem and ego strength, and lower death anxiety compared to females (Davis et al., 1983).

These factors captured in our framework may offer insights into how individuals construct meaning and maintain well-being in the face of mortality. Furthermore, this study aimed to explore how gender can moderate the relationships between these variables and death anxiety. Gender is considered a moderating factor because sociocultural differences in gender roles and expectations can influence how these psychological constructs interact with death anxiety. For example, some studies indicate that females experience higher levels of death anxiety compared to males (MacLeod et al., 2016; Sharma et al., 2019). However, contradictory findings suggest

that men may exhibit greater death anxiety than women in certain populations (Dadfar et al., 2021). By investigating these dynamics, we hoped to further understand the psychological processes that enable some to confront death with courage and transform this awareness to a more meaningful life.

A Comprehensive Model of Death Anxiety

The Comprehensive Model of Death Anxiety (CMDA) proposed by Tomer and Eliason (2000) emphasizes the significance of beliefs about the Self to explain death anxiety. For the authors, underlying death anxiety is the fear of death, conceptualized as the annihilation of the Self. The model proposes that individuals experience death anxiety as a negative emotional reaction that is provoked by the anticipation of a state in which the Self does not exist. This indicates that thoughts about one's non-existence, and the subsequent anxiety, are rooted in the perception of the Self's continuity over time.

According to the integrative, CMDA presented by Tomer and Eliason (2000), there are three immediate antecedents of death anxiety which influence the Self: past-related regret, future-related regret, and meaningfulness of death. Past-related regret refers to an individual's unfulfilled aspirations. It can translate into what one should have achieved but did not, which leads to a reflection on the Self's past. We suggest that how we retain, organize, and account for that information might influence the death anxiety experience. The future-related regret incorporates fears about unrealized potential and is rooted in the Self's view towards the future. We observed that the meaningfulness of death is related to how the Self perceives the significance of death and what meaning can be attributed to it, showing the importance of this perception to this phenomenon. Furthermore, death anxiety seems to be related to several types of belief, all of which reflect the Self. Research in this area has often explored how individuals' perceptions of self-esteem and meaning in life can influence death anxiety. It has been shown how people with lower levels of self-esteem tend to experience higher levels of death anxiety. This suggests that a person's overall evaluation of themselves contributes significantly to how they manage the anxiety surrounding death (Kheibari & Cerel, 2023). Additionally, individuals who have a strong sense of life's meaning, who feel engaged with life's goals and purposes, appear to experience less anxiety about death (Zhang et al., 2019). The CMDA incorporates beliefs such as these and suggests that having a "full sense" Self, in its various dimensions, can alleviate the dread of death.

Sense of Self

The "sense of self" can be defined as the individual's perception and awareness of their own identity, including their physical body, emotions, thoughts, and experiences; it comprehends the understanding of one's place in the world and the continuity of their existence over time (Lichtenberg, 1975). Lichtenberg's work on sense of self is rooted in the premise that our awareness of the Self is linked with the awareness of our existence, and, inevitably, our non-existence. Death anxiety is therefore defined as the

fear of the cessation of one's existence or the annihilation of the Self. This anxiety is not just about the fear of the physical act of dying, but also about the psychological and existential distress one faces when confronted with the possible end of the personal identity.

However, few studies have directly observed how the sense of self could explain or predict death anxiety. An interesting study by Kuo et al. (2022) based their hypothesis on the theory of "non-self", as presented in Buddhism. This theory suggests that anxiety about death can be reduced or overcome by approaching a state of non-self, that is, by decreasing identification with the Self. The idea is that by renouncing personal desires and letting go of the sense of ego, a person can experience a decrease in death-related anxiety. This is because, in the no-self state, we do not hold on to the idea of a permanent self that needs to be protected from death. Therefore, by cultivating no-self and reducing attachment to desires and ego, we can also reduce the fear and anxiety that often accompany awareness of mortality. The study observed that renunciation of desires was negatively associated with death anxiety and positively associated with mental health, suggesting that reducing desires can lead to a lessening of death anxiety.

On the other hand, Maffly-Kipp et al. (2023) found that individuals who experienced high self-alienation, understood as a feeling of disconnection from oneself, might be more prone to death anxiety. This disconnection from the Self was thought to diminish the protective buffer that meaning in life and high self-esteem provide. This may leave individuals more vulnerable to death anxiety, as they are less able to locate and hold onto meaningful, transcendent values or beliefs that mitigate the fear of mortality.

On a different level of analysis, low levels of death denial and fear were associated with positive self-related outcomes, suggesting that an acceptance of death can enhance self-esteem, self-concept clarity, locus of control, self-realization, and existential well-being in Cozzolino et al. (2013). This framework challenges the notion that death awareness is solely detrimental and proposes that it can contribute to psychological growth and a meaningful life.

Several other related self-perceptions have been implicated in death anxiety. According to Huang et al. (2022), self-esteem serves as a buffer against death anxiety, implying that individuals with high levels of self-esteem might experience low death anxiety compared to those with lower self-esteem. Self-esteem is closely related to one's sense of self; therefore, how individuals perceive themselves could theoretically predict their level of death anxiety. Also, death anxiety appears to be related to the degree of individuation and self-actualization; as individuals become more differentiated and self-actualized, their awareness of and anxiety about death may increase (Firestone, 1993).

It seems one could argue that a strong sense of self, including a clear understanding of one's values, beliefs, and identity, can provide a foundation for coping with the fear of death. When individuals have a strong sense of self, they may be better at finding meaning and purpose in their lives, which can help lessen death anxiety. Conversely, individuals who have a weaker sense of self may experience heightened death anxiety because they tend to be more inconsistent, lack unity in their actions and thoughts, and

are more readily influenced by random occurrences, compared to individuals who possess a solid sense of self (Flury & Ickes, 2007). The way we organize and experience ourselves may play an important role in death anxiety.

Cinematic Self

The "cinematic self" is a novel concept that refers to how strongly people experience themselves in a storied way and view their lives as narratives. Originated in the field of narrative identity, suggests that people understand themselves through stories. This concept was formally introduced and validated by Wong, Dirghangi, and Butner, as a stable individual variation in narrative identity (Wong et al., 2021).

Previously, Gerner and Guerra (2014) had explored the "cinematic self" in terms of cinematic experiences, comparing them to out-of-body experiences (OBE), where the viewer may feel a temporary loss of self by immersing themselves in the body of the film or character. Both definitions recognize the ability of the "cinematic self" to integrate life experiences into a coherent narrative. However, while Wong et al. (2021) focus on the "cinematic self" as a characteristic of narrative identity, Gerner and Guerra (2014) emphasize the sensorial and immersive experience of cinema as a form of altered self-perception. We use cinematic self as in the definition of Wong (Wong & Dirghangi, 2023; Wong et al., 2021).

For the authors, it reflects how individuals interact with their personal memories. It has implications for self, narrative identity, social behaviour, and well-being. It is related to how strongly people experience narrative identity and is also associated with emotion, individual differences, development, and well-being variables (Wong et al., 2021). Wong et al. described the relationship between cinematic self and narrative identity to be multifaceted and underscored the importance of narrative structures in understanding and explaining the Self.

Narrative identity refers to the internalized and evolving story of the Self, crafted from life experiences. It is described as a form of self-construction. As people reflect on their lives and tell stories about themselves, they are actively shaping their sense of self. In this process they give meaning to their experiences; they make their experiences seem purposeful. This process can give people a sense of agency over the lifespan. It also helps people connect with others through the act of sharing experiences and supports them to find life meaning (McAdams & McLean, 2013). As this process involves a storytelling process, Wong et al. (2021) suggested that this helps individuals understand who they are, how they have changed over time, and where they might be going, allowing them to construct a cinematic self. These storied self-contents help to organize identity by highlighting the most important, defining, and central aspects of one's identity. The cinematic self is also positively related to a stable and coherent sense of self because it provides a rich resource for "narrative reasoning" about self-contents. A highly storied identity provides a robust structure for the self, particularly during periods of instability, promoting resilience (Dirghangi & Wong, 2022). This narrative reasoning leads to better certainty about who one is and a stronger narrative

performance. The ability to integrate life experiences, accommodate personal change, and make identity commitments is also enhanced by a developed cinematic self.

Additionally, Blackie et al. (2016) found that specific and individuated death reflection (as opposed to a general or abstract contemplation of mortality) encourages people to consider both positive and negative life experiences as equally important in shaping their identity. It is assumed that this specific contemplation helps individuals to integrate conflicting aspects of their identity and construct a coherent self-concept, which is associated with higher well-being. Furthermore, the cinematic self is suggested to be a stable trait that anchors identity through time. It reflects not only how people experience and interact with themselves through stories, but also how they make sense of their personal memories. This has significant implications for death anxiety. If a highly coherent and stable self, well-organized from a narrative perspective, can lead to increased anxiety about death through a clearer sense of life's finite nature and their own mortality, being able to construct a full story around life may help individuals accept death and feel more at ease with the idea of dying. We explored this possibility in the present study.

Flourishing

The theory of terror management (TTM) suggests that human psychological needs arise from fundamental existential challenges (Pyszczynski et al., 1997). From the moment of birth, individuals possess inherent motivations for self-preservation and continued life, as these factors contribute to higher chances of survival. Individuals need to develop a set of cognitive and emotional resources that help them overcome the paralyzing fear of knowing that one day they will die.

The concept of "flourishing" encompasses the highest level of mental well-being, where individuals experience positive emotions and optimal functioning. It reflects a state of robust mental wellness and represents outstanding mental health. It is multifaceted and influenced partly by positive emotions, but primarily by resilient psychological and social functioning (Agenor et al., 2017). Diener et al. (2010) considered flourishing to include various aspects of human functioning, such as positive relationships, feelings of competency, a sense of meaning and purpose in life, engagement in activities, and feelings of self-esteem and optimism. These elements are fundamental in embodying the notion of "prosperity" or well-being. Essentially, flourishing signifies positive social and psychological functioning and is strongly associated with well-being, highly linked to improved mental health outcomes; individuals with higher levels of flourishing appear to have a lower risk of developing mental health issues, contributing to a "functional" life. There are indications that these protective effects may have a long-term impact (Burns et al., 2022).

Several studies have approached the idea that a strong psychological function may have a protective effect on mental health. For example, Fitri et al. (2020) observed that social curiosity, especially important to foster positive interpersonal relations, was a kind of mechanism that individuals use to control anxiety related to death. Concerning

meaning of life, several findings have suggested that individuals who do not have a strong sense of meaning in their lives may experience heightened anxiety about death when faced with reminders of their mortality. This aligns with the TTM, which posits that a sense of meaning and purpose can buffer against the existential anxiety that arises from the awareness of one's mortality. Thus, the search for meaning could be seen as a protective factor against death anxiety (Lyke, 2013; Routledge & Juhl, 2010; Yüksel et al., 2017).

Barnett et al. (2018) investigated the relationship between optimism, pessimism, and death anxiety among older adults. The findings revealed that pessimism was more closely linked with death anxiety than optimism. Pessimism also demonstrated a unique relationship with fear of the unknown. The study suggests that limiting negative expectancies may be more important in reducing death anxiety than having positive expectancies. Hence, we expected that flourishing, defined as high psychological and social functioning, may pose as a predictor of low death anxiety.

Death Anxiety and Gender Variance

Again, death anxiety seems to be individually experienced, hence variations along individual characteristics are expected.

Research indicates that women experience higher levels of death anxiety compared to men (MacLeod et al., 2016; Sharma et al., 2019; Upadhyay et al., 2024). Several studies also evidenced that women are more prone to experience death anxiety about the death of loved ones than about their own death (Missler et al., 2012), despite some variation in results across the literature. Belak and Goh (2024) in a study conducted in Singapore also revealed that women have significantly higher death anxiety than men. This pattern was observed despite women also showing greater religiosity, which could theoretically mitigate death anxiety.

A study using Portuguese and Arab samples, showed that women in both cultural groups scored higher than men on dysphoria and fear of death (Gonçalves et al., 2024). However, there was no significant difference between genders in death avoidance.

However, contradictory findings arise from the study of Dadfar et al. (2021) where Iranian men showed higher levels of anxiety of death compared to women. By investigating these dynamics, we hoped to further understand the psychological processes that enable some to confront death with courage and transform this awareness to a more meaningful life.

Gender variance also seems to be sensible to age. Russac et al. (2007) observed that death anxiety varied across different age groups and genders. While both men and women experienced a peak in death anxiety during their 20s, the trajectory of decline in anxiety levels differed between the two genders. As individuals age, there is a general trend of decreasing death anxiety for both men and women. However, an interesting finding was that the women exhibited a secondary spike in death anxiety during their early 50s, which was not observed in men. This suggests that there may be gender-specific factors influencing the experience of death anxiety during this stage of life.

More recently, it was observed that while race and gender did not directly impact levels of death anxiety, there were significant differences in the factors associated with death anxiety among different racial and gender groups (Assari & Moghani Lankarani, 2016). Specifically, age emerged as a predictor of death anxiety for women, but not for men.

The factors associated with death anxiety have also varied along gender lines. Adelirad et al. (2021) aimed to investigate gender differences in factors affecting death anxiety among older adults. The study found distinct factors contributing to death anxiety in men and women. For the men, death anxiety was found to have a significant relationship with literacy, body self-image, and perceived social activity. On the other hand, among the women, death anxiety was significantly related to physical and perceived social activity. The study also revealed that for both genders, a higher level of perceived social activity was associated with lower levels of death anxiety. Overall, these results seem to indicate that potential gender differences should be accounted for when studying death anxiety.

Overview

The psychological study of death anxiety reveals the complexity of human reactions and adaptations to the concept of mortality, demonstrating that fear and unease about death are not only natural but deeply rooted in our selves. This study overview seeks to integrate these critical dimensions to understand the role of the sense of self, the cinematic self, and flourishing in the contexts of death anxiety and gender variations.

The first objective here was to construct and assess a model that explores how flourishing, the cinematic self, and the sense of self can predict death anxiety. The sense of self, encompassing the awareness and perception of one's identity, has been intricately linked to death anxiety. Studies examining the protective qualities of self-esteem and self-concept suggest that a strong, positive sense of self may buffer against death anxiety. In this particular study, we operationalized the sense of self in terms of a lack of understanding of oneself, sudden shifts in feelings, opinions and values, a tendency to confuse feeling, thoughts, and perspectives with others, and feeling one's existence as fragile (Flury & Ickes, 2007), and our hypothesis was:

H1: A weak sense of self predicts greater death anxiety.

The cinematic self proposes an additional perspective, where our lives are seen as narratives, and identity derives from these self-narrated stories. This narrative identity could potentially amplify the dread of death due to the poignant realization of life's finitude or conversely, provide a frame to accept mortality. The novelty and scarcity of studies on the concept makes it difficult to establish a unidirectional hypothesis. However, in this study, the cinematic self was framed as an awareness of one's life history, the ability to tell one's life story and the fluency of the recollection, and the extent to which the memories hold to a story structure (Wong et al., 2021). We also

admitted that a higher awareness of one's life story might enhance death anxiety. Thus:

H2: A strong cinematic self predicts greater death anxiety.

Flourishing, characterized by robust mental health and psychological resilience, is theorized to protect against death anxiety. The TTM suggests that the pursuit of meaning and well-being is essential in buffering death anxiety. In our study, flourishing was operationalized to describe social-psychological prosperity (Diener et al., 2010), involving the evaluation of one's sense of purposefulness and ability to create a meaningful life:

H3: A strong flourishing predicts lower death anxiety.

This study also acknowledged the potential for gender variance in the experience of death anxiety, noting that women and men may differ in their responses and contributing factors to death anxiety. The interaction of gender with the sense of self, narrative identity, and psychological well-being warrants further exploration to fully study the complexities of death anxiety. Therefore:

H4: Gender moderates the relationships between flourishing, the cinematic self, the sense of self, and death anxiety.

By integrating core findings from the multifarious study of death anxiety and focusing on the roles of the sense of self, the cinematic self, and flourishing, this overview aimed to further explicate the possible underlying psychological mechanisms that govern our responses to the end of life. Subsequently, seeking a deeper understanding of these processes might unravel gender-specific patterns and highlight potential psychological interventions to help cope with death anxiety. These hypotheses are represented in Figure 1.

Materials and Methods

Participants

The present study sample consisted of 327 participants, 222 of whom were female, and 105 were male, with an average age of 39.15 years (SD = 10.57). Regarding marital status, 163 participants were married, 129 were single, and the remaining were widowed or divorced (n = 35, 10.7%). Regarding educational qualifications, most participants held a graduation diploma (n = 157). The majority were employed (n = 250, 76.5%), with 77 (23.5%) being student workers.

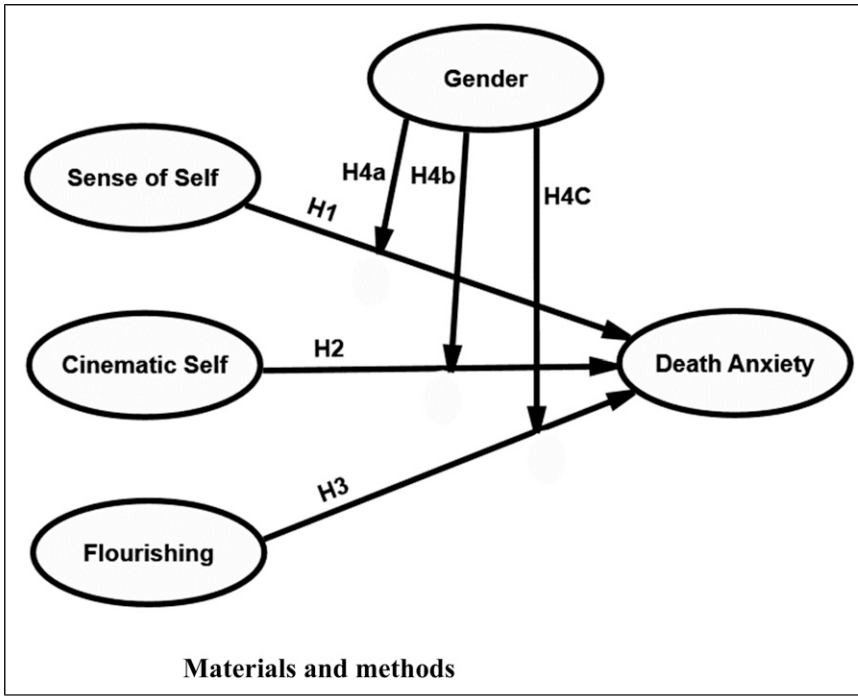

Figure 1. The hypothesised model.

Procedures

This research involved recruiting a convenience sample, employing the snowball strategy. Data collection spanned from October to December 2023 after an endorsement by a scientific committee responsible for overseeing research protocols and ethical precautions to ensure adherence to ethical standards (including informing participants about the voluntary and anonymous nature of the study). Inclusion criteria mandated participants to be 18 years or older, actively engaged in a professional role, and willing to partake voluntarily. Participants completed a self-report questionnaire taking approximately 12 min, and they submitted their responses via an online questionnaire platform, ensuring their anonymity. Before initiating the survey, the participants were presented with an informed consent statement. No remuneration was provided, and the study maintained a blinded approach, with only accurately completed questionnaires eligible for analysis.

Measures

Flourishing Scale. The Diener et al. (2010) scale was used. It is composed of eight items assessed on a 7-point Likert scale (1 – completely disagree to 7 – completely agree),

where a high score represents a person with many psychological resources and strengths (e.g., item 1: "I lead a purposeful and meaningful life"; item 5: "I am competent and capable in the activities that are important to me").

Cinematic Self Scale. The scale originally developed by Wong et al. (2021) was used, comprised of 11 items regarding how individuals experience their past and present (e.g., item 1: "It's easy for me to replay moments of my life"; item 3: "I can tell my life story easily"). Responses are given on a 7-point Likert scale ranging from 1 – completely disagree to 7 – completely agree. Items 4–11 are reverse-coded.

Sense of Self Scale. The scale developed by Flury and Ickes (2007) was employed. It is composed of 12 items to which participants indicate whether the items are characteristic of themselves or not (e.g., item 1: "I wish I were more consistent in my feelings"; item 6: "Other people's thoughts and feelings seem to carry greater weight than my own"), using a 7-point Likert scale (1 – not at all characteristic of me to 7 – very characteristic of me). Higher values indicate a weaker sense of self. Items 4, 7, and 12 are reverse-scored.

These three scales underwent a translation/back-translation process following the procedure outlined by Hambleton (2005). Initially, the scales were translated from English into Portuguese by two bilingual specialists working independently. Subsequently, both versions were translated back into English by two other bilingual specialists, also working independently. The translated versions were then compared to the original text and adjusted by three psychologists who were experts in this field. To assess the quality of the translation, 15 participants were asked to complete the Portuguese version (pre-test) to identify and correct any potential semantic issues. This pre-test revealed a Cronbach's alpha coefficient exceeding 0.70, and no significant interpretation problems were detected.

Scale of Death Anxiety (SDA). The Portuguese version of the SDA employed in this study was adapted by Gonçalves et al. (2024), based on the original scale developed by Cai et al. (2017). This instrument consists of 17 items intended to measure individuals' perceptions and emotions regarding their mortality. It encompasses four dimensions: Dysphoria, Death Intrusion, Fear of Death, and Avoidance of Death. Each item, such as "In the past month, I have often avoided thoughts or topics related to death" or "In the past month, whenever thinking of death, I have often gotten upset", is rated on a Likert-type scale with seven levels (ranging from 1 – strongly disagree to 7 – strongly agree).

Demographic Profile. To characterize the participants, the questionnaire also included a set of sociodemographic questions covering age, gender, marital status, level of education, and professional situation. Additionally, a specific inquiry regarding recent bereavement was included to investigate its potential influence on the study, although no significant effects were observed.

Data Analysis

The data analysis was conducted using IBM's SPSS (Version 25) and AMOS (Version 23). A two-step approach was used for estimating parameters with maximum likelihood estimation in the proposed model. First, the overall measurement model was examined using confirmatory factor analysis to assess the reliability and validity of the constructs. Second, the structural model of the effects of flourishing, cinematic self, and sense of self on death anxiety was then examined using full structural equation modelling. The overall evaluation of the model fit was assessed using the following indices: comparative fit index (CFI), standardized root mean square residual (SRMR), and root mean square error of approximation (RMSEA) with a 90% confidence interval (90% CI). The cut-off values applied as indicators of an acceptable fit were CFI $\geq$ .90, and SRMR and RMSEA $\leq$ .08 (Browne & Cudeck, 1993; Byrne, 2016; Hu & Bentler, 1999). The moderating effect of gender was tested through multi-group analysis.

Results

Descriptive Statistics

Pre-analysis, the data were screened for accuracy of the data entry, missing values, normality, and the reverse-coded, negatively worded items. There were no out-of-range values. Five cases had missing values, and these were removed from the analysis through listwise deletion. Both skewness and kurtosis values were within the acceptable range of −3 to +3, implying normal distribution. The descriptive statistics and the correlations between the constructs in the model are indicated in Table 1. Death anxiety was significantly negatively correlated with flourishing and cinematic self, whereas death anxiety was significantly positively correlated with sense of self. All correlations were less than 0.70, indicating that no multicollinearity existed.

Table 1. Means, Standard Deviations, and Correlations Among Variables.

	1	2	3	4
1. Flourishing	-			
2. Cinematic self	0.31***	-		
3. Sense of self	−0.42***	−0.53***	-	
4. Death anxiety	−0.29***	−0.36***	0.49***	-
Means	5.63	5.05	3.23	2.03
Standard deviations	0.93	1.27	1.26	1.20

Note. ***p-value < .001.

Measurement Model

The measurement model was conducted on four constructs and 48 items. The results indicated that five items had very poor reliabilities: item 1 and item 3 from the Cinematic Self Scale; item 4 and item 12 from the Sense of Self Scale, and item 2 from the SDA (death anxiety). Thus, the model was modified by deleting these items. The results of the modified model are shown in Table 2. All fit indices were within acceptable values: CFI = 0.89, SRMR = 0.067, RMSEA = 0.059 [90% CI: 0.055– 0.063]. All the factor loadings were significant at $p < .001$ and ranged from 0.43 to 0.93. The reliability coefficients (alpha and omega) for all the constructs were well above the cut-point of .70, as suggested by Hair et al. (2006).

Structural Equation Model

Structural equation modelling was used to test the hypothesized relationships among constructs in the proposed model. The overall evaluation of the model fit indicated a very good fit of the model to the data: $\chi2 = 27.535$, $df = 11$, $p = .004$, CFI = 0.984, SRMR = 0.0353, RMSEA = 0.068 [90% CI: 0.037–0.101]. The model explained 27% of the variance in death anxiety. Results of the structural model with the standardized path coefficients are presented in Figure 2. The results indicated that the largest effect on death anxiety was exerted by sense of self (ß = 0.40, $p < .001$), followed by both cinematic self (ß = −0.11, $p < .05$) and flourishing (ß = −0.11, $p < .05$).

Moderating Role of Gender

A multi-group moderation analysis was conducted to investigate gender differences in the relationships between flourishing, cinematic self, and sense of self with death anxiety . Before investigating the moderating role of gender, the measurement invariance of all constructs across gender groups were tested. The configural model ($\chi2 = 3197.10$, $df = 1688$, $p < .001$, CFI = .840, SRMR = .0861, RMSEA = .053 [90% CI: .050–.056]) had acceptable fit statistics. The metric invariance model (ΔCFI = .005) was also supported.

To test the moderating effect of gender, a two-group analysis was performed. First, a baseline unconstrained model was estimated across the gender groups simultaneously, without placing any equality constraints on the hypothesized paths. The baseline model showed an acceptable fit: $\chi2 = 37.819$, $df = 22$, $p = .019$, CFI = 0.985, SRMR = 0.0475, RMSEA = 0.047 [90% CI: 0.019–0.072]. In the second model, all the path coefficients were constrained to be equal in both male and female groups. The fully constrained model showed an acceptable fit to the data: $\chi2 = 38.876$, $df = 25$, $p = .038$, CFI = 0.987, SRMR = 0.0548, RMSEA = 0.042 [90% CI: 0.010–0.066]. A model comparison with the chi-squared difference test between the unconstrained and fully constrained model revealed a non-significant difference of structural coefficients across groups ($\Delta\chi2 = 1.057$, $\Delta df = 3$, $p = .787$), thereby

Table 2. Items and Measurement Model Analysis.

Constructs	Items	Standardized factor loadings	Cronbach's alpha	McDonald's omega
Flourishing	F1	.831	.890	.893
	F2	.700		
	F3	.785		
	F4	.639		
	F5	.721		
	F6	.756		
	F7	.662		
	F8	.560		
Cinematic self	CS1	Deleted	.892	.893
	CS2	.700		
	CS3	Deleted		
	CS4	.783		
	CS5	.790		
	CS6	.803		
	CS7	.576		
	CS8	.756		
	CS9	.623		
	CS10	.590		
	CS11	.690		
Weak sense of self	SS1	.654	.880	.885
	SS2	.752		
	SS3	.563		
	SS4	Deleted		
	SS5	.478		
	SS6	.684		
	SS7	.434		
	SS8	.808		
	SS9	.758		
	SS10	.649		
	SS11	.717		
	SS12	Deleted		

(continued)

Table 2. (continued)

Constructs	Items	Standardized factor loadings	Cronbach's alpha	McDonald's omega
Death anxiety	DA1	.772	.942	.943
	DA2	Deleted		
	DA3	.723		
	DA4	.743		
	DA5	.841		
	DA6	.763		
	DA7	.684		
	DA8	.752		
	DA9	.776		
	DA10	.781		
	DA11	.675		
	DA12	.750		
	DA13	.882		
	DA14	.859		
	DA15	.928		
	DA16	.875		
	DA17	.803		

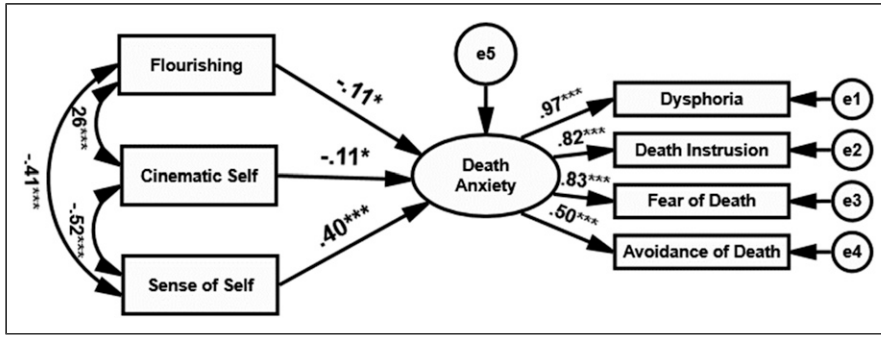

Figure 2. Structural model results.
Note. ***p-value < .001. **p-value < .01. *p-value < .05.

confirming no moderating role of gender. The results of path model comparisons is shown in Table 3.

Discussion

Our study examined the intricate relationship between psychological factors and death anxiety, with a particular focus on the roles of flourishing, the cinematic self, and a

Table 3. The Moderating Role of Gender.

	Male			Female		
Path	ß	t-Value	*p*	ß	t-Value	*p*
H4a Sense of Self→Death anxiety	0.393	2.908	0.004	0.385	4.435	< .001
H4b Cinematic Self→Death anxiety	−0.20	−1.756	0.079	−0.064	−0.913	0.361
H4c Flourishing→Death anxiety	−0.09	−0.963	0.324	−0.133	−1.899	0.058

weak sense of self. We aimed to determine whether these constructs can serve as determinants of death anxiety, and whether gender moderates their effects. Upon initial analysis, we noticed that all three variables – flourishing, cinematic self, and sense of self – emerged as significant predictors of death anxiety.

Furthermore, our assessment of the measurement model identified certain items with inadequate reliabilities, prompting their removal from the model. Following this adjustment, the modified model demonstrated satisfactory fit indices, affirming its effectiveness in capturing the intended constructs. Subsequent structural equation modelling confirmed the robustness of our proposed model, elucidating a significant portion of the variance in death anxiety. Together, the proposed variables accounted for a substantial portion of the observed variance in death anxiety, highlighting their considerable influence on this psychological phenomenon.

A theoretical framework describes death anxiety as a multifaceted phenomenon, deeply rooted in the fear of the loss of identity and the fright of unfulfilled potential (Firestone & Catlett, 2009; Lehto & Stein, 2009; Nyatanga & de Vocht, 2006). The sense of self exhibited robust predictive power, suggesting that individuals with a weaker sense of self may experience higher levels of death anxiety (H1). The operationalization of the sense of self, encompassing understanding oneself, stability of feelings, and existential security, reflects the theoretical claim that a solid sense of identity can buffer against the existential fear of mortality. This connection emphasizes how individuals with a weaker sense of self may experience heightened death anxiety, as they lack a stable foundation from which to confront the inevitability of death. Our proposed relations also seem to present an addition to the CMDA, focusing on the beliefs about the self to explain the phenomenon. Tomer and Eliason's (2000) model emphasizes that the core of death anxiety is the fear of annihilation of the Self. Individuals with a weaker sense of self may have difficulty perceiving the continuity of their being over time, increasing anxiety in the face of non-existence. Their discovery reinforces the idea that a solid, well-integrated sense of self can serve as a buffer against the anxiety caused by the anticipation of death, as observed in our study.

The concept of the cinematic self introduces a novel lens through which to examine death anxiety. Our framework predicted two possible outcomes per this relationship: On the one hand, a rich narrative identity may heighten the awareness of life's finitude; conversely, it might also provide a framework for accepting mortality, as individuals

find meaning and coherence in their life stories (Blackie et al., 2016; McAdams & McLean, 2013).

The hypothesis that a strong cinematic self predicts greater death anxiety (H2) was based upon the definition offered by Wong et al. (2021) involving the cinematic self, including one's awareness of one's life history, ability to tell one's life story, the fluency of recollection, and structured memories. Due to this definition, we predicted the end of life to feel more clear and poignant, coinciding with higher anxiety. Our study seems to support the opposite relationship, suggesting that the awareness of one's life story potentially diminishes one's death anxiety. Our results also show a negative medium-to-strong correlation between the cinematic self and a weak sense of self, suggesting those who report a weaker sense of self also report a weaker ability to find coherence in the life story. According to our framework, a strong cinematic self precisely represents more active, coherent, and stable self-content, as well as a greater ability to integrate life experiences and accommodate personal change (Wong et al., 2021). This result clearly supports the correlation mentioned above and frames the developed cinematic self as a buffer against death anxiety.

This also aligns with the CMDA's notion that past-related regret and beliefs about the significance of death directly influence death anxiety. By having a clear and structured understanding of one's life story, individuals can find meaning in their past experiences, therewith reducing past-related regret and perceiving death as a meaningful and integrated aspect of life rather than a threat to the Self.

The finding that strong flourishing predicted less death anxiety (H3) supported the theoretical framework's emphasis on psychological defences against the fear of mortality. Flourishing, characterized by psychological resilience and well-being (Diener et al., 2010), aligns with the notion that individuals who perceive their lives as meaningful and purposeful are better equipped to manage death anxiety. This supports the TTM's proposition that the pursuit of meaning and well-being is crucial in mitigating fears of mortality (Lyke, 2013; Routledge & Juhl, 2010; Yüksel et al., 2017). It should also be noted that higher social-psychological prosperity was related to a greater sense of self and a greater integration of experiences per life stories. Flourishing can strengthen the perception of self-worth and belief in the significance of life. This, in turn, can both reduce regrets related to the future and increase the perception that life has meaning, buffering the anxiety caused by the anticipation of death. These results highlight how a life perceived as meaningful and fulfilling can mitigate the fear of self-annihilation.

Our investigation also revealed a consistent moderating effect of gender: The impacts of flourishing, the cinematic self, and the sense of self on death anxiety remained invariant across gender groups. This finding suggests that the constructs of sense of self, cinematic self, and flourishing exert similar influences on death anxiety among men and women. This contradicts earlier assumptions and adds a layer of complexity to understanding how gender can influence the experience of death anxiety. This finding might initially appear surprising, given the body of research indicating gender differences in the experience and expression of death anxiety. However, a closer

examination of the age demographics of our sample provides a plausible explanation for this phenomenon.

Research has consistently shown that the relationship between gender and death anxiety can be complex and is often mediated by age. Despite the assumption that women seem more prone to experience death anxiety (Missler et al., 2012), some studies have found that younger adults tend to exhibit different patterns of death anxiety compared to older adults, with these patterns also varying between men and women within these age groups (Assari & Moghani Lankarani, 2016; Russac et al., 2007). Specifically, it has been suggested that gender differences in death anxiety may be more pronounced during certain life stages due to varying social roles, life experiences, and societal expectations placed upon men and women. In fact, it seems well established that death anxiety is a multidimensional phenomenon affected by individual experience and personal development, yet it is also socio-culturally shaped (Lehto & Stein, 2009). Our study's sample predominantly consisted of individuals of a specific age range, which may inherently limit the variability in death anxiety attributable to gender differences. This homogeneity in age could mean that our participants, regardless of gender, shared similar attitudes toward death and dying, influenced by their common stage in life rather than by gender-specific factors. This stage of life may correspond with a period where traditional gender roles and expectations exert less influence on individuals' perceptions and fears regarding death, thereby reducing the impact of gender on death anxiety.

Additionally, it is important to consider that societal attitudes toward gender roles and expressions have been evolving. For example, gender stereotypes have led to various outcomes related to family, children, marriage, equality, and women's employment (Priyashantha et al., 2021). This evolution might contribute to a diminishing gap between men and women in terms of how they relate to existential concerns, including death anxiety. If our sample reflects these broader societal changes, this could further explain why we observed gender invariance in our model; we simultaneously recognize the importance of studying different cultures, where one might recognize differences in how individuals experience death anxiety.

In terms of contributions to the psychological literature on death anxiety, we believe that the introduction of the "cinematic self" as a conceptual framework offers a fresh perspective on how individuals perceive their lives as coherent narratives. This concept, as defined by Wong et al. (2021), emphasizes the importance of narrative identity in understanding and potentially mitigating death anxiety. By examining how a storied sense of self can influence existential fears, this study expands the discourse on narrative identity and its psychological implications.

Secondly, the results indicating that individuals with higher levels of flourishing experience lower death anxiety, supporting the notion that robust mental health can act as a buffer against existential concerns (Diener et al., 2010), aligns with the Terror Management Theory (Pyszczynski et al., 1997), which posits that the pursuit of meaning and well-being is crucial in mitigating fears of mortality.

Moreover, this research challenges existing theories by suggesting that a strong cinematic self may reduce death anxiety. While it was hypothesized that a heightened awareness of life's finitude could lead to greater anxiety, the findings suggest the opposite, indicating that a coherent life narrative may provide a framework for accepting mortality (Wong et al., 2021). This challenges traditional views and opens new avenues for exploring how narrative coherence can influence existential fears.

Additionally, the study explores the role of gender in death anxiety, finding that the effects of flourishing, cinematic self, and sense of self are invariant across genders. This contradicts some previous research suggesting significant gender differences in death anxiety (MacLeod et al., 2016; Sharma et al., 2019). The lack of gender moderation in this study highlights the potential for these psychological constructs to exert similar influences regardless of gender, suggesting a need for further exploration into how societal changes might be influencing these dynamics.

Finally, this study contributes to the Comprehensive Model of Death Anxiety (CMDA) by emphasizing the importance of a solid sense of self as a protective factor against death anxiety. The findings support the idea that individuals with a well-integrated sense of self are better equipped to confront the inevitability of death, reinforcing the role of self-concept in managing existential fears (Tomer & Eliason, 2000).

In conclusion, this study not only introduces and validates new concepts in the field of death anxiety but also challenges and complements existing theories, offering new directions for future research and potential therapeutic interventions aimed at reducing death anxiety. Our findings might be used in tailoring interventions to enhance psychological well-being and reducing death anxiety via enhancing a greater sense of self, building a clear and coherent cinematic self, and improving psychosocial capital. Our study has shed light on the complex interplay between psychological factors and death anxiety, emphasizing the pivotal role of sense of self while also acknowledging the contributions of the cinematic self and flourishing. These findings have important implications for understanding and addressing death anxiety, potentially guiding interventions aimed at alleviating psychological distress in both male and female populations.

Declaration of Conflicting interests

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Ethical Statement

Ethical Approval

Approval was obtained from the ethics committee of University of Algarve. The procedures used in this study adhere to the tenets of the Declaration of Helsinki.

Informed Consent

The participants were provided with detailed information and gave informed consent before taking part in the study.

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