

# The digital afterlife: Navigating the ethical and temporal boundaries of grieftech perceptions and usage intentions

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## ABSTRACT

Losing a loved one is a profound life event, and recent advances in generative artificial intelligence (GenAI) have contributed to the emergence of “grieftech,” a new class of technologies designed to simulate interactivity with deceased loved ones. While interest in grieftech is growing, the psychological, temporal, and ethical conditions shaping bereaved individuals' receptivity to such technologies remain underexplored. This study examines bereaved individuals' pre-adoption evaluations of grieftech by investigating how attitudes toward grieftech drive usage intentions through continuing bond, and how this process is influenced by time since loss, engagement, and perceived ethicality. Across two empirical studies, we identify three primary theoretical contributions. Study 1 (n = 197) shows that continuing bond serves as a key mechanism linking positive attitudes toward grieftech to stronger intention to use it. We further identify a “window of adoption receptivity,” such that intention to use grieftech is greater within the earlier years following loss, and this relationship is strengthened by technology-facilitated engagement. Study 2 (n = 200) extends these findings by showing that perceived ethicality functions as an important boundary condition: in emotionally vulnerable settings, ethical perceptions regarding the dignity and consent of the deceased strengthen the translation of favorable attitudes into intention to use grieftech. Overall, the findings suggest that bereaved individuals' receptivity to grieftech is not uniform, but depends on relational, temporal, and ethical conditions. The study contributes to emerging grieftech research by positioning adoption as a context-sensitive evaluative process rather than as a simple response to technological novelty.

## 1. Introduction

The passing of a loved one profoundly disrupts the lives of the bereaved, often with serious mental health consequences (Kavanagh et al., 2021). In response, companies and researchers have begun exploring grieftech, AI-driven tools designed to support the grieving process. For example, StoryFile is developing conversational AI-based video technology that allows individuals to see and interact with representations of deceased loved ones (Cline, 2024). Such tools may

facilitate continuing bonds, or the ongoing sense of connection and communication that bereaved individuals maintain with the deceased (Bao and Zeng, 2024). Grieftech may also offer practical advantages, including round-the-clock accessibility, lower cost, and greater convenience than some traditional grief-support options such as therapy (Knowles et al., 2017). As bereavement is a near-universal human experience, the implications of grieftech may be far-reaching.

Importantly, we do not assume that bereaved individuals inherently want or prefer generative AI as a grief-management tool. Rather,

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bereavement research suggests that individuals often draw on a broader repertoire of coping and adaptation mechanisms, including support from relatives and peers, bereavement groups, mental healthcare, ritual practices, and meaning-making processes that help integrate the loss into one's broader life narrative (Smid et al., 2020; Näppä and Björkman-Randström, 2020; Wojtkowiak et al., 2019). Digital technologies should therefore be understood within this broader ecology of grief support rather than as a self-evident or universally preferred solution. At the same time, prior work on online memorialization and social-media mourning shows that digitally mediated environments can help bereaved individuals maintain continuing bonds with the deceased through remembrance, symbolic communication, and collective witnessing (Bell et al., 2015; Degroot, 2012; Akinyemi and Hassett, 2023). Accordingly, grieftech is best conceptualized as an emerging, AI-mediated mechanism through which some bereaved individuals may seek comfort, connection, or meaning, while whether such technology is experienced as helpful, appropriate, or troubling remains an empirical question. Correspondingly, our respondents reported a range of prior coping strategies, including by seeking support from family and friends, professional counseling or peer support, faith-based and meaning-making practices, routine-based distraction, and in some cases more unresolved or avoidant responses to grief.

Despite this promise, scholarly understanding of grieftech remains limited. Existing work has begun to examine grieftech capabilities and practices (e.g., Xygykou et al., 2023) as well as its effects on grief discourse (e.g., Gilbert and Horsley, 2021) (see Table 1), yet important questions remain unanswered. In particular, understanding of bereaved individuals' receptivity to grieftech, and their evaluations of it as a potential grief-support tool, remains sparse. Moreover, though research on empathetic or feeling AI (Huang et al., 2019; Markovitch et al., 2024), virtual mourning practices (Pizzoli et al., 2023), AI-enabled mental

health support (Moriuchi, 2022), and AI's role in consumer well-being (Troebbs et al., 2018; Kuppelwieser, 2024; Finsterwalder and Kuppelwieser, 2020) suggests considerable potential, it remains unclear whether digitally maintaining a bond with the deceased facilitates or complicates bereavement. On the one hand, grieftech may offer emotional comfort, connection, or reflective value (Krueger and Osler, 2022). However, on the other, its capacity to simulate the deceased may be unsettling, eerie, or raise ethical issues, particularly in terms of consent, dignity, and the appropriateness of digitally recreating the dead (Lemma, 2024). These tensions render grieftech a theoretically and practically important context for examining AI adoption in emotionally vulnerable settings.

Addressing these issues, this research makes three main theoretical contributions to the emerging integrative discourse on AI-based bereavement. First, while prior bereavement research has predominantly examined continuing bonds as a psychological state, coping process, or outcome of loss, we reconceptualize these as a proximal, process-oriented adoption mechanism using grieftech. We argue that grieftech adoption is not driven by favorable attitudes alone. Rather, positive grieftech evaluations raise usage intent because they make continued connection with the deceased feel psychologically viable. Therefore, continuing bond is not treated as a stable, context-agnostic dispositional tendency, but as a relational process through which pre-usage attitudes toward grieftech convert into adoption intention.

Across two empirical studies, we find support for these predictions. Study 1, an online survey-based study featuring a video-based news story that introduces grieftech to participants ( $n = 197$ ) shows that the effect of attitude toward grieftech on usage intention operates indirectly through continuing bond. To further strengthen this interpretation, we also estimated a rival model that treats continuing bond as a stable psychological condition (vs. a process-oriented mechanism); this alternative specification was found to be less consistent with our theorizing. Study 2, an online video-based study depicting a bereaved mother interacting with her deceased daughter through immersive virtual reality grieftech ( $n = 200$ ) further corroborates these findings.

Second, though grief scholarship has long recognized that bereavement adjustment evolves over time, prior research has not clearly theorized time since loss as a boundary condition of prospective users' receptivity to grieftech. Longitudinal bereavement research shows that post-loss adjustment follows heterogeneous trajectories (vs. a single linear pattern), while continuing bonds research suggests that the expression and implications of bonds with the deceased may also differ depending on the time since the loss occurred. We extend this literature by identifying a novel temporal boundary condition in grieftech adoption, which we conceptualize as a window of adoption receptivity (Maccallum et al., 2015; Hewson et al., 2024). The findings suggest that receptivity to grieftech is not constant throughout the bereavement journey. Rather, the utility of these tools appears to be concentrated in approximately the first 7-8 years following a loss. This pattern indicates that the psychological pull of a continuing bond is not equally actionable over time, but is instead most potent during a finite initial post-loss period in which individuals remain particularly receptive to technological mediation. Beyond this period, internal representations of the deceased may become more settled or the need for external digital stimuli may diminish, reducing participants' intent to adopt grieftech (Goodall et al., 2022; Martínez-Esquivel et al., 2023).

Third, while prior AI ethics research has focused on broad concerns including trust, fairness, transparency, and accountability (e.g., Hangl et al., 2023), the ethical landscape of grieftech from a user perspective remains underdeveloped (Pizzoli et al., 2023). We extend this literature by showing that, in grieftech, perceived ethicality is not merely a general evaluation of responsible AI but a context-specific boundary condition of adoption. Adopting the IMPACT framework (Hollebeek et al., 2025), we draw on continuing bonds theory to examine ethical tensions that are unique to this context, including posthumous dignity, the digital consent of the deceased, and the possibility that simulated interaction may

**Table 1**

Summary of prior literature on AI use, ethical perceptions, and grief-related conversational technologies.

Author(s)	Study type	Main contribution/key findings
Spallek et al. (2023)	Empirical	GPT-4 was found to be insufficiently reliable for direct consumer-facing queries. However, the authors suggest that educators and researchers may use it cautiously for developing educational materials, provided such materials are evaluated for their effectiveness with the intended audience.
Niu and Mvondo (2024)	Empirical	Users' loyalty to ChatGPT is driven primarily by satisfaction, which increases when the system is perceived as useful, informative, and technologically appealing. The study also shows that ethical concerns weaken the positive relationship between satisfaction and loyalty, suggesting that sustained adoption depends not only on performance but also on users' ethical comfort with the technology.
Krueger and Osler (2022)	Theoretical	AI-based deathbots may help sustain continuing bonds between bereaved individuals and the deceased, highlighting their potential relational and emotional role in mourning contexts.
Lindemann (2022)	Theoretical	The use of deathbots is characterized as a double-edged sword. On one hand, they may disrupt the grieving process and negatively affect emotional and psychological well-being; on the other hand, they may offer support for individuals experiencing prolonged or severe grief. The author further argues that such technology may warrant classification as a medical device.
She et al. (2022)	Empirical	Grief experts were generally receptive to the use of such tools in clinical settings and acknowledged the value of providing personalized outputs to users, particularly when those outputs are supported by explainable AI models.

hinder (vs. support) mourning (Krueger and Osler, 2022; Lindemann, 2022). The findings show that perceived ethicality does more than foster general trust; it conditions whether favorable attitudes pre-usage toward grieftech translate into behavioral intention.

In Study 2, the effect of users' pre-adoption positive attitude toward grieftech and their usage intention is robust only when the technology is perceived as being ethical (vs. less ethical). When ethical skepticism is high, the perceived pre-usage benefits of grieftech are insufficient to motivate engagement. This finding suggests that in emotionally sensitive AI contexts, perceived ethicality is not peripheral to adoption, but a defining condition of whether users are willing to convert from interest into intention to use and, potentially, later adoption.

The remainder of this article is structured as follows: Section 2 reviews key literature, followed by the development of the hypotheses in Section 3. Section 4 details the methodology, data analysis, and findings of Studies 1 and 2. Section 5 concludes by discussing major implications that emerge from the findings.

## 2. Background

### 2.1. Continuing bonds theory

Continuing bonds theory posits that bereaved individuals often sustain an ongoing relationship with the deceased and that such bonds may provide comfort, support coping, and facilitate emotional adjustment following loss (Field and Filanosky, 2009). Rather than viewing healthy grieving as requiring detachment, contemporary bereavement research increasingly recognizes that mourners may preserve relational continuity through memories, communication, sensory or quasi-sensory experiences, symbolic actions, and enduring beliefs about the deceased (Hewson et al., 2024). These bonds may be internalized through contemplation, reflection, and recollection, for example by keeping the deceased's possessions, visiting places they once frequented, or imagining what they would have said or done in particular situations (Black et al., 2022).

Importantly, continuing bonds are not sustained only intrapsychically. Prior research shows that they are also enacted in social, communal, and digitally mediated contexts. Online memorials and social media platforms, for instance, allow mourners to sustain the presence of the deceased through shared remembrance, direct posts to the dead, and collective reminiscence with others who witness and respond to these expressions (Bell et al., 2015; Akinyemi and Hassett, 2023). Similarly, communal rituals such as grave sweeping provide interactional settings in which family members maintain, adapt, and renegotiate their bond with the deceased through shared offerings, conversation, and remembrance practices (Hsu and Palitsky, 2023). Recent scholarship further suggests that immersive technologies such as virtual reality may intensify continuing bonds by enabling highly realistic, seemingly reciprocal, and partly embodied encounters with representations of the deceased (Fanti Rovetta and Valentini, 2025).

At the same time, existing applications of continuing bonds theory remain limited in two important respects. First, the literature has primarily examined continuing bonds as a feature, expression, or outcome of bereavement, rather than as a mechanism shaping responses to emerging technologies. Second, even in digital and collective mourning contexts, prior work has focused largely on remembrance, memorialization, and coping, offering less insight into how continuing bonds may translate favorable evaluations of post-loss technologies into adoption intention. This limitation is especially salient in the context of grieftech, where AI does not merely preserve memory but enables dynamic, interactive engagement with a digital representation of the deceased. Building on this literature, we conceptualize continuing bond in the grieftech context as a context-activated relational mechanism: favorable attitudes toward grieftech make technologically mediated connection with the deceased feel psychologically viable, and this perceived viability, in turn, translates positive evaluations into intention to use the

technology.

### 2.2. Overview: AI for emotional support and grieftech

Recent developments in artificial intelligence (AI) introduce a qualitatively new context in which continuing bonds may be enacted. AI is increasingly embedded in everyday life, shaping how people seek recommendations (Moore et al., 2022), obtain counseling (Moriuchi, 2021), alleviate loneliness (Mehmood et al., 2024; Lavan et al., 2024), and engage with e-commerce services (Chen and Zhao, 2026). Here, AI is not merely functional, but often emotionally consequential, as users turn to emotionally responsive technologies such as chatbots or digital assistants for support, companionship, and coping during difficult life experiences (Moriuchi, 2022; Tsai et al., 2021; Zickuhr, 2021).

This broader development is especially consequential in the bereavement domain, where AI now enables forms of post-loss engagement that extend beyond symbolic remembrance or static memorialization. Grieftech, GenAI technologies that allow mourners to sustain a connection with a digital representation of a deceased loved one (Cline, 2024), is becoming increasingly available through applications such as deathbots or griefbots (Reese, 2023), AI-generated voice replication, conversational video systems, immersive avatars, and mixed-reality holograms (ACA, 2023; Lindemann, 2022; Finsterwalder and Kuppelwieser, 2020). Unlike earlier digital mourning forms, which primarily supported remembrance, grieftech enables dynamic, interactive, and personalized engagement with the deceased through textual, auditory, visual, and even embodied stimuli.

This distinction is theoretically important. While prior research has examined continuing bonds in memorial, ritual, and digitally mediated contexts, grieftech introduces the possibility of ongoing relational exchange with an AI-simulated other. In doing so, it transforms the bond from something primarily remembered or symbolically expressed into something that may be actively enacted through technology. This suggests that continuing bonds may not only characterize bereavement experiences, but may also help explain why individuals are willing to adopt grieftech in the first place. Put differently, favorable evaluations of grieftech may increase intention to use the technology because such systems make an ongoing bond with the deceased feel more psychologically available, vivid, and actionable. Accordingly, this research extends continuing bonds theory into the grieftech domain by examining whether continuing bond functions as a mechanism through which favorable attitudes toward grieftech are translated into intention to use it.

## 3. Literature review and hypothesis development

We next review foundational literature to develop the hypotheses, as summarized in the conceptual framework (Fig. 1).

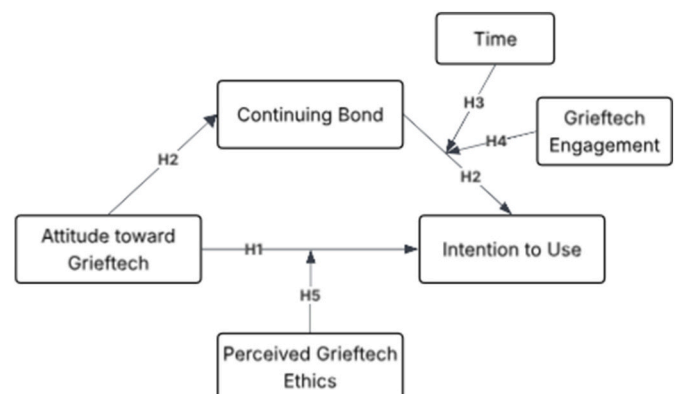


Fig. 1. Conceptual framework.

### 3.1. Effect of attitude toward grieftech on intention to use the technology

According to Ajzen and Fishbein (2000), attitude toward a behavior reflects an individual's favorable or unfavorable evaluation of performing that behavior. Relatedly, technology adoption frameworks suggest that such evaluations are important antecedents of behavioral intention (Venkatesh et al., 2003, 2012). In the present research, this attitude–intention logic is applied at the pre-adoption stage. As grieftech remains an emergent technology with limited real-world use to date, respondents evaluated a standardized grieftech stimulus and reported their intention to use such technology rather than actual post-adoption behavior. In addition, emerging work on AI-powered avatars in care-related settings suggests that evaluative perceptions can shape willingness to engage with avatar-based technologies even in emotionally sensitive contexts (Moriuchi, 2022).

Studies have found that the general attitude observed in the use of intelligent machines on society was slightly positive (Mehmood et al., 2024). Prior research likewise demonstrates that people's attitudes toward using a technology (e.g., a service robot) positively affect their intentions to use it (e.g., Moriuchi, 2022; Huang and Dootson, 2022). Studies have also found that attitude toward using a robot has a positive impact on users' behavioral outcomes toward the AI (e.g., by continuing to use it; Xie et al., 2022). Correspondingly, we suggest that users' positive attitude toward grieftech will tend to raise their intent to use the technology, as follows:

**H1.** *Users' attitude toward grieftech boosts their intention to use the technology.*

### 3.2. Mediating role of continuing bond

Rooted in attachment theory, bereavement often involves an enduring motivation to maintain connection with the lost attachment figure rather than sever it completely (Bowlby, 1982). Continuing bonds theory similarly suggests that sustaining an ongoing relationship with the deceased can facilitate coping and adjustment following loss (Field and Filanosky, 2009). Importantly, this bond is not merely a passive residue of grief; rather, it is actively enacted through memories, symbolic communication, imagined conversations, felt guidance, and other practices that preserve relational continuity with the deceased (Hewson et al., 2024). Prior research further shows that such bonds can be maintained not only intra-psychically but also through digitally mediated forms of remembrance and interaction (Bell et al., 2015; Akinyemi and Hassett, 2023). Empirically, continuing bonds have been shown to operate not only as an enduring feature of bereavement, but also as a mediating mechanism linking attachment-related antecedents to grief adjustment outcomes (Yu et al., 2016), while digitally mediated spaces such as online memorials and Facebook have been found to facilitate the active enactment of such bonds through communication, reminiscence, and perceived presence (Bell et al., 2015; Akinyemi and Hassett, 2023). In this sense, digital environments may function as relational spaces in which the deceased remains psychologically present, making continuing bonds behaviorally consequential rather than merely privately experienced.

We argue that attitude toward grieftech shapes whether individuals perceive the technology as an acceptable and meaningful medium for enacting this bond. When users hold a favorable attitude toward grieftech, they are more likely to interpret its interactive and responsive features as supportive of connection rather than as unsettling or inappropriate. This favorable evaluative stance increases the likelihood that grieftech is construed as a vehicle through which the relationship with the deceased can be maintained. Once grieftech is understood in this way, continuing bond becomes the more proximal mechanism through which positive evaluations of the technology translate into intention to use it. Put differently, attitude toward grieftech may increase openness to the technology, but intention to use it is strengthened because the

technology is perceived as enabling an ongoing bond with the deceased. Consistent with prior work showing that continuing bonds can function as an explanatory pathway linking antecedent conditions to grief-related outcomes (Yu et al., 2016), we therefore expect continuing bond to mediate the relationship between attitude toward grieftech and intention to use grieftech, as follows:

**H2.** *Continuing bond mediates the relationship between attitude toward grieftech and intention to use grieftech.*

### 3.3. Moderating role of time

While continuing bonds theory emphasizes that relationships with the deceased may persist after death, attachment theory clarifies that the *function* of these bonds changes over time as bereaved individuals gradually move from proximity-seeking toward cognitive and emotional reorganization (Bowlby, 1982). In the early aftermath of a loss, the attachment system remains highly activated: the mourner experiences intense separation distress, persistent yearning, and what Bowlby described as a strong drive to re-establish closeness with the lost attachment figure. Under these conditions, grieftech may be especially compelling because it offers an external, interactive surrogate that partially satisfies proximity needs and helps regulate acute emotional pain. However, as time passes, bereaved individuals are more likely to engage in adaptation processes such as meaning reconstruction, emotional regulation, and the gradual internalization of the deceased as a symbolic rather than interactive presence (White & Fessler, 2017; Parkes et al., 2015). In this later phase, the continuing bond often becomes less dependent on external interaction and more rooted in memory, identity, and private remembrance. Drawing on recent marketing scholarship that conceptualizes consumer value as dynamic and journey-dependent (Hollebeek et al., 2023a; b), we argue that the perceived value of grieftech is highest when the mourner's attachment system is still strongly oriented toward reunion and emotional regulation, but declines as grief becomes more integrated and the need for technologically mediated interaction diminishes. Thus, time since loss should shape not merely the *strength* of grief, but the *psychological function* that a continuing bond serves, thereby conditioning whether grieftech is perceived as valuable. We hypothesize:

**H3.** *Time since loss moderates the association between the griever's continuing bond and their intention to use grieftech, such that the association is significantly stronger for more recent passings and weakens as time since loss increases.*

### 3.4. Moderating role of engagement

The adoption of AI-driven tools is fundamentally contingent on a user's level of engagement, defined as the investment of personal resources, cognitive, emotional, and behavioral, into interactions with the technology (Hollebeek et al., 2019; Moriuchi, 2021; Prentice and Nguyen, 2020). In the context of "feeling AI", this technology-facilitated engagement (Hollebeek and Belk, 2021) is driven by the system's interactivity and perceived anthropomorphism (Mehmood et al., 2024), which invites the user to treat the AI as a social actor rather than a mere tool.

We argue that engagement acts as a critical intensifier of the grieving process. Highly engaged users invest a broader range of personal resources into the digital interaction, effectively "fueling" the connection between their internal desire for a bond and the external technology (Moriuchi, 2021). For these individuals, AI becomes a high-fidelity vessel for their emotions, making the continuing bond a more potent driver of usage intent.

Conversely, for less engaged users, the bond remains largely internal or unlinked to the tool, as they lack the "resource investment" necessary to bridge the gap between their grief and the digital interface. Building on prior research that positions engagement as a moderator of

relationship quality and usage intention (Thakur, 2019), we assert that the effect of the continuing bond on adoption intent is not universal but is contingent upon the user's active engagement with the platform:

**H4.** *Engagement* moderates the association between the user's *continuing bond* and their *intention to use grieftech*, such that a stronger association is observed for more (vs. less) engaged users.

### 3.5. Moderating role of perceived grieftech ethics

Ethicality in AI is often discussed in relation to transparency, accountability, fairness, and trust, particularly as users confront concerns about privacy, autonomy, and bias in AI-mediated environments (Song et al., 2022; Niu and Mvondo, 2024). In this research, however, perceived ethicality is conceptually distinct from attitude toward grieftech. Attitude refers to a user's overall (un)favorable evaluation of grieftech (e.g., as potentially useful, comforting, or desirable), consistent with technology acceptance research that treats attitude as a broad evaluative orientation toward use (Ajzen and Fishbein, 2000).

By contrast, perceived ethicality refers to a more specific moral judgment regarding whether using grieftech is appropriate, legitimate, and non-harmful in the context of bereavement, which aligns with consumer ethicality research that treats ethical perception as a distinct basis for legitimacy and behavioral response rather than merely a sub-dimension of general attitude (Brunk, 2012). In the emotionally sensitive domain of grieftech, these ethical concerns become especially salient because the technology operates at the intersection of digital personhood, posthumous data use, and emotional vulnerability (Lindemann, 2022). More specifically, concerns may arise over whether grieftech respects the dignity of the deceased, whether the deceased meaningfully consented to such use of their data, and whether highly realistic simulations risk undermining the autonomy or long-term well-being of bereaved users (Duffy & Wild, 2023).

Theoretically, ethical concerns are closely tied to the trajectory of the continuing bond. Bereavement adaptation often involves a gradual shift from a more externalized bond, characterized by active proximity-seeking and relational reenactment, to a more internalized bond grounded in symbolic remembrance and psychological integration (Mejia and Nikolaidis, 2022). As grieftech provides vivid, interactive, and responsive simulations, it may be perceived as emotionally beneficial while simultaneously raising concern that it could prolong dependence on an externalized bond or blur the boundary between comfort and emotional overreliance (Hollebeck and Belk, 2021; Lindemann, 2022).

Accordingly, we argue that perceived ethicality functions not as part of attitude itself, but as a boundary condition on whether favorable attitudes are behaviorally enacted. A user may evaluate grieftech positively because it appears comforting, engaging, or useful, yet still hesitate to use it if the technology is perceived as morally troubling. When perceived ethicality is high, users are more likely to regard grieftech as a legitimate and psychologically safe medium, thereby strengthening the translation of positive attitude into usage intention. When perceived ethicality is low, however, moral unease acts as a constraint, weakening the extent to which favorable attitudes toward grieftech convert into intention to use it (Giroux et al., 2022). We hypothesize:

**H5.** Perceived ethicality moderates the association between a user's attitude toward grieftech and their intention to use it, such that the association is significantly stronger when perceived ethicality is high (vs. low).

## 4. Study 1 and 2: Methodology and results

As grieftech remains an emergent technology with limited real-world accessibility and few established users, we employ a **pre-adoption, stimulus-based survey design** to examine bereaved individuals'

prospective evaluations and intention to use grieftech rather than actual post-adoption behavior. To examine consumers' pre-adoption responses to grieftech, we conducted two empirical studies among U.S. adults who had experienced the loss of a loved one. As grieftech remains an emergent technology and most bereaved individuals are not existing users, both studies assess individuals' prospective pre-usage evaluations of grieftech and their intent to adopt grieftech post-exposure to a standardized grieftech stimulus (vs. actual post-adoption behavior). Respondents viewed a standardized grieftech video stimulus lasting 2 min. The same video was used across both studies to ensure consistency of stimulus exposure. Study 1 uses an online survey-based design to test H1–H4 (n = 197). Study 2 replicates the framework (Fig. 1) in an online video-based study (n = 200) and extends the first study by examining perceived grieftech ethicality, addressing H5. We next detail the empirical procedures and key results from both studies.

### 4.1. Study 1

#### 4.1.1. Overview

The objective of Study 1 is two-fold. First, we test the proposed main effects (H1–H2), offering initial evidence on grieftech from the perspective of bereaved prospective users. Second, we examine the moderating role of time (H3) and engagement (H4).

#### 4.1.2. Method

Study 1 tests the proposed framework (Fig. 1) using data collected from Prolific, an established online crowdsourcing platform widely used for academic research (Palan and Schitter, 2018). To ensure the eligibility of respondents, participants were first screened using two questions: 1. "Have you experienced bereavement/grief of a loved one?" and 2. "Do you live in the U.S.?" Only respondents who answered "yes" to both questions were eligible to proceed. To support response verification while preserving anonymity, participants who completed the survey were assigned a unique anonymous identification code through the platform. Only eligible and fully completed responses were retained for analysis. Consistent with the study's pre-adoption design, participants had no prior experience using grieftech and were not required to have any. Instead, eligible bereaved respondents were exposed to a standardized grieftech stimulus and then asked to evaluate the technology and report their intention to use it.

In the main questionnaire, the first set of questions addressed respondents' bereavement experience, including how they had previously coped with the loss of their loved one. These items were included to contextualize grieftech perceptions in broader grief-management experiences (vs. treating grieftech as an isolated/default coping solution). Respondents then viewed a video featuring a bereaved mother communicating with her deceased daughter (age 7) through a VR headset and haptic gloves, which enabled tactile feedback by interacting with the daughter's digital image (see Appendix 1). Importantly, respondents did not interact with this equipment themselves; rather, the VR and haptic components were part of the depicted grieftech scenario. The standardized video stimulus lasted 2 min and was shown to all respondents.

Respondents' prior coping narratives reflected several recurring patterns, including relational coping (e.g., support from family, friends, spouse, peer groups, or therapy), internal coping and meaning-making (e.g., crying, prayer, reflection, journaling, remembrance, or acceptance), avoidant or behavioral coping (e.g., staying busy, work, hobbies, routines, or emotional suppression), and enduring grief (e.g., accounts indicating that grief remained active, cyclical, or unresolved). These patterns underscore that respondents were already drawing on multiple coping resources before evaluating grieftech.

After watching the video, they answered a series of questions measuring their pre-adoption attitude toward grieftech and their intention to use it to cope with their loss. The final sample comprised 197 respondents. Of these, 49.2% identified as male, 49.7% as female,

and .5% as non-binary. The average age was 39.8 years ( $SD = 10.18$ ). Most (98.5%) reported the loss of a close connection (e.g., a family member), and 71.5% indicated their loss had occurred in the last six years (Table 2).

#### 4.1.3. Measures

Drawing on prior literature, the following constructs and their items were deployed. Attitude toward grieftech was measured by using a slightly adapted version of Cacioppo et al.'s (1997) nine-item attitude scale to suit the present research context ( $\alpha = .97$ ). While continuing bond was gauged by using Field and Filanosky's (2009) six-item instrument ( $\alpha = .92$ ). We selected this established bereavement measure because continuing bond is modeled here as a grief-related relational mechanism linking favorable grieftech evaluations to intention to use, rather than as a technology-feature assessment. Users' intention to use grieftech was measured with Moriuchi's (2022) four-item scale ( $\alpha = .96$ ). The items were measured on seven-point Likert scales (anchored in 1 = strongly disagree, to 7 = strongly agree), with the exception of the attitude scale, which was gauged on seven-point semantic-differential scales. Given the pre-adoption nature of the study, the selected measures were intended to capture respondents' evaluative, relational, and ethical antecedents of intended grieftech use, rather than actual post-adoption experience or realized usage outcomes.

#### 4.1.4. Common method bias assessment

To ensure the integrity of our findings, we assessed the potential for Common Method Bias (CMB) using two rigorous statistical techniques. First, we employed the Marker Variable Technique (Lindell & Whitney, 2001). We selected "attitude toward purchasing a customized coffee mug" as a theoretically unrelated marker variable. Using the smallest observed correlation between the marker and the principal constructs ( $r = .05$ ) as a conservative estimate of Common Method Variance (CMV), we partialled this value out of the correlation matrix. The results indicated that the relationships between our primary constructs remained stable and were not significantly inflated by the marker variable, suggesting that CMV does not contaminate the structural model.

Second, we implemented the unmeasured common latent factor (CLF) approach (Podsakoff et al., 2003). We introduced a common latent factor in our structural equation model, linked to all observed indicators. A comparison between the models with and without the CLF revealed that the common factor did not correlate significantly with the substantive constructs. Furthermore, the overall pattern and significance of the hypothesized paths remained unchanged when the CLF was controlled for. Together, these tests provide strong evidence that common method bias does not pose a threat to the validity of our findings.

#### 4.1.5. Analytical procedures

Fornell and Larcker's (1981) approach was adopted to assess convergent validity of the measures. Four metrics were examined, including item reliability, composite reliability and average variance extracted (AVE) of each construct, and the inter-construct correlations.

**Table 2**  
Demographics.

	Study 1 (n = 197)	Study 2 (n = 200)
<b>Gender</b>		
Male	49.2	50.3
Female	49.7	49.7
Non-binary	.5	-
<b>Age</b>		
18 – 24	5.6	7.5
25 – 34	30.8	29.1
35 – 44	22.6	21.1
45 – 54	22.1	21.1
55 – 64	18.5	20.6
65 – 74	.5	.5

AMOS (v. 25) was used to perform the structural equation modeling analyses.

We conducted confirmatory factor analysis (CFA) to test the validity of the measurement model. The CFA results show a good fit of the 19-item model to the data:  $\chi^2 = 193.49$ ,  $df = 129$ ,  $p < .001$ ; CFI = .98; RMSEA = .05; NFI = .95; and TLI = .98. All item estimates were statistically significant ( $p < .00$ ), and their underlying constructs were acceptable (see Table 3 Table 4). Moreover, key statistics and variances extracted for each latent variable confirm the model's reliability and validity. Drawing on the standardized factor loadings and measurement errors (Hair et al., 2010), the AVE exceeded the .50 threshold (see Table 3; Bagozzi and Yi, 2012), while composite reliability (CR) scores were greater than .70, implying internal consistency (see Table 5).

#### 4.1.6. Baseline measurement model and structural model parameters

The structural equation model yielded the following statistics:  $\chi^2 = 179.46$ ,  $df = 128$ ,  $p < .001$ ; CFI = .99, an RMSEA of .04, an NFI of .96, a TLI .99, and an  $\chi^2/df$  of 1.40. Each of the proposed relationships was significant (see Fig. 1).

Structural equation modeling was deployed to test the path hypotheses (direct effects), while bootstrapping via user-defined estimands was used to test the mediation effects. First, we examined the direct relationship between users' attitude toward grieftech and their intention to use the technology, which was significant ( $\beta = .75$ ,  $p < .001$ ), providing support for H1. We next deployed bootstrapping to test whether the indirect effects were different from zero (Hayes and Preacher, 2014), thus testing the mediation hypotheses. To this end, user-defined estimands were implemented (Lundberg et al., 2021) using bootstrapping with 5000 resamples. The mediating effect (indirect effect) of continuing bond on the direct association of users' attitude toward grieftech and their intention to use the technology was found to be significant and positive ( $\beta = .06$ ,  $p = .03$ , 95% CI [.06, .22]), supporting H2 (see Table 6).

As a robustness check, we also estimated a rival moderation model in which continuing bond was specified as a moderator of the relationship between attitude toward grieftech and intention to use. The model was significant,  $F(3, 191) = 76.78$ ,  $p < .001$ , with  $R^2 = .547$ . Continuing bond exerted a positive main effect on intention,  $b = .447$ ,  $SE = .099$ ,  $t = 4.50$ ,  $p < .001$ , whereas the main effect of attitude was not significant,  $b = -.087$ ,  $SE = .087$ ,  $t = -1.00$ ,  $p = .318$ . However, the interaction between attitude and continuing bond was significant,  $b = -.009$ ,  $SE = .003$ ,  $t = -2.99$ ,  $p = .003$ , indicating that continuing bond significantly altered the relationship between attitude and intention. The negative sign of the interaction suggests that higher levels of continuing bond weakened, rather than strengthened, the attitude–intention relationship.

#### 4.1.7. Moderating role of time

To determine whether the mediating relationship between attitude toward grieftech, continuing bond, and intention to use grieftech is contingent on the amount of time since the respondent has lost their loved one, we test the moderating role of time in each of these pathways (see Fig. 1). Time was gauged by using the following single-item measure: "When did you lose your loved one?" (measured with a ratio scale in years). The hypothesized moderated-mediation model was tested in two ways, including by creating estimands using AMOS and by deploying Hayes PROCESS Macro (Model 14), which tests a model incorporating time as a moderating factor (see Fig. 1; Hayes and Preacher, 2014). The results corroborate that time moderates the effect of users' continuing bonds and their intent to use grieftech (unstandardized interaction  $\beta = .16$ ,  $SE = .06$ ,  $t = 2.84$ ,  $p < .01$ ). Greater continuing bond was associated with a heightened intention to use grieftech ( $\beta = .34$ ,  $SE = .08$ ,  $t = 4.26$ ,  $p < .001$ ). The overall moderated mediation model was supported with the index of moderate mediation = .02,  $SE = .01$ , 95% [CI = .003, .042]).

As zero was located outside the confidence interval, we identify a

**Table 3**  
Measurement items and internal consistency.

		Study 1	Study 2
Attitude toward grieftech		Cronbach's alpha = .97, CR = .97, AVE = .81	Cronbach's alpha = .97, CR = .97, AVE = .80
ATTD1	After watching the video, I think using grieftech is ...		
	Effective:Not at all Effective	.91	.90
	Valuable:Not valuable	.88	.85
	Persuasive:unpersuasive	.94	.86
	Helpful:Not helpful	.86	.93
	Useful:Not useful	.95	.93
	Realistic:Not realistic	.96	.84
	Good:Bad	.81	.95
	Credible:Not credible	.90	.95
	Persuasive:unpersuasive	.87	.80
Continuing bond		Cronbach's alpha = .92 CR = .92, AVE = .61	Cronbach's alpha = .96, CR = .96 AVE = .86
BOND1	I experienced the deceased continuing to live on through his or her impact on who I am today.	.78	.80
	I imagined the deceased guiding me or watching over me as if invisibly present.	.78	.76
	I imagined the deceased's voice encouraging me to keep going.	.84	.79
	I was aware of how I tried to live my life the way the deceased would have wanted me to live.	.84	.82
	I thought about the deceased as a role model who I try to be like.	.82	.81
	When making important decisions, I thought about what the deceased might have done and used that to help me make my decision.	.72	.77
Ethics			Cronbach's alpha = .86, CR = .93 AVE = .65
	I think using an AI driven digital avatar to cope with grief/bereavement (is) culturally acceptable.		.85
	I think using an AI driven digital avatar to cope with grief/bereavement (is) individually acceptable.		.82
	I think using an AI driven digital avatar to cope with grief/bereavement (is) traditionally acceptable.		.73
	I think using an AI driven digital avatar to cope with grief/bereavement (is) acceptable to my family.		.87
	I think using an AI driven digital avatar to cope with grief/bereavement (is) personally satisfying.		.90
	I think using an AI driven digital avatar to cope with grief/bereavement maximizes benefits while minimizing harm.		.89
	I think using an AI driven digital avatar to cope with grief/bereavement (is) leads to greater good for the greatest number of people.		.88
Intention to use grieftech		Cronbach's alpha = .97, CR = .97, AVE = .88	Cronbach's alpha = .92 CR = .92, AVE = .53
	I am willing to use grieftech because I believe engaging with it will help me overcome my grief.	.96	.95
	I am willing to use grieftech because I believe engaging with it will help me continue my bond with my lost loved ones.	.96	.93
	I am willing to use grieftech because I believe engaging in it will help me maintain a healthy mental state.	.94	.95
	I am willing to recommend grieftech to others who are grieving because I think it would be helpful.	.89	.89
Grieftech engagement		Cronbach's alpha = .95 CR = .95, AVE = .73	
	The engagement between the user and the digital avatar is very human-like.	.77	
	The engagement between the user and the digital avatar seems very meaningful.	.89	
	The engagement between the user and the digital avatar seems very rewarding.	.87	
	The engagement between the user and the digital avatar seems very worthwhile.	.89	
	The engagement between the user and the digital avatar is interesting.	.84	
	The interaction between the user and the digital avatar is engaging.	.890	
	The engagement between the user and the digital avatar holds my attention.	.86	

significant moderating role of time on the effect of continuing bonds on users' intention to utilize grieftech. The conditional indirect effect was strongest in those, who had lost their loved one more recently (1SD above the mean of time; effect = .33, SE = .07, 95% [CI = .19, .48]), and weakest in those, whose loss had occurred longer ago (1SD below the mean, effect = .09 SE = .07, 95% [CI = -.04, .23]), as predicted in H3. We next employed the Johnson-Neyman method, which showed that while people intend to use grieftech within the first 7-8 years of the loss of their loved one, their intent to use grieftech tends to diminish after

this 8-year period, supporting H3.

#### 4.1.8. Moderating role of engagement

To determine whether the effect of continuing bond on users' intention of to use grieftech is contingent on users' level of grieftech engagement, we explored the moderating role of engagement (see Fig. 1). Engagement was measured by using a seven-item measure (Moriuchi, 2022) rated on interval scales, which were aggregated to test the proposed moderating effect. We deployed user-defined estimands in

**Table 4**  
Study 1 - Discriminant validity assessment (Fornell-Larcker criterion).

	ATTD	BOND	INTENT	ENGAGE
ATTD	.898			
BOND	.711	.938		
INTENT	.247	.382	.779	
ENGAGE	.68	.322	.503	.854

**Notes** - <.05\*\*>; <.01\*\*\*>; ATTD: Attitude toward grieftech; BOND: Continuing bond; INTENT: Intent to use grieftech; ENGAGE: User's engagement with grieftech.

**Table 5**  
Correlations.

	Mean	SD	ATTD	BOND	INTENT	ENGAGE
ATTD	3.43	1.75	1.00			
BOND	4.80	1.80	.313	1.00		
INTENT	3.16	1.95	.689	.438	1.00	
ENGAGE	5.09	1.62	.768	.322	.503	1.00

**Notes** - ATTD: Attitude toward grieftech; BOND: Continuing bond; INTENT: Intent to use grieftech; ENGAGE: User's engagement with grieftech.

**Table 6**  
Study 1 - Mediation testing results.

Mediation			Study 1	Mediation
			Evidence	
			$\beta$ and p-value	
H2 Attitude→Continuing bond→ Intention to use	X→M		.19***	Partial Mediation
	M→Y		.32***	
	X→Y		.75***	

**Notes** - <.05\*\*>; <.01\*\*\*> X- Independent variable (Attitude); M-mediator (Continuing bond); Y- Dependent variable (Intention to use).

AMOS, which tests a model in which engagement moderates the effect of path a (Fig. 1).

The results show that users' attitude toward grieftech has a direct positive effect on continuing bond ( $\beta = .31, t = 4.60, p < .001$ ), which in turn exerts a direct positive effect on users' grieftech usage intention ( $\beta = .27, t = 5.48, p < .001$ ). While engagement was not found to exert a significant effect on users' intention to utilize grieftech ( $\beta = -.10, t = 1.01, p = .31$ ), it was indeed found to interact with continuing bond ( $\beta = .08, t = 2.12, p = .03$ ), 95% [CI = .01, .15], thus impacting people's intention to use grieftech, offering empirical support for H4.

4.1.9. Discussion

The Study 1 findings provide initial evidence for the psychological and temporal drivers of grieftech adoption. The results show that continuing bond partially mediates the relationship between attitude toward grieftech and intention to use grieftech. Specifically, while users' attitude toward grieftech exerts a significant direct effect on their intention to use the technology, part of this effect also operates indirectly through continuing bond. This suggests that favorable evaluations of grieftech matter not only because users view the technology positively, but also because such evaluations make continued connection with the deceased feel psychologically viable through technological mediation. In this sense, continuing bond helps explain how positive attitudes toward grieftech convert into usage intention.

Furthermore, the results indicate that *time since loss* serves as a critical boundary condition for usage intention. While prior research suggests that the trajectory of grief varies based on the cause of death (e.g., suicide vs. accidental death; Heeke et al., 2017), our data reveal a distinct period of peak technological receptivity. We find that the intention to utilize grieftech is significantly higher within seven to eight

years following a loss. This suggests that during this period, bereaved individuals may be more receptive to digitally mediated forms of continued connection, whereas in later stages of bereavement, the perceived utility of such tools may diminish as the bond becomes more internalized.

The results also substantiate the moderating role of engagement (H4). We find that the effect of continuing bond on usage intention is significantly stronger for highly engaged users. This aligns with the "resource investment" perspective on engagement (Hollebeek et al., 2019), in which users who are willing to invest greater cognitive and emotional effort in the interaction derive stronger value from the technology-facilitated bond. In summary, Study 1 demonstrates that grieftech adoption is not universal; rather, it is a time-sensitive phenomenon that is partially explained by continuing bond and intensified by users' active engagement with the digital service encounter. We next introduce Study 2, which replicates and extends Study 1.

4.2. Study 2

4.2.1. Overview

As in Study 1, Study 2 adopts a pre-adoption stimulus design in which bereaved respondents evaluated grieftech after exposure to a standardized scenario rather than reporting prior personal use of the technology. Study 2 replicates the theoretical framework tested in Study 1 (H1–H4) and extends it by incorporating the proposed moderating role of user-perceived grieftech ethicality (H5). Data were collected from Prolific, the same established online crowdsourcing platform used in Study 1. To ensure sample suitability, participants were screened using the same two eligibility questions applied in Study 1: 1. "Have you experienced bereavement/grief of a loved one?" and 2. "Do you live in the U.S.?" Only respondents who answered "yes" to both questions were eligible to proceed. As in Study 1, participants who completed the survey were assigned a unique anonymous identification code through the platform to support response verification while preserving anonymity. Similar to Study 1, participants were not required to have prior experience using grieftech.

The same 2 min video stimulus used in Study 1 was shown to respondents in Study 2. Specifically, participants viewed a bereaved mother communicating with her deceased daughter through virtual reality technology, including a headset and haptic gloves that enabled tactile feedback through interaction with the daughter's digital image. As in Study 1, participants viewed rather than personally used the VR/haptic system. Following the video, respondents completed the same measures used in Study 1, while the survey was expanded to include a series of items assessing perceived grieftech ethicality. The final sample consisted of 200 respondents. Of these, 50.3% identified as male and 49.7% as female. Age information was available for 200 respondents, whose average age was approximately 41.57 years ( $SD = 12.63$ ). In terms of age distribution, 7.5% were between 18 and 24 years old, 29.1% were between 25 and 34, 21.1% were between 35 and 44, 21.1% were between 45 and 54, 20.6% were between 55 and 64, and .5% were between 65 and 74. Data for the time-since-loss measure were also available for 200 respondents, of whom 62.8% had experienced the loss of a loved one less than 1 year ago, 14.6% between 1 and 2 years ago, and 22.6% between 3 and 4 years ago (see Table 2).

4.2.2. Measures and analytical procedures

The same measures as those adopted in Study 1 were applied in Study 2 (see Table 3). User-perceived grieftech ethics was measured using Jung's (2009) seven-item measure. This scale was used to capture respondents' overall moral evaluation of whether grieftech is appropriate, legitimate, and non-harmful in bereavement; our inferences concern the aggregate latent construct rather than the interpretation of any single item in isolation. Here, "culturally acceptable" refers to fit with broader social norms and values, whereas "traditionally acceptable" refers more narrowly to fit with customary or inherited

bereavement practices; however, these items are interpreted as part of the aggregate ethicality construct rather than as separate dimensions. Although these notions may overlap in some contexts, we use ‘culturally acceptable’ to denote broader social norms and ‘traditionally acceptable’ to denote customary or inherited bereavement practices. These items were aggregated and tested as a single construct in the structural equation model (Hair et al., 2010). Items were again rated on seven-point Likert scales (anchored in 1 = strongly disagree, to 7 = strongly agree), except for attitude toward grieftech, which was measured on seven-point semantic-differential scales.

As in Study 1, we deployed Fornell and Larcker's (1981) approach to assess convergent validity of the measures. Specifically, we evaluated item reliability, composite reliability and the AVE for each construct, as well as the inter-construct correlations (Hair et al., 2010). Each item was found to be statistically significant, exposing acceptable associations to their respective underlying construct (see Table 3). The standardized factor loadings, measurement errors (Hair et al., 2010), and AVE exceeded their respective .50 threshold (Bagozzi and Yi, 2012), as also shown in Table 3. Composite reliability (CR) values were greater than .70, implying internal consistency. Confirmatory factor analysis (CFA) was used to test the overall validity of the measurement model, which reveal that the 19-item model offers a suitable fit to the data:  $\chi^2 = 294.01$ ,  $df = 140$ ,  $p < .001$ ; CFI = .96; RMSEA = .07; NFI = .93; and TLI = .96.

4.2.3. Common method bias assessment

As in Study 1, we assess the potential existence of common method bias (CMB) in the data with two methods. First, we adopted an uncorrelated marker variable (i.e., attitude toward purchasing a customized coffee mug, measured on 7-point Likert scales), as in Study 1; Lindell & Whitney, 2001) and tested its relationship with the modeled constructs. We used the smallest correlation between the marker variable and the other variables (.05) as an estimate of CMB and partialled it out of the remaining correlations (Lindell & Whitney, 2001). The results indicate that the estimated relationship between the modeled constructs and the marker variable is not inflated, providing no evidence of common method bias. Second, we also found that the specified common latent factor was uncorrelated to the substantive factors (Podsakoff et al., 2003), indicating the absence of an interaction between the constructs. We therefore conclude that the overall pattern of significant relationships is not affected by CMB.

4.2.4. Baseline measurement model and structural model parameter results

The structural equation model yielded the following fit statistics:  $\chi^2 = 222.80$ ,  $df = 127$ ,  $p < .001$ ; CFI = .98, RMSEA .06, NFI .95, TLI .97, and  $\chi^2/df$ : 1.75. Each of the proposed theoretical relationships was found to be significant (see Fig. 1).

4.2.5. Mediation results

As in Study 1, structural equation modeling was used to test the path hypotheses (direct effects), while bootstrapping through user-defined estimands was deployed to test the mediation effects. The direct effect of users' attitude toward grieftech on their intention to use the technology was significant ( $\beta = .68$ ,  $p < .001$ ), providing empirical support for H1. User-defined estimands were also implemented (Lundberg et al., 2021), using bootstrapping based on 5000 resamples. The indirect effect of users' attitude toward grieftech on their intention to use the technology was significant and positive ( $\beta = .17$ ,  $p < .01$ , 95% CI [.09, .29]), supporting H2 (see Table 7).

4.2.6. Moderation results

To test H5, we used Hayes' PROCESS Macro (Model 5), which assesses whether perceived grieftech ethicality moderates the direct effect of attitude toward grieftech on intention to use it while retaining the broader mediation structure. To reduce multicollinearity, the predictor variables were mean-centered before creating the attitude  $\times$  ethics

interaction term (Shin, 2012). The overall model was significant, accounting for 12% of the variance in intention to use grieftech ( $R^2 = .12$ ,  $p = .01$ ). In addition, the interaction term explained an incremental 1.81% of variance in intention to use grieftech. The interaction between attitude and perceived ethicality was positive and significant ( $\beta = .08$ ,  $SE = .03$ ,  $t = 2.69$ ,  $p < .01$ ), indicating that the positive association between attitude toward grieftech and intention to use it was stronger when perceived ethicality was higher. As shown in Fig. 2 Fig. 3, the slope relating attitude toward grieftech to intention to use was steeper under conditions of higher perceived ethicality than under lower perceived ethicality. These findings support H5 (see Fig. 3) (see Table 8).

5. Discussion, implications, and limitations

5.1. Discussion

This research advances understanding of grieftech by showing that bereaved consumers' receptivity to these technologies is shaped not only by their functional appeal, but also by the evolving psychological and moral conditions of grief. A stimulus-based design is appropriate in this context because grieftech remains an emergent category for which established user populations are limited. Across two studies, the findings indicate that continuing bonds remain central to adoption intention, but that their influence is neither static nor unconditional. Rather, grieftech appears to be evaluated as more or less relevant depending on the extent to which it aligns with the mourner's current relational needs, engagement, and ethical comfort with AI-mediated posthumous interaction.

First, our findings affirm the core insight of continuing bonds theory that maintaining an ongoing relationship with the deceased can remain meaningful after loss. This is broadly consistent with bereavement scholarship rejecting detachment as the sole marker of healthy adaptation and instead recognizing that enduring bonds may support coping, identity continuity, and emotional regulation. However, our findings extend this literature by showing that the effect of continuing bonds on grieftech adoption is time-sensitive. The relationship is strongest within approximately the first seven to eight years following loss and weakens thereafter. This pattern is theoretically important because it suggests that continuing bonds do not translate into demand for technological mediation in a uniform or permanent way. Rather, the value of grieftech appears greatest when the bond is still experienced as an active need for contact, comfort, or interaction. As grief becomes more integrated, the bond may persist, but its psychological function may shift from externalized interaction to internalized remembrance. In that later state, an AI-driven proxy may no longer be perceived as necessary or emotionally congruent. This finding therefore nuances popular narratives of “digital immortality” by suggesting that the appeal of posthumous AI may be more temporally bounded and psychologically contingent than public discourse often assumes.

Second, the results underscore the role of engagement as a crucial moderating mechanism. Prior work in marketing has shown that value in interactive technologies often emerges through consumer participation rather than being embedded in the object itself. Our findings are consistent with this view, but they also deepen it by showing that in grief contexts, engagement is not merely a marker of usage intensity. Instead, it offers a mechanism through which private longing becomes enacted as a meaningful technology relationship. In other words, grieftech does not

Table 7  
Study 2 - Discriminant validity assessment (Fornell-Larcker criterion).

	Mean	SD	ATTD	BOND	INTENT
ATTD	3.69	1.76	.891		
BOND	4.61	1.83	.297	.725	
INTENT	2.82	1.85	.701	.443	.929

Notes - ATTD: Attitude toward grieftech; BOND: Continuing bond; INTENT: Intention to use grieftech; SD: Standard deviation.

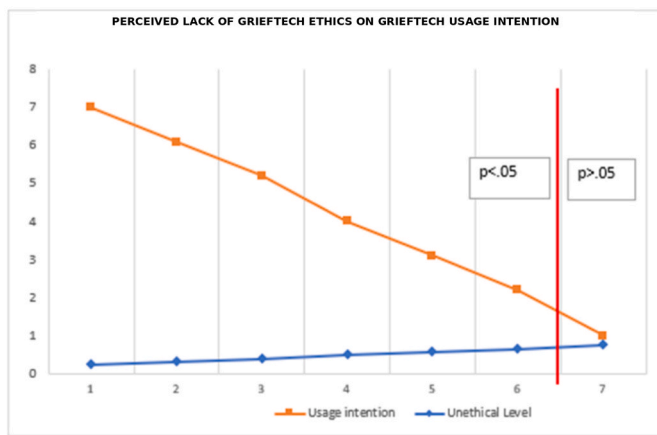


Fig. 2. Johnson-Neyman significance region.

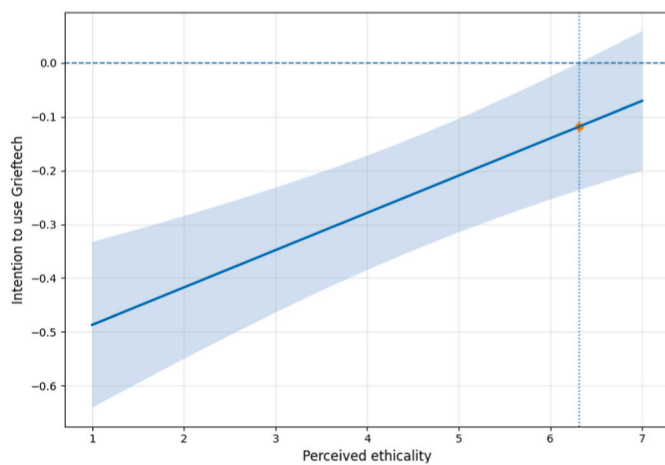


Fig. 3. Interaction between Attitude and Ethics on Intention to use Grieftech

Table 8  
Study 2 - Mediation testing results.

Mediation	Evidence	Mediation
	$\beta$ and p-value	
H2 Attitude→Continuing bond→ Intention to use	X→M .25*** M→Y .33*** X→Y .68***	Partial Mediation

Notes - <.05\*\*, <.01\*\*\* X- Independent variable (Attitude); M-mediator (Continuing bond); Y- Dependent variable (Intention to use).

simply offer comfort passively; it requires the bereaved user to devote attention, emotional energy, and interpretive effort to the interaction. This is especially significant in the bereavement context, where emotional investment may itself be costly. Thus, our findings suggest that grieftech should be understood less as a conventional digital service and more as an engagement-dependent coping interface whose value is co-produced by the mourner.

Third, Study 2 reveals that perceived ethicality operates as a decisive constraint on adoption. This finding deserves particular attention because it suggests that the emotional or relational benefits of grieftech are not sufficient to secure acceptance when the technology is perceived as ethically questionable. This result aligns with emerging research on AI adoption showing that trust and legitimacy matter in intimate or high-stakes contexts, but our findings go further by indicating that in

bereavement settings, ethicality may function as a threshold condition (vs. a peripheral evaluation criterion).

Concerns about posthumous consent, authenticity, manipulation, and emotional vulnerability appear capable of overriding otherwise favorable attitudes toward the technology. This is a notable departure from many mainstream technology adoption models, where usefulness or enjoyment often compensates for discomfort. In the present context, the moral character of the technology appears inseparable from its perceived appropriateness. This suggests that grieftech is evaluated not only as an innovation, but also as a morally charged intervention into one of the most vulnerable periods of life. Overall, the findings suggest that grieftech adoption is best understood as a temporally situated, engagement-dependent, and ethically filtered process. The results thus position grieftech within a broader customer journey in which the meaning and value of the technology change as grief evolves.

5.2. Theoretical implications

This research raises major theoretical implications. First, it extends Continuing Bonds Theory into the domain of AI-mediated posthumous interaction by showing that the desire for ongoing connection can act as a powerful driver of technology adoption. More importantly, it shows that this effect is temporally bounded. By identifying a window of adoption receptivity, the study moves beyond the assumption that the continuing bond exerts a stable influence across the bereavement trajectory. Instead, the findings suggest that time since loss alters the psychological function of the bond itself. Early in bereavement, the bond appears more likely to serve proximity-seeking and emotional regulation needs, making grieftech more valuable as an external relational aid. Over time, however, the bond may become more symbolic and internalized, reducing the perceived necessity of interactive digital mediation. This contributes to theory by linking bereavement processes more explicitly to consumer receptivity and by specifying when continuing bonds are most likely to translate into adoption behavior.

Second, the study contributes to engagement theory by showing that engagement in grieftech contexts is not simply behavioral participation, but a resource-intensive mechanism through which emotional meaning is activated. Existing work has emphasized that consumer value is dynamic and emerges across a journey. The findings support this view, while adding that in emotionally charged contexts, engagement can intensify the effect of underlying relational motives. The continuing bond alone does not fully explain adoption; its influence depends on the mourner's willingness to invest in the interaction and sustain the emotional labor it requires. This advances theory by showing that technology-facilitated engagement plays a particularly consequential role when the service object is tied to attachment, memory, and loss.

Third, this research contributes to emerging literature on “feeling AI” by positioning perceived ethicality as a foundational boundary condition for adoption in morally sensitive consumption domains. In the case of grieftech, ethicality is not just a matter of corporate responsibility or reputational management. It directly shapes whether the technology is experienced as acceptable, psychologically safe, and worthy of relational trust. This extends AI adoption theory by demonstrating that in bereavement-related consumption, ethical legitimacy may be prior to perceived value rather than secondary to it. Consumers may refuse technologies that seem emotionally useful if those technologies violate perceived moral norms surrounding the dead, memory, or consent. The study therefore broadens current theorizing on AI acceptance by showing how moral evaluations become especially central when technology enters sacred or emotionally vulnerable spaces.

These contributions point to several promising future research directions. One important question is whether grieftech ultimately facilitates adaptation by providing transitional comfort, or whether it may prolong reliance on an externalized bond and thereby slow aspects of grief integration. Another is whether the meaning of grieftech changes over time, shifting from a coping-oriented tool in earlier bereavement to

a legacy-oriented or commemorative platform in later stages. Future research could also examine whether highly realistic or personalized features mitigate or intensify ethical concerns, and how design, transparency, and communication practices shape users' sense of safety and legitimacy when engaging with grief-related AI.

### 5.3. Managerial implications

The findings offer several practical implications for grieftech developers, marketers, and policymakers operating in a highly sensitive emotional context. First, the observed relationship between user attitudes and the continuing bond suggests that adoption may depend in part on how users cognitively and emotionally interpret the role of the technology. Rather than assuming that grieftech will be perceived positively on its own, practitioners may need to consider how communication, product design, and user education shape perceptions of the technology's purpose and appropriateness. For example, informational materials, guided demonstrations, and onboarding experiences may help clarify whether the technology is intended to support remembrance and coping rather than function as a replacement for the deceased. Framed in this way, managerial efforts are less about "shaping" attitudes in a persuasive sense and more about reducing misunderstanding, setting appropriate expectations, and supporting informed user evaluation.

Furthermore, the moderating roles of *time* and *engagement* provide clear parameters for sophisticated market segmentation. Manufacturers should recognize that the value of grieftech is not static but journey-based. Our data identifies a "Window of Receptivity" in the first seven to eight years post-loss, suggesting that marketing efforts should be specifically tailored to those in the active phases of "attachment hunger". To maximize the utility of the bond during this window, developers should prioritize "high-resource" interactions, such as immersive VR or mixed-reality interfaces, that demand cognitive and emotional presence. By stimulating this technology-facilitated engagement, firms can ensure their applications act as vital surrogates for comfort rather than passive novelties.

The role of *Perceived Ethicality* as a boundary condition suggests that technical functionality alone may be insufficient to support adoption in bereavement-related settings. Even when users perceive grieftech as potentially beneficial, adoption may be constrained if the technology is seen as violating moral, psychological, or relational boundaries. This highlights the importance of transparent governance practices surrounding posthumous data use, representational limits, and user safeguards. For practitioners, one possible implication is the value of clearer consent and disclosure mechanisms regarding how the deceased's data are used, how simulations are generated, and what forms of interaction are permitted. Relatedly, firms may benefit from developing explicit ethical guidelines or legacy-planning protocols that clarify these issues for users and other stakeholders. Such practices may help build trust and legitimacy while also informing broader policy discussions about how to protect consumer autonomy and emotional well-being in this emerging category.

Though we captured respondents' self-reported prior coping strategies, we did not model these as formal antecedents or moderators of grieftech receptivity. Future research could examine whether receptivity to grieftech differs across coping profiles, including those relying primarily on interpersonal support, spiritual meaning-making, professional counseling, avoidance-based coping, or experiencing more enduring unresolved grief.

Finally, we advise regulators to look beyond mere legal compliance toward the highest ethical standards of "doing good". Policy should focus on consumer empowerment by mandating transparent agreements regarding how digital representations are stored and managed. By placing trust and transparency at the core of their operations, grieftech companies can navigate the complexities of bereavement while contributing to the long-term success of their users and broader society.

Such a framework ensures that innovation in AI-based bereavement tools remains sensitive to diverse cultural mourning rituals and free from algorithmic bias, ultimately empowering users through their most vulnerable moments.

### 5.4. Limitations and future research

Despite its contribution, this research is subject to several limitations that open important avenues for future inquiry. First, the empirical evidence is based on cross-sectional survey data and retrospective self-reports following exposure to standardized grieftech stimuli. Accordingly, the present studies speak to pre-adoption perceptions and intention to use, not actual grieftech usage, post-adoption experiences, or therapeutic outcomes. Concepts such as the Window of Adoption Receptivity should therefore be interpreted as theoretically informed and empirically suggestive indicators of bereaved individuals' receptivity to grieftech rather than as evidence that grieftech accelerates or delays grief adaptation. While our findings indicate that receptivity to grieftech varies with time since loss, they do not establish whether grieftech use produces lasting benefits, prolongs reliance on an externalized bond, or affects the transition toward more integrated grief. Future research should therefore employ longitudinal designs, diary methods, or panel studies to track users across time and examine whether grieftech functions as a transitional coping aid, a sustained relational tool, or, in some cases, a mechanism that complicates adjustment.

Second, though respondents reported the loss of a loved one and described how they had previously coped with grief, we did not explicitly model contextual differences in bereavement experiences. These include the cause and trajectory of loss (e.g., sudden vs. anticipated passing), relationship to the deceased, grief severity, and the extent of respondents' social and family support pre- and post-the loss. Such factors may shape both continuing bonds and the perceived appropriateness of grieftech. Future research may thus examine how grieftech receptivity differs across bereavement profiles, coping repertoires, and support environments (Septianto et al., 2023). Furthermore, while we descriptively captured prior coping strategies, we did not model these coping patterns as formal antecedents or moderators. Future work could test whether grieftech receptivity differs among those relying primarily on interpersonal support, meaning-making and spiritual coping, professional counseling, distraction-based coping, or more unresolved and avoidant grief responses.

Third, though we examined perceived ethicality, the effects of specific ethical concerns remain underdeveloped. Future research should investigate more granular issues such as posthumous consent, privacy, data ownership, security, and the potential for emotional overreliance or manipulation in grieftech applications (Bao and Zeng, 2024; Hysa et al., 2023). Such work would help clarify which ethical concerns merely attenuate adoption and which function as categorical barriers to use. Although we employed established scales for continuing bond and perceived ethicality, these measures were not originally developed specifically for grieftech. Future research could develop grieftech-specific measures that more directly capture technology-enabled continuing connection, posthumous consent, dignity of the deceased, emotional manipulation, and psychological safety. In addition, because the stimulus depicted a bundled grieftech configuration that included visual immersion and haptic feedback, the present study does not isolate the independent effect of specific design features.

Fourth, further research should examine how technological features shape user responses. For example, the realism of deepfakes, conversational responsiveness, and levels of anthropomorphism may each influence whether grieftech is experienced as comforting, uncanny, helpful, or harmful. Relatedly, immersive modalities such as VR or AR may intensify telepresence and perceived connection, potentially enhancing benefits for some users while increasing psychological risk for others.

Fifth, future work should test the boundary conditions of the framework across cultural contexts. Beliefs about death, remembrance, AI, and emotional expression vary across societies, which may alter both the desirability and ethical acceptability of grieftech. Comparative research across Western, Asian, and European contexts would be especially valuable for understanding how cultural norms shape adoption, resistance, and perceptions of appropriate marketplace use.

Finally, though the framework is grounded in Continuing Bonds Theory (Hewson et al., 2024), other theoretical perspectives may enrich understanding of grieftech adoption and use. For example, Service-Dominant Logic may help explain how value is co-created through interaction, while social exchange theory may illuminate how users weigh emotional, ethical, and psychological costs against perceived benefits (Krueger and Osler, 2022). Future research should also consider less favorable forms of engagement, including discomfort, avoidance, or regret (Hollebeek and Belk, 2021), as well as perceived psychological risk alongside the benefits often associated with grieftech (Pizzoli et al., 2023). As grieftech continues to evolve, especially in more anthropomorphic and immersive forms, ongoing research will be

needed to assess not only adoption, but also its longer-term implications for well-being and bereavement adaptation.

#### CRediT authorship contribution statement

**Emi Moriuchi:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Validation, Visualization, Writing – original draft, Writing – review & editing. **Linda D. Hollebeek:** Conceptualization, Investigation, Methodology, Visualization, Writing – review & editing. **Moira K. Clark:** Investigation, Validation, Writing – review & editing. **Matthew Wright:** Conceptualization, Investigation, Validation, Writing – review & editing.

#### Declaration of competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

#### Appendix 1. Screenshots - Users' grieftech interactions



Mother 'reunited' with deceased daughter in virtual reality | The World



#### Data availability

The authors do not have permission to share data.

#### References

- Ajzen, I., Fishbein, M., 2000. Attitudes and the attitude-behavior relation: reasoned and automatic processes. *Eur. Rev. Soc. Psychol.* 11 (1), 1–33. <https://doi.org/10.1080/14792779943000116>.
- Akinoyemi, C., Hassett, A., 2023. "He's still there": how Facebook facilitates continuing bonds with the deceased. *Omega: J. Death Dying* 88 (2), 620–637.
- American Counseling Association (ACA), 2023. The benefits and challenges of grieving online. Retrieved from. <https://www.counseling.org/publications/counseling-today>

- y-magazine/article-archive/article/legacy/the-benefits-and-challenges-of-grieving-online.
- Bagozzi, R., Yi, Y., 2012. Specification, evaluation, and interpretation of structural equation models. *J. Acad. Market. Sci.* 40, 8–34. <https://doi.org/10.1007/s11747-011-0278-x>.
- Bao, A., Zeng, Y., 2024. Embracing grief in the age of deathbots: a temporary tool, not a permanent solution. *Ethics Inf. Technol.* 26 (7), 1–10. <https://doi.org/10.1007/s10676-024-09744-y>.
- Bell, J., Bailey, L., Kennedy, D., 2015. 'We do it to keep him alive': bereaved individuals' experiences of online suicide memorials and continuing bonds. *Mortality* 20 (4), 375–389.
- Black, J., Belicki, K., Emberley-Ralph, J., McCann, A., 2022. Internalized versus externalized continuing bonds: relations to grief, trauma, attachment, openness to experience, and post-traumatic growth. *Death Stud.* 46 (2), 399–414. <https://doi.org/10.1080/07481187.2020.1737274>.
- Bowlby, J., 1982. Attachment and loss: retrospect and prospect. *Am. J. Orthopsychiatry* 52 (4), 664–678. <https://doi.org/10.1111/j.1939-0025.1982.tb01456.x>.
- Brunk, Katja H., 2012. Un/ethical Company and Brand Perceptions: Conceptualising and Operationalising Consumer Meanings. *J. Bus. Ethics* 111 (4), 551–565. <https://doi.org/10.1007/s10551-012-1339-x>. (Accessed 9 June 2012).
- Cacioppo, J., Gardner, W., Berntson, G., 1997. Beyond bipolar conceptualizations and measures: the case of attitudes and evaluative space. *Pers. Soc. Psychol. Rev.* 1 (1), 3–25. [https://doi.org/10.1207/s15327957pspr0101\\_2](https://doi.org/10.1207/s15327957pspr0101_2).
- Chen, S., Zhao, Y., 2026. Say-one-thing-and-mean-another consumers? A multi-method study of functional demand mismatch in e-commerce AI assistants. *J. Retailing Consum. Serv.* 89, 104561. <https://doi.org/10.1016/j.jretconser.2025.104561>.
- Cline, T., 2024. Not lost forever: the rise of grieftech, for comfort and connection. *Forbes*. <https://www.forbesafrica.com/technology/2024/05/03/not-lost-forever-the-rise-of-grieftech-for-comfort-and-connection/>.
- Degroot, J.M., 2012. Maintaining relational continuity with the deceased on Facebook. *OMEGA-Journal of Death and Dying* 65 (3), 195–212.
- Duffy, M., Wild, J., 2023. Living with loss: a cognitive approach to prolonged grief disorder—incorporating complicated, enduring and traumatic grief. *Behav. Cognit. Psychotherapy* 51 (6), 645–658.
- Fanti Rovetta, F., Valentini, D., 2025. Grief and virtual reality: continuing bonds with virtual avatars. *Phenomenol. Cognitive Sci.* 1–21.
- Field, N.P., Filanosky, C., 2009. Continuing bonds, risk factors for complicated grief, and adjustment to bereavement. *Death Stud.* 34 (1), 1–29.
- Finstervalder, J., Kuppelwieser, V.G., 2020. Intentionality and transformative services: wellbeing co-creation and spill-over effects. *J. Retailing Consum. Serv.* 52, 101922. <https://doi.org/10.1016/j.jretconser.2019.101922>.
- Fornell, C., Larcker, D., 1981. Evaluating structural equation models with unobservable variables and measurement error. *J. Mark. Res.* 18 (1), 39–50. <https://doi.org/10.1177/002224378101800104>.
- Gilbert, K., Horsley, G., 2021. Technology and grief support in the twenty-first century: a multimedia platform. In: Neimeyer, R., Harris, D., Winokuer, H., Thornton, G. (Eds.), *Grief and Bereavement in Contemporary Society*. Taylor & Francis.
- Giroux, M., Kim, J., Lee, J., Park, J., 2022. Artificial intelligence and declined guilt: retailing morality comparison between human and AI. *J. Bus. Ethics* 178, 1027–1041. <https://doi.org/10.1007/s10551-022-05056-7>.
- Goodall, R., Kryszynska, K., Andriessen, K., 2022. Continuing bonds after loss by suicide: a systematic review. *Int. J. Environ. Res. Publ. Health* 19 (5), 2963.
- Hair, J., Black, W., Babin, B., Anderson, R., 2010. *Multivariate Data Analysis*. Pearson.
- Hangl, J., Kraus, S., Behrens, V., 2023. Drivers, barriers and social considerations for AI adoption in SCM. *Technol. Soc.* 74 (Aug), 102299.
- Hayes, A., Preacher, K., 2014. Statistical mediation analysis with a multicategorical independent variable. *Br. J. Math. Stat. Psychol.* 67 (3), 451–470.
- Heeke, C., Kampisiou, C., Niemeier, H., Knaevelsrud, C., 2017. A systematic review and meta-analysis of correlates of prolonged grief disorder in adults exposed to violent loss. *Eur. J. Psychotraumatol.* 8 (Suppl. 6), 1583524. <https://doi.org/10.1080/20008198.2019.1583524>.
- Hewson, H., Galbraith, N., Jones, C., Heath, G., 2024. The impact of continuing bonds following bereavement: a systematic review. *Death Stud.* 48 (10), 1001–1014.
- Hollebeek, L., Kumar, V., Srivastava, R., Lim, W., Urbanovicus, S., 2025. Guidelines for theory selection: the IMPACT framework. *Psychol. Market.* 42 (11), 2789–2806.
- Hollebeek, L., Kumar, V., Srivastava, R.K., Clark, M., 2023. Moving the stakeholder journey forward. *J. Acad. Market. Sci.* 51, 23–49.
- Hollebeek, L., Srivastava, R., Chen, T., 2019. S-D logic-informed customer engagement: integrative framework, revised fundamental propositions, and application to CRM. *J. Acad. Market. Sci.* 47 (1), 161–185. <https://doi.org/10.1007/s11747-016-0494-5>.
- Hollebeek, L., Urbanovicus, S., Sigurdsson, V., Arvola, R., Clark, M., 2023b. Customer journey value. *Journal of Creating Value* 9 (1), 8–26.
- Hollebeek, L., Belk, R.W., 2021. Consumers' technology-facilitated brand engagement and wellbeing: positivist TAM/PERMA- vs. consumer culture theory perspectives. *Int. J. Res. Market.* 38 (2), 387–401.
- Hsu, B.Y., Palitsky, R., 2023. Maintaining, relinquishing, and adapting bonds in bereavement: a qualitative study of grave sweeping in China. *SSM-Mental Health* 3, 100219.
- Huang, M.-H., Rust, R., Maksimovic, V., 2019. The feeling economy: managing in the next generation of artificial intelligence. *Calif. Manag. Rev.* 61 (4), 43–65. <https://doi.org/10.1177/0008125619863436>.
- Huang, Y.S.S., Dootson, P., 2022. Chatbots and service failure: when does it lead to customer aggression. *J. Retailing Consum. Serv.* 68, 103044. <https://doi.org/10.1016/j.jretconser.2022.103044>.
- Hysa, X., D'Arco, M., Kostaqi, J., 2023. Misuse of personal data: exploring the privacy paradox in the age of big data analytics. In: Visvizi, A., Troisi, O., Grimaldi, M. (Eds.), *Big Data and Decision-Making: Applications and Uses in the Public and Private Sector (Emerald Studies in Politics and Technology)*. Emerald, pp. 43–57.
- Jung, I., 2009. Ethical judgments and behaviors: Applying a multidimensional ethics scale to measuring ICT ethics of college students. *Computers & Education* 53 (3), 940–949.
- Kavanagh, D., Lightfoot, G., Lilley, S., 2021. Are we living in a time of particularly rapid social change? And how might we know? *Technol. Forecast. Soc. Change* 169, 120856. <https://doi.org/10.1016/j.techfore.2021.120856>.
- Knowles, L., Stelzer, E.-V., Jovel, K., O'Connor, M.-F., 2017. A pilot study of virtual support for grief: feasibility, acceptability, and preliminary outcomes. *Comput. Hum. Behav.* 73 (Aug), 650–658. <https://doi.org/10.1016/j.chb.2017.04.005>.
- Krueger, J., Osler, L., 2022. Communing with the dead online: chatbots, grief, and continuing bonds. *J. Conscious. Stud.* 29 (9–10), 222–252. <https://doi.org/10.5376/20512201.29.9.222>.
- Kuppelwieser, V.G., 2024. Enhancing consumer well-being through the citizenship experience. *J. Retailing Consum. Serv.* 81, 103989. <https://doi.org/10.1016/j.jretconser.2024.103989>.
- Lavan, T., Martin, B., Lim, W., Hollebeek, L., 2024. Social isolation and risk-taking behavior: the case of COVID-19 and cryptocurrency. *J. Retailing Consum. Serv.* 81 (Nov), 103951.
- Lemma, A., 2024. Mourning, melancholia and machines: an applied psychoanalytic investigation of mourning in the age of griefbots. *Int. J. Psychoanal.* 105 (4), 542–563. <https://doi.org/10.1080/00207578.2024.2342917>.
- Lindemann, N., 2022. The ethics of deathbots. *Sci. Eng. Ethics* 28 (60), 1–20. <https://doi.org/10.1007/s11948-022-00417>.
- Lundberg, I., Johnson, R., Stewart, B., 2021. What is your estimand? Defining the target quantity connects statistical evidence to theory. *Am. Sociol. Rev.* 86 (3), 532–565. <https://doi.org/10.1177/00031224211004187>.
- Maccallum, F., Galatzer-Levy, I.R., Bonanno, G.A., 2015. Trajectories of depression following spousal and child bereavement: a comparison of the heterogeneity in outcomes. *J. Psychiatr. Res.* 69, 72–79.
- Markovitch, D.G., Stough, R.A., Huang, D., 2024. Consumer reactions to chatbot versus human service: an investigation in the role of outcome valence and perceived empathy. *J. Retailing Consum. Serv.* 79, 103847. <https://doi.org/10.1016/j.jretconser.2024.103847>.
- Martínez-Esquível, D., Muñoz-Rojas, D., García-Hernández, A.M., 2023. Continuing bonds in men grieving a loved one. *Rev. Latino-Am. Enferm.* 31, e4010.
- Mehmood, K., Kautish, P., Shah, T.R., 2024. Embracing digital companions: unveiling customer engagement with anthropomorphic AI service robots in cross-cultural context. *J. Retailing Consum. Serv.* 79, 103825. <https://doi.org/10.1016/j.jretconser.2024.103825>.
- Mejía, S., Nikolaidis, D., 2022. Through new eyes: artificial intelligence, technological unemployment, and transhumanism in Kazuo Ishiguro's *Klara and the sun*. *J. Bus. Ethics* 178 (1), 303–306. <https://doi.org/10.1007/s10551-022-05062-9>.
- Moore, S., Bulmer, S., Elms, J., 2022. The social significance of AI in retail on customer experience and shopping practices. *J. Retailing Consum. Serv.* 64, 102755. <https://doi.org/10.1016/j.jretconser.2021.102755>.
- Moriuchi, E., 2021. An empirical study on anthropomorphism and engagement with disembodied aIs and consumers' re-use behavior. *Psychol. Market.* 38 (1), 21–42.
- Moriuchi, R., 2022. Leveraging the science to understand factors influencing the use of AI-powered avatar in healthcare services. *J. Technol. Behav. Sci.* 7 (4), 588–602.
- Niu, B., Mvondo, G.F.N., 2024. I am ChatGPT, the ultimate AI Chatbot! Investigating the determinants of users' loyalty and ethical usage concerns of ChatGPT. *J. Retailing Consum. Serv.* 76, 103562. <https://doi.org/10.1016/j.jretconser.2023.103562>.
- Näppä, U., Björkman-Randström, K., 2020. Experiences of participation in bereavement groups from significant others' perspectives; a qualitative study. *BMC Palliative Care* 19 (1), 124.
- Palan, S., Schitter, C., 2018. Prolific.ac—A subject pool for online experiments. *Journal of behavioral and experimental finance* 17, 22–27.
- Parke, C., Laungani, P., Young, W., 2015. *Death and Bereavement Across Cultures*. Routledge.
- Pizzoli, S., Monzani, D., Vergani, L., Sanchini, V., Mazzocco, K., 2023. From virtual to real healing: a critical overview of the therapeutic use of virtual reality to cope with mourning. *Curr. Psychol.* 42, 8697–8704. <https://doi.org/10.1007/s12144-021-02158-9>.
- Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y., Podsakoff, N.P., 2003. Common method biases in behavioral research: a critical review of the literature and recommended remedies. *J. Appl. Psychol.* 88 (5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>.
- Prentice, C., Nguyen, M., 2020. Engaging and retaining customers with AI and employee service. *J. Retailing Consum. Serv.* 56, 102186. <https://doi.org/10.1016/j.jretconser.2020.102186>.
- Reese, A., 2023. The rise of grieftech. *N. Sci.* 260 (3465), 40–43.
- Septianto, F., Mathmann, F., Hollebeek, L., Higgins, E., 2023. Leveraging social media advertising to foster female consumers' empowerment and engagement: the role of regulatory mode. *J. Advert.* 52 (5), 688–705.
- She, W., Ang, C., Neimeyer, R., Burke, L., 2022. Investigation of a web-based explainable AI screening for prolonged grief disorder. *IEEE Access* 10, 41164–41185. <https://doi.org/10.1109/ACCESS.2022.3163311>.
- Shin, Y., 2012. CEO ethical leadership, ethical climate, climate strength, and collective organizational citizenship behavior. *J. Bus. Ethics* 108, 299–312. <https://doi.org/10.1007/s10551-011-1091-7>.
- Smid, G.E., Blaauw, M., Lenferink, L.I., 2020. Relatives of enforced disappeared persons in Mexico: Identifying mental health and psychosocial support needs and exploring

- barriers to care. *Intervention Journal of Mental Health and Psychosocial Support in Conflict Affected Areas* 18 (2), 139–149.
- Song, M., Xing, X., Duan, Y., Cohen, J., Mou, J., 2022. Will artificial intelligence replace human customer service? The impact of communication quality and privacy risks on adoption intention. *J. Retailing Consum. Serv.* 66, 102900. <https://doi.org/10.1016/j.jretconser.2021.102900>.
- Spallek, Sophia, Birrell, Louise, Kershaw, Stephanie, Devine, Emma, Thornton, Louise, 2023. Can we use ChatGPT for mental health and substance use education? Examining its quality and potential harms. *JMIR Medical Education* 9 (1), e51243. <https://doi.org/10.2196/51243>.
- Thakur, R., 2019. The moderating role of customer engagement experiences in customer satisfaction–loyalty relationship. *Eur. J. Market.* 53 (7), 1278–1310. <https://doi.org/10.1108/EJM-11-2017-0895>.
- Troebs, C.C., Wagner, T., Heidemann, F., 2018. Transformative retail services: elevating loyalty through customer well-being. *J. Retailing Consum. Serv.* 45, 198–206. <https://doi.org/10.1016/j.jretconser.2018.09.009>.
- Tsai, W.H.S., Lun, D., Carcioppolo, N., Chuan, C.H., 2021. Human versus chatbot: understanding the role of emotion in health marketing communication for vaccines. *Psychol. Market.* 38 (12), 2377–2392. <https://doi.org/10.1002/mar.21556>.
- Venkatesh, V., Norris, M., Davis, G., Davis, F., 2003. User acceptance of information technology: toward a unified view. *MIS Q.* 27 (3), 425–478.
- Venkatesh, V., Thong, J.Y., Xu, X., 2012. Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of Technology1. *MIS Q.* 36 (1), 157–178.
- White, Claire, Fessler, Daniel M T, 2017. An evolutionary account of vigilance in grief. *Evolution, Medicine, and Public Health* 2018 (1), 34–42. <https://doi.org/10.1093/emph/eox018>. <https://academic.oup.com/emph/article/2018/1/34/4756521>. (Accessed 18 December 2017).
- Wojtkowiak, J., Vanherf, N.C., Schuhmann, C.M., 2019. Grief in a biography of losses: Meaning-making in hard drug users' grief narratives on drug-related death. *Death Studies* 43 (2), 122–132.
- Xie, Z., Yu, Y., Zhang, J., Chen, M., 2022. The searching artificial intelligence: consumers show less aversion to algorithm-recommended search product. *Psychol. Market.* 39 (10), 1902–1919. <https://doi.org/10.1002/mar.21706>.
- Xygykou, A., Siriaraya, P., Covaci, A., Prigerson, H., 2023. The "conversation" about loss: understanding How chatbot technology was used in supporting people in grief." In: *Proceedings of CHI23 (2023 CHI Conference on Human Factors in Computing Systems)*. Association for Computing Machinery, New York, USA, pp. 1–15. <https://doi.org/10.1145/3544548.3581154>. #646.
- Yu, W., He, L., Xu, W., Wang, J., Prigerson, H.G., 2016. How do attachment dimensions affect bereavement adjustment? A mediation model of continuing bonds. *Psychiatr. Res.* 238, 93–99.
- Zickuhr, K., 2021. Institute for Research on Labor and Employment University of California, Berkeley Workplace Surveillance is Becoming the New Normal for US Workers.