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Posted Date: 15 October 2025

doi: 10.20944/preprints202510.1067.v1

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Article

Concept of Death Awareness as an Existential Alarm Clock in the Context of Hypothetical Biological Immortality

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Abstract

The rapid advancement of biogerontology, particularly through interventions like senolytic therapies and stem cell rejuvenation, is transforming the prospect of radical life extension and even biological immortality from science fiction into a plausible future scenario. This impending paradigm shift necessitates a profound re-examination of existential psychology, which has traditionally posited awareness of mortality as the fundamental source of life's meaning, motivation, and authenticity. This article argues that the psychological phenomenon of death awareness would not simply vanish with the elimination of biological finitude. Instead, it would undergo a critical functional transformation. It proposes the concept of an "existential alarm clock," a reconstituted internal mechanism that shifts from serving as a chronological limit to acting as a qualitative regulator of existence. In a state of immortality, this alarm would awaken the individual from the unique perils of an endless lifespan: existential apathy, identity stagnation, and the "bad infinity" of undifferentiated time. The article analyzes the mechanisms of this alarm—triggering identity crises, combating profound boredom, and stimulating self-transcendence—and explores its vast social, cultural, and ethical implications. It concludes that, paradoxically, a continued dialogue with the concept of death remains a crucial condition for a meaningful and authentic life, even in the context of biological immortality.

Keywords: thanatology; existential psychology; biological immortality; senescence; meaning of life; mortality salience; terror management theory; identity crisis; self-transcendence

1. Introduction

The human condition has, for millennia, been fundamentally framed by its finitude. The inescapable reality of death has served as the ultimate horizon against which questions of meaning, value, and authenticity are projected. However, the nascent field of biogerontology is progressively challenging this most basic of biological imperatives. A confluence of advanced research trajectories is rendering the hypothetical achievement of radical life extension—or even biological immortality—an increasingly plausible scenario, moving it from the realm of science fiction into a tangible subject for scientific and philosophical inquiry.

The scientific foundation for this paradigm shift is being laid in laboratories worldwide. Cutting-edge interventions are targeting the very mechanisms of aging. For instance, research into *in vitro* gametogenesis and the derivation of safe, adult, rapidly-dividing young stem cells points to a future where a person's own aged, quiescent stem cell population could be replenished (Hayashi et al., 2011; Saitou & Miyachi, 2016). The transplantation of such youthful, potent stem cells into an aging organism is hypothesized to not only replace senescent and old, slowly-dividing cells but also to increase the overall rate of tissue regeneration, effectively rejuvenating the organism (López-Otín et al., 2013; Tkemaladze, 2023). Furthermore, targeted senolytics—therapies designed to clear the body of senescent "zombie" cells that contribute to inflammation and aging—are showing remarkable efficacy in preclinical and early human models, restoring function and extending healthspan

(Kirkland & Tchkonja, 2020; Tkemaladze, 2022). The synergistic application of these approaches—clearing the old and introducing the new—suggests a future where the degenerative process of aging could be halted or even reversed (Tkemaladze, 2024).

This impending biological revolution necessitates a profound and parallel examination of its psychological and existential consequences. For traditional existential philosophy and psychology, the awareness of mortality is not merely a morbid fact but the very cornerstone of a meaningful life. The central, unsettling question thus arises: What becomes of the human psyche, culture, and the very experience of meaning if this foundational cornerstone—our finitude—is technologically removed?

The prevailing concern is that the removal of death’s chronological limit would lead to an existential catastrophe: a state of profound apathy, infinite procrastination, and a devaluation of all experience, a concept often termed “the tedium of immortality” (Williams, 1973).

This article proposes a counter-hypothesis. It argues that in the context of biological immortality, the psychological phenomenon of death awareness does not simply vanish but undergoes a critical transformation. It ceases to function primarily as a chronological limit and is reconstituted as an “existential alarm clock.” This internal mechanism would no longer signal the impending end of biological time but would instead serve to awaken the individual from states of existential slumber, spiritual stagnation, and the psychological torpor induced by the prospect of unlimited time.

2. Theoretical Framework: From Finitude to Perpetuity

2.1. Death Awareness as a Constitutive Force

Existential psychology and terror management theory (TMT) have empirically demonstrated that mortality salience—the conscious or subconscious awareness of death—profoundly influences human behavior, from reinforcing cultural worldviews to motivating achievements and prosocial acts (Pyszczynski et al., 2015; Greenberg et al., 2014). This awareness acts as a psychological imperative that pulls individuals out of complacency and toward a more engaged and meaningful mode of being.

2.2. Defining Hypothetical Biological Immortality

Biological immortality here refers specifically to the elimination of senescence—the biological process of aging—not invulnerability (Maier, 2019). This entails the successful neutralization of the hallmarks of aging (López-Otín et al., 2013), thereby abolishing death from natural causes. The central paradox is that the elimination of death as a biological fact does not annul the existential questions of meaning, identity, and value; it may exacerbate them to an unprecedented degree.

Table 1. Contrasting the Functions of Death Awareness in Mortal vs. Immortal Frameworks.

Aspect	Mortality Framework (Current)	Immortality Framework (Hypothetical)
Primary Function	Chronological Limiter	Qualitative Regulator (“Alarm Clock”)
Source of Urgency	Scarcity of Time	Poverty of Experience
Psychological Role	Imposes finality, creates “being-toward-death”	Prevents stagnation, enforces “becoming-within-life”
Cultural Manifestation	Heroic projects of symbolic immortality (e.g., art, legacy)	Narratives of identity transformation and perpetual meaning-making
Primary Existential Threat	The reality of non-being	The unreality of an “unlived” life

3. The Existential Alarm Clock: Mechanism and Manifestations

The proposed “existential alarm clock” is a cognitive-affective adaptation to the pathologies of perpetuity. Its mechanism is detailed in Figure 1 and involves several key manifestations.

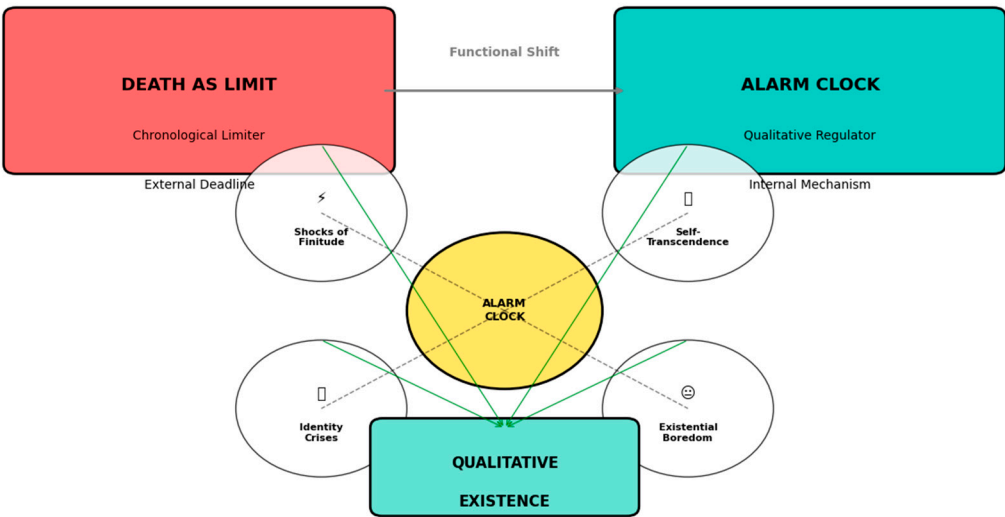


Figure 1. The Functional Model of the Existential Alarm Clock in an Immortal Context. A conceptual diagram showing the shift from Death as a Limit to the Alarm Clock as a Regulator, with feedback loops illustrating the four key manifestations: Identity Crises, Existential Boredom, Shocks of Finitude, and the Drive for Self-Transcendence, all contributing to the outcome of “Qualitative Existence.”.

The reconstitution of death awareness into an existential alarm clock. The mechanism creates a feedback loop where psychological distress signals (the “alarm”) prompt course-correction towards a more engaged and meaningful existence.

3.1. Identity Crises as a Catalyst for “Serial Selves”

In an immortal existence, the individual risks becoming trapped in a single, static identity. The existential alarm clock would sound through intense crises of identity, which would function as signals of the “death” of an outmoded self (Kroger & Marcia, 2011). This is a necessary catalyst for “serial selves” or “volitional re-identification,” a form of psychological rebirth essential for navigating an indefinitely long life (Sneed & Whitbourne, 2005). The alarm reminds one that while the body may persist, a self that does not evolve is, in a meaningful sense, already dead.

3.2. Combatting Existential Boredom and Apathy

A primary psychological threat of immortality is profound existential boredom—a pervasive sense of emptiness arising from perpetually available possibilities (Svendsen, 2005). The alarm clock would trigger in moments of deep, non-situational apathy, experienced as a crushing weight of insignificance. This feeling serves as a critical signal, mirroring the “awakening” experience described in terminal patients (Mogilner et al., 2018). It provokes the question: “If I have all the time in the world, why does none of it feel valuable?” This discomfort is the necessary impetus to seek out new challenges and re-engage with the world.

3.3. Shocks of Finitude in an Eternal Life

An immortal life could devolve into a “bad infinity”—a monotonous succession of days. The alarm clock would leverage residual finitude to break this cycle. Shocking events, such as the death of mortal loved ones, would take on a new symbolic function (O’Connell et al., 2021). For the

immortal individual, these events become powerful, affective reminders of the fragility of connections and the irreplaceable uniqueness of each moment within the eternal flow.

3.4. The Stimulus for Self-Transcendence

Ultimately, the most critical function of the alarm clock is to propel the individual toward self-transcendence. In an immortal existence, the primary existential danger becomes a pathological self-absorption. The alarm would sound as a deep sense of existential guilt or emptiness arising from a life lived purely for oneself (Längle, 2016). This feeling catalyzes the dedication of one’s vast resources of time to a larger purpose: artistic or scientific creation, altruism, or cosmic exploration (Vos, 2018).

4. Projected Societal Transformations

The internal psychological shift would precipitate vast changes across society. The societal transformations necessitated by biological immortality create an interconnected ecosystem where changes in one domain directly influence others, all centered on the psychological challenge of managing perpetual existence.

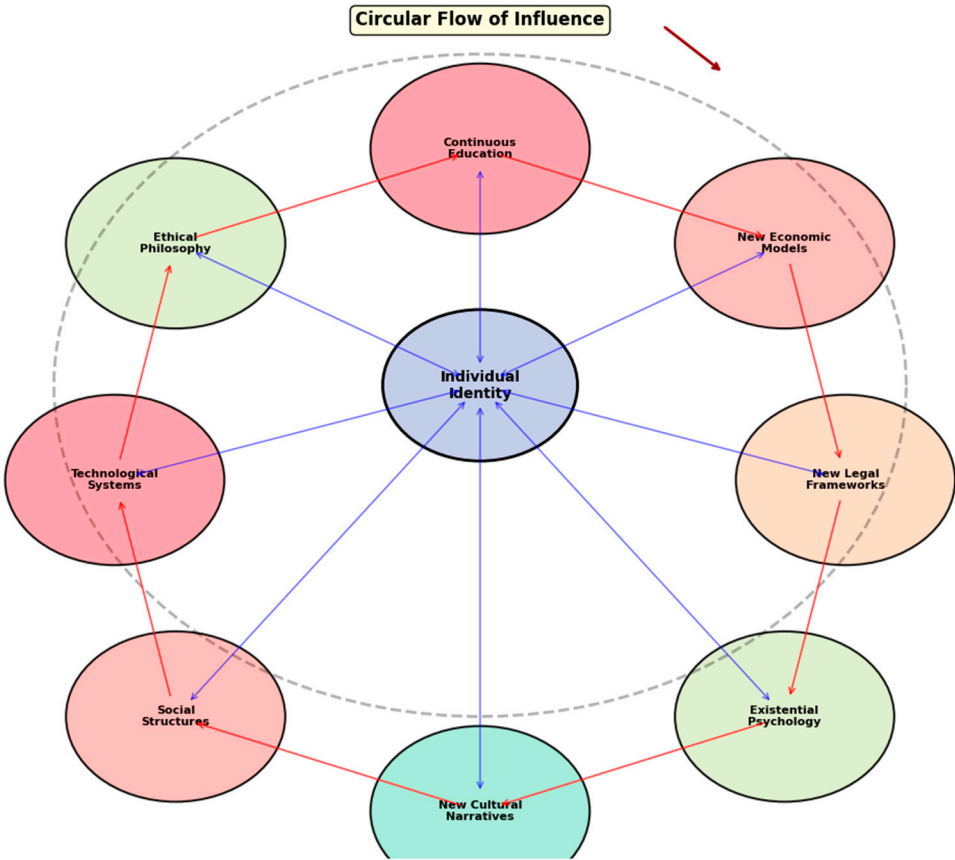


Figure 2. The Interdisciplinary Ecosystem of an Immortal Society. A circular diagram showing the interconnectedness of transformed fields: Continuous Education feeding into New Economic Models, which are regulated by New Legal Frameworks, which are informed by Existential Psychology and Philosophy, which inspire New Cultural Narratives, which in turn influence individual identity and feed back into the education system.

Table 2. Projected Transformations of Social Institutions in an Immortal Society.

Institution	Current Model (Mortal)	Future Model (Immortal)	Key Driver
Education	Front-loaded, for a finite career	Continuous, cyclical, for identity renewal	Need for “serial selves” (Kegan, 2018)
Psychology/Therapy	Treats pathology, manages loss	“Geronto-existential” practice for meaning-making	Management of the existential alarm clock
Narrative Arts	Conflict: “Human vs. Death”	Conflict: “Identity vs. Stasis,” “Choice vs. Regret”	Loss of death as a narrative driver (Schwartz, 2004)
Law & Ethics	Right to life central	Right to a self-determined death (“completion”)	Ultimate autonomy in an endless life (Young & Earp, 2020)
Demographic Policy	Models based on birth/death rates	Strict reproduction regulation, static population models	Resource sustainability (Maier, 2019)

5. Limitations and Objections

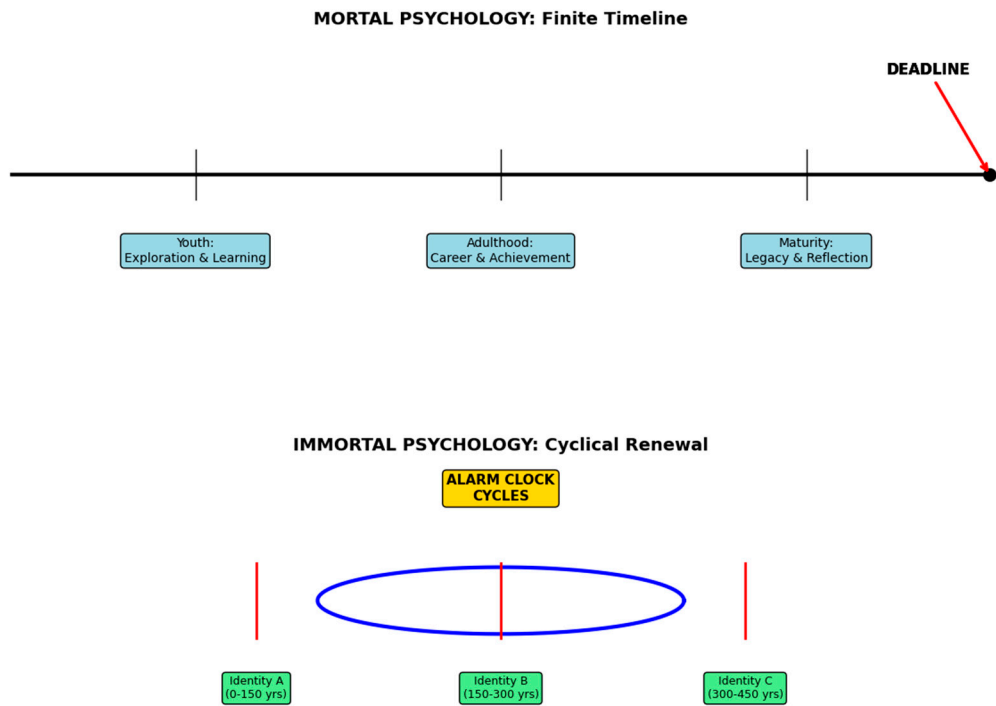
The model faces significant challenges:

1. Diminished Salience: The alarm may lack the motivational power of a real, biological threat, as the neural systems for abstract versus concrete threats are distinct (LeDoux & Pine, 2016).
2. Adaptive Hedonism: The brain’s reward system could be perpetually satisfied through neurotechnology and virtual reality, anesthetizing the individual against the alarm entirely (Berridge & Kringelbach, 2015; Savulescu & Persson, 2012).
3. Scope Limitation: The model is predicated on individual immortality and may not apply to a scenario where only the species is immortal through successive, mortal generations (Wade-Benzoni & Tost, 2009).

6. Conclusions and Future Directions

This analysis concludes that death awareness is an integral element of human consciousness whose biological elimination does not nullify its existential function. In hypothetical immortality, it reforms as an “existential alarm clock,” an internal regulator of qualitative existence. This mechanism awakens the individual from existential slumber, serving as a catalyst for continuous meaning-seeking, deep personal transformation, and self-transcendence.

The paradoxical, yet central, finding is that even under conditions of biological immortality, a dialogue with mortality remains a crucial precondition for a truly meaningful, authentic, and fulfilling life. The ultimate challenge of immortality may not be the extension of life, but the perpetual re-creation of a life worth extending. Future research must focus on empirical psychological simulations of extreme longevity and the development of ethical frameworks for a post-mortal society.



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