



# Integrating Healthspan and Wealth Span: A Conceptual Framework for Financial Longevity

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## ABSTRACT

The mentoring relationship between a PhD (Doctor of Philosophy) student and their advisory committee is paramount in the student's academic and professional journey. Mentorship is an essential element in the Individual Interdisciplinary PhD (IIP), where navigating the blurred but often complex lines of disciplinary boundaries is expected, if not essential. This analysis describes how mentoring has evolved from the top-down approach to a co-constructed paradigm within the context of the IIP. This study examines how roles, responsibilities, attitudes, and the transfer of knowledge shape relationships and foster camaraderie, intellectual growth, innovative initiatives, and professional development, ultimately producing rich dialogue and scholarship. The study suggests best practices for optimal mentoring in interdisciplinary research settings and provides examples of application in public health and healthcare studies.

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## Introduction

Global life expectancy has increased by more than six years since 2000, according to WHO estimates [1]. This demographic triumph, while celebrated, has exposed structural weaknesses in healthcare financing, labour markets, and pension systems. Most nations continue to operate on assumptions of mid-20th-century lifespans and linear employment patterns, despite clear evidence that individuals may now spend up to one-third of life post-retirement [2]. The resulting longevity gap—the divergence between biological potential and socioeconomic preparedness—has become a defining challenge of the twenty-first century [3,4].

Traditional frameworks treat health and wealth as discrete domains: medicine optimizes survival; finance manages capital. Yet, epidemiological and behavioural-economic research consistently shows bidirectional causality between physical well-being and financial stability [5,6]. Individuals with higher financial literacy and security exhibit better adherence to preventive care and reduced morbidity, while those in poor health experience diminished earning potential and increased medical costs [7]. Still, integrated planning models remain scarce, and few policy instruments explicitly bridge the health–wealth divide.

This paper positions longevity not merely as an outcome of biomedical progress but as an interdependent system of biological, social, and financial determinants. It proposes a comprehensive conceptual model—the Wellth span 5 + 1 Pillars Framework to guide multidisciplinary approaches to ageing, investment, and prevention. Section 2 reviews foundational theories underpinning the longevity discourse. Section 3 articulates the framework itself. Subsequent sections apply the model to gender and generational disparities, discuss policy implications, and outline directions for empirical validation.

## Theoretical Background

### From Lifespan to Health Span

The seminal compression of morbidity hypothesis proposed by Fries and revisited by Freedman and Martin suggested that preventive health could delay the onset of disease more than it prolongs the period of morbidity at life's end. While later studies qualify the extent of this compression, consensus supports lifestyle and early-life determinants as critical influences on late-life health costs. Extending health span—the years lived in good health—thus emerges as both a public health and economic imperative, with each additional healthy year producing disproportionate savings in healthcare expenditures [8-11].

### The Life-Cycle and Human-Capital Traditions

Economic modeling of longevity draws on Modigliani and Brumberg's life-cycle hypothesis, which suggests individuals smooth consumption over their expected lifespan. However, modern longevity risk—the possibility of outliving financial assets—distorts traditional assumptions [12]. The health-capital model introduced by Grossman conceptualizes health as a durable capital stock, which individuals invest in through preventive behaviors to increase productivity and income. Extensions of this model incorporate behavioral finance insights, arguing that sustained wellness amplifies long-term returns on both human and financial capital [13,14].

### Toward Interdisciplinary Integration

Despite conceptual overlaps, few models systematically merge medical sciences' focus on biological resilience with financial planning's economic perspectives. Emerging scholarship in financial longevity advocates managing monetary and physiological assets jointly [15]. The Wellth span 5 + 1 Pillars Framework

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advances this convergence by viewing health and wealth as co-managed, measurable assets governed by the common constraint of time. This approach reconceptualizes longevity as a portfolio problem, integrating biological, psychological, social, and financial considerations into a unified model for sustainable ageing.

## The Wellth Span 5 + 1 Pillars Framework

### Conceptual Rationale

The Wellth span 5 + 1 Pillars Framework was developed by Wellth span Advisory to address the disciplinary fragmentation limiting effective longevity planning. Drawing on principles of risk diversification, behavioral medicine, and systems thinking, the model conceptualizes individual longevity as a portfolio of interdependent assets. Each pillar represents a dimension of capital-physical, mental, social, purpose-driven, and financial-whose combined performance determines sustainable health span and wealths pan. Time functions as the unifying axis constraining all optimization decisions.

This approach reframes preventive health and financial behavior as synergistic investment strategies. For example, aerobic capacity (VO<sub>2</sub> max) and financial liquidity both serve as buffers against future shocks; social connection mitigates cognitive decline much as portfolio diversification mitigates volatility. The framework therefore operationalizes health as an asset class and longevity literacy as the meta-competence enabling rational allocation of attention, resources, and effort across the lifespan.

### Pillar Descriptions

#### Physical Health

Refers to measurable physiological resilience, encompassing metabolic, cardiovascular, and musculoskeletal integrity. Empirical data link sustained physical activity, adequate protein intake, and metabolic flexibility with reduced morbidity and extended workforce participation [16]. Within the portfolio analogy, physical health represents core capital preservation.

#### Mental Health

Includes cognitive and emotional regulation capacities underpinning decision quality. Chronic stress and sleep deprivation deplete both neurological and financial reserves through impaired judgment and productivity losses. Mental health investment-via mindfulness, therapy, or structured rest-functions as risk-control expenditure [17].

#### Social Health

Captures the strength of interpersonal networks and community belonging. Social isolation increases all-cause mortality risk comparably to smoking and correlates with financial insecurity in late life. Social capital enhances both emotional well-being and access to informal caregiving and economic opportunity, forming the diversification layer of the portfolio [18].

#### Purpose

Represents alignment between values, identity, and daily activities. Psychological research associates a clear sense of purpose with lower inflammatory markers and greater longevity [19]. In the financial metaphor, purpose functions as the governance mechanism-it directs consistent, value-aligned investment behavior across other pillars.

#### Financial Health

Entails the stability, literacy, and adaptability of an individual's economic resources. Sound financial management supports health investments, while unmanaged debt or inadequate

savings exacerbate stress-related illness. Financial health is both an input and an output of the remaining pillars-akin to liquidity management ensuring operational resilience.

### + 1: Time as Constraint

Time constitutes the meta-dimension binding the five pillars. Every decision in health or finance incurs opportunity costs over time; delayed prevention or saving magnifies future liability. Viewing time as finite capital enforces prioritization and underscores the compounding effect of early interventions-mirroring interest accumulation or cellular ageing curves.

### Application and Translational Use

The framework has been operationalized through educational and advisory initiatives by Wellth span Advisory, a Switzerland-based longevity-finance advisory suggesting integrating medical and financial data for individual and institutional planning. These applications structure longevity-literacy curricula, corporate wellbeing programs, and research collaborations on health-adjusted financial metrics.

### Conceptual Contribution

Positioned within existing theory, the Wellth span Framework extends the human-capital model by explicitly quantifying health capital as co-equal with financial capital, subject to shared risk-management logic. It also advances gerontological models by embedding financial sustainability within definitions of successful ageing. As a conceptual synthesis, it offers a testable foundation for interdisciplinary measurement-such as correlating biometric indicators with retirement-readiness indices-to assess financially sustainable health span.

### Interdisciplinary Integration: Health as an Asset

#### The Financialization of Prevention

Health can be conceptualized as an appreciating asset rather than a consumable commodity. Preventive medicine yields measurable returns, both physiological and economic. data show that every dollar invested in early preventive interventions returns three to five dollars in reduced healthcare expenditure and productivity loss. This mirrors principles of portfolio compounding: small, consistent investments in physical activity, nutrition, and screening deliver exponential long-term value.

Treating prevention as a financial instrument also reframes the temporal mismatch between healthcare spending and benefit realization. Traditional systems allocate costs at the point of illness, while benefits of prevention accrue diffusely over decades. The Wellth span Framework aligns incentives by quantifying prevention as a long-term asset class-analogous to fixed income-while curative interventions are short-term, high-volatility expenses.

### Integrating Data Across Domains

Digital health records and personalized finance tools enable cross-domain analytics linking biomarkers (e.g., VO<sub>2</sub> max, resting heart rate, glycemic variability) with savings behavior and retirement readiness. Artificial intelligence can model health-wealth correlations and estimate the longevity ROI of interventions, such as the impact of stress-reduction programs on labor market participation. These integrative metrics allow financial planners and clinicians to share a common language of risk and return, fulfilling Esposito's vision of longevity literacy as financial literacy 2.0.

## Gender and Generational Dimensions

### Gendered Healthspan Disparities

Across OECD nations, women live 3 to 5 years longer than men but spend 25 to 30 percent more years in poor health, a paradox attributed to biological, social, and economic asymmetries [20]. Hormonal changes post-menopause, disproportionate caregiving burdens, and later medical diagnoses contribute significantly to women's extended sickspan. Persistent underrepresentation of women in clinical research further exacerbates these disparities [21]. Targeted preventive protocols, particularly cardiovascular and neurological screening that address sex-specific risks, could narrow morbidity gaps and reduce lifetime healthcare costs by up to 9 percent.

### Gendered Financial Inequalities

Women accumulate substantially lower lifetime earnings and pension benefits due to systemic wage gaps, part-time employment prevalence, and unpaid caregiving responsibilities. The EU Gender Pension Gap averages between 29 and 33 percent [22]. Each year of full-time caregiving may reduce retirement income by 3 to 5 percent [23]. The Wellth span Framework explicitly embeds these structural inequities within the financial health pillar, advocating for policies that recognize unpaid care work, expand flexible pension schemes, and incentivize female participation in long-term investment vehicles.

### Generational Pressures and Caregiving

Younger adults, especially Millennials and Gen Z, increasingly experience non-linear career trajectories marked by reskilling demands and intermittent caregiving [24,25]. Approximately 25 percent of caregivers in North America and Europe are under 35 years old, placing these cohorts at risk of diminished lifetime savings and elevated stress, thereby shortening both financial and biological resilience. Integrating longevity literacy into school curricula and workplace benefits is crucial to build adaptive competencies for 100-year lives [26].

## Policy and Societal Implications

### Systemic Reforms

A Coherent Longevity Strategy Requires Reforms Across Multiple Levels of Societal Systems

#### • Public Health

Shift public funding from late-stage treatment to early-life preventive interventions, with gender- and age-specific benchmarks to address health inequalities. Establish national health-wealth accounts to track preventive engagement alongside savings behaviour, supporting integrated policy goal.

#### • Financial Regulation

Incentivize pension and insurance products that reward preventive health behaviours, such as premium reductions linked to biometric verification. Recognize caregiving periods in pension calculations and tax credits, reducing the disproportionate impact on caregivers, especially women.

#### • Corporate Practice

Embed health metrics within Environmental, Social, and Governance (ESG) frameworks to align longevity goals with corporate sustainability strategies. Promote longevity-friendly workplaces emphasizing reskilling, flexible scheduling, and wellbeing dividends, reinforcing workforce participation and reducing turnover.

## Toward Longevity Literacy

The OECD identifies financial literacy as a core life skill but omits biological resilience from its mandate. Longevity literacy extends this by encompassing understanding the interplay between lifespan, health span, and wealth span; interpreting longevity risk; and appreciating time-adjusted decision making. Implementing longevity literacy at schools, workplaces, and within financial institutions is instrumental in preparing citizens for longer, healthier, and financially sustainable lives.

### Discussion

The convergence of medical and financial paradigms represents an inflection point in ageing research. Current evidence supports the dual-capital premise: healthier individuals work longer, accumulate greater assets, and consume fewer healthcare resources. Conversely, socioeconomic vulnerability accelerates morbidity, producing feedback loops that strain public systems.

The Wellth span 5 + 1 Pillars Framework contributes a structured language for this integration. It translates clinical determinants into economic categories, facilitating interdisciplinary dialogue. By anchoring all pillars to time, it underscores the irreversible compounding of early-life decisions—a principle equally central to metabolism and interest rates.

Future empirical work should quantify cross-pillar interactions. For instance, longitudinal data could correlate VO<sub>2</sub> max trajectories with pension adequacy, or assess whether targeted financial coaching improves adherence to preventive health programs. At the institutional level, banks and insurers could pilot longevity-linked products that price individual health capital, testing how behavioral incentives modify morbidity curves.

### Conclusion

The Wellth span 5 + 1 Pillars Framework (Esposito, 2025) offers a novel, interdisciplinary approach to addressing the systemic challenges posed by increased longevity. By conceptualizing health and wealth as co-managed assets within a unified portfolio constrained by time, this framework emphasizes the importance of early, integrated investments in physical, mental, social, purpose-driven, and financial health. The model underscores that sustainable aging and equitable outcomes depend on policies and practices that recognize health span and wealth span as mutually reinforcing dimensions of human well-being.

Our review highlights that existing approaches often treat health and financial planning in silos, neglecting their dynamic interdependence. The framework's emphasis on preventive investment, longevity literacy, and policy reforms can guide systemic change. Importantly, gendered and generational disparities illustrate the need for tailored strategies that address specific vulnerabilities, such as caregiving burdens and socioeconomic inequality, embedded within the broader longevity agenda.

While promising, the framework requires empirical validation through longitudinal, cross-sector studies measuring biometric, economic, and psychosocial variables. Future research should explore the quantitative relationship between health capital and financial resilience and develop targeted interventions to optimize the life course. Implementing policies grounded in the Wellth span model can foster healthier, wealthier, and more resilient populations capable of thriving within the extended life expectancy of the 21st century.

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