The AI Gap No-One is Talking About: The Potential for Further Widening Socioeconomic Health Gaps with the AI Revolution in Elderly Populations

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Opinion

Recently, I had the opportunity to observe the interaction between my 96-year-old grandmother and a novel AI-powered agent, Moflin™, an emotionally responsive robotic companion developed by Casio. What struck me was not only the tenderness of her care, but also her genuine concern for the small AI creature: she asked what it ate, how it was named, and gently petted it as if it were alive. This interaction initially suggested that such technologies may hold promise for emotional support in advanced age.

Moflin™ is a palm-sized AI companion designed to provide emotional engagement through adaptive behavior. It recognizes its primary user via voice and tactile interaction, developing a unique personality that evolves over time. Marketed as a mental-wellness companion rather than a medical device, it represents a broader trend toward emotionally responsive AI tools intended to support aging populations. However, with a retail price of approximately USD $400–$430 - roughly equivalent to one month of minimum wage in Mexico - access to this technology is already economically prohibitive for a large proportion of older adults in my country.

Shortly after this interaction, my perspective shifted. Together with collaborators, we recently published findings demonstrating significant socioeconomic disparities in health markers among community-dwelling older adults [1]. Our work highlighted how socioeconomic status significantly influences physical performance and geriatric syndromes in older adults. Viewed through this lens, the affordability barrier posed by AI-driven technologies like Moflin™ raises a deeper concern: whether the AI revolution may unintentionally widen existing health inequities among elderly populations.

In December 2025, the United Nations Development Programme published its flagship report The Next Great Divergence: Why AI May Widen Inequality Between Countries, warning that artificial intelligence may exacerbate existing global inequalities [2]. High-income countries already possess the digital infrastructure, capital investment, and workforce preparedness necessary to adopt and benefit from AI technologies. These advantages enable faster integration, optimization, and scaling of AI-driven innovations.

What remains less discussed is how these same principles may extrapolate within countries, particularly among older adults across socioeconomic strata. As AI technologies increasingly demonstrate measurable benefits for health monitoring, emotional wellbeing, and risk prevention, unequal access may lead to proportional widening of existing health gaps. If technological advantage confers health protection, then limited access becomes a new social determinant of health.

The relationship between socioeconomic context and health outcomes has long been documented. Prior research has shown that neighborhood-level socioeconomic disadvantage - often approximated by ZIP code or composite deprivation indices - is strongly associated with morbidity and mortality in the United States. In nationally representative cohorts of community-living older adults, residence in socioeconomically disadvantaged neighborhoods is independently associated with higher long-term mortality, even after adjusting for individual-level socioeconomic status and comorbidities [3].

Moreover, older adults living in deprived neighborhoods experience shorter active life expectancy and spend a greater proportion of remaining life with functional disability compared

with their counterparts in more advantaged areas [4]. These findings underscore how place-based socioeconomic factors powerfully shape aging trajectories.

Emerging AI-enabled health technologies further illustrate this concern. A prominent example is the use of wearable devices, such as smartwatches, for the detection of atrial fibrillation (AF). A recent meta- analysis demonstrated high diagnostic performance of smartwatches for AF detection, with pooled sensitivity of approximately 95%, specificity of 97%, and an area under the curve of 0.97 [5]. AF is particularly relevant in older adults, as it is highly prevalent among individuals aged ≥65 and represents a major driver of stroke, heart failure, cognitive decline, and mortality, especially in those with frailty [6].

Critically, AF often remains asymptomatic in older adults. Early detection enables timely initiation of oral anticoagulant therapy, which has been shown to reduce AF-related ischemic stroke risk by approximately 64% [7]. Economic modeling studies further support the value of screening: one simulation of one-time AF screening in individuals aged 75 years demonstrated prevention of ischemic strokes and meaningful gains in quality-adjusted life-years (QALYs) at acceptable incremental cost- effectiveness ratios [8].

However, access to these technologies is not evenly distributed. Adoption of wearable health devices is consistently higher among individuals with greater income, education, and digital literacy, while older adults from lower socioeconomic backgrounds remain underrepresented among users. This creates a paradox in which scalable, low-burden preventive tools risk amplifying rather than reducing health disparities.

Anecdotally, one of my students recently described how an arrhythmia diagnosis was triggered by alerts from an Apple Watch - an experience that illustrates the real-world clinical impact of consumer health technologies. Yet, when such diagnostic opportunities are restricted to those who can afford them, they risk becoming another mechanism through which wealth inequality translates into health inequality.

The interaction between my grandmother and Moflin™ thus serves as a microcosm of a broader societal challenge. Artificial intelligence holds genuine potential to enhance emotional wellbeing, detect disease earlier, and improve health outcomes in older age. Without deliberate policy interventions aimed at affordability, digital inclusion, and equitable deployment, these benefits may accrue disproportionately to affluent populations.

The prospect of an elite group of older adults supported by integrated, AI-driven, real-time health monitoring - alongside a growing population of economically outpaced, technologically excluded elders - is deeply troubling. As AI advances in increasingly subtle and powerful forms, the risk of exponential divergence in health outcomes among elderly populations becomes not only plausible, but likely. Preventing this outcome should be considered a public health imperative rather than an unintended consequence of technological progress.

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