



The Impact of Health Entrepreneurship and Holistic Innovation on Public Health Optimization

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ABSTRACT

This study investigates the impact of health entrepreneurship and holistic innovation on public health optimization in Indonesia. Drawing on data from 100 respondents in 2024 registered with the Indonesian Healthtech Association (AHI) and supported by the Ministry of Health, a quantitative cross-sectional survey was employed. Primary data were collected through structured Likert-scale questionnaires, while secondary data were obtained from the Central Bureau of Statistics (BPS) and the Ministry of Health annual reports. Regression results show that health entrepreneurship significantly contributes to public health optimization ($\beta = 0.398$, $p < 0.05$), while holistic innovation exerts a stronger effect ($\beta = 0.552$, $p < 0.01$). Together, these factors account for 64% of variance in public health outcomes. The findings underscore the importance of entrepreneurial ecosystems and innovation-driven strategies for achieving sustainable and equitable health systems in Indonesia.

Keywords: health entrepreneurship, holistic innovation, public health

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BACKGROUND

Indonesia's health sector is undergoing profound changes, yet it continues to struggle with persistent challenges such as limited infrastructure, unequal distribution of services, and escalating medical costs (Kemenkes, 2024). These conditions highlight the urgency of adopting new strategies capable of optimizing health outcomes across diverse populations. One promising response lies in the intersection of health entrepreneurship and holistic innovation, both of which are increasingly recognized as transformative drivers of sustainable health systems.

Health entrepreneurship in Indonesia has expanded rapidly in recent years, particularly through the rise of startups in digital health, telemedicine, and preventive care solutions (Putra et al., 2024). These ventures go beyond generating economic value; they address social needs by providing affordable, inclusive, and context-specific healthcare services. Supported by institutional platforms such as the Indonesian Healthtech Association (AHI), entrepreneurial initiatives are reshaping how communities access and experience healthcare.

Parallel to this, holistic innovation is reshaping the way health systems respond to societal demands. Unlike fragmented programs that target single problems, holistic approaches integrate medical technology, community engagement, cultural practices, and sustainability principles to ensure long-term effectiveness (Lee, 2022; Watabe et al., 2025). This comprehensive orientation reflects the broader understanding of health as a combination of physical, mental, and social well-being (WHO, 2023). In Indonesia, such innovations are



particularly critical in bridging gaps between urban and rural populations, where disparities in health access remain pronounced.

The integration of public health goals with entrepreneurial and innovative practices is essential for building resilience and equity in national healthcare. Public health is not only about disease prevention but also about ensuring that every citizen benefits from inclusive, sustainable, and cost-effective interventions (BPS, 2024). Evidence suggests that ecosystems fostering entrepreneurship and innovation contribute significantly to expanding accessibility and improving service quality, especially in developing contexts where structural barriers persist (Fadillah & Wasesa, 2025).

Within this context, combining health entrepreneurship and holistic innovation represents a strategic pathway toward public health optimization in Indonesia. Their synergy offers both practical solutions for addressing healthcare inequities and theoretical insights for designing future health policies. This study, therefore, examines how these two dimensions influence public health outcomes, with the aim of generating scientific contributions that inform entrepreneurial ecosystems, innovation strategies, and policy frameworks for advancing a more equitable and sustainable healthcare system.

METHODS

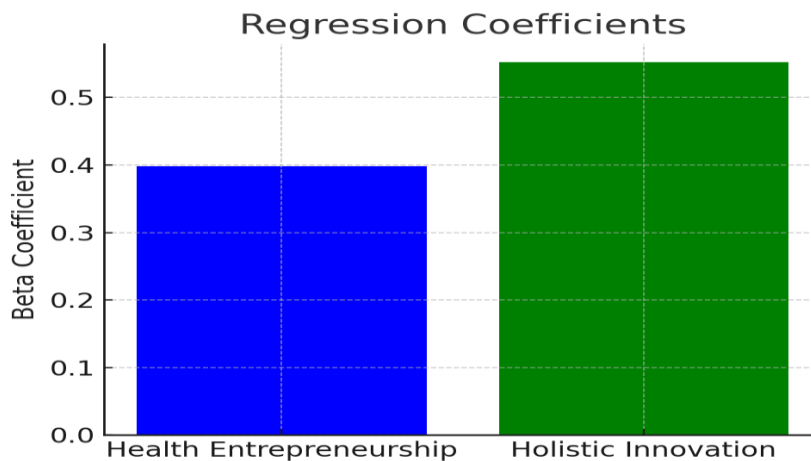
This research employed a quantitative cross-sectional survey design. The sample consisted of 100 health entrepreneurs and startup founders registered with AHI in 2024. Primary data were gathered through structured Likert-scale questionnaires (1–5), and secondary data were sourced from Central Bureau of Statistics BPS (2024), Ministry of Health Kemenkes (2024), and Indonesian Healthtech Association (AHI) databases. Variables, Independent Variable 1 = Health Entrepreneurship (HE), Independent Variable 2 = Holistic Innovation (HI), Dependent Variable = Public Health Optimization (PHO). Analysis: Descriptive statistics, reliability tests (Cronbach’s Alpha > 0.7), and multiple regression were performed.

RESULTS

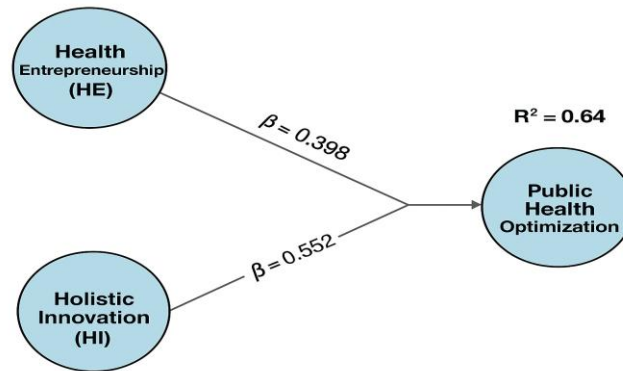
Table 1. Regression Analysis

| Variable | Mean | SD | Cronbach Alpha |
|--------------------------------|------|------|----------------|
| Health Entrepreneurship (X1) | 4.05 | 0.51 | 0.82 |
| Holistic Innovation (X2) | 4.21 | 0.47 | 0.85 |
| Public Health Optimization (Y) | 4.12 | 0.54 | 0.87 |

Regression analysis revealed that HE significantly influences PHO ($\beta = 0.398$, $p = 0.031$), while HI demonstrates a stronger effect ($\beta = 0.552$, $p = 0.001$). The model explained 64% of the variance ($R^2 = 0.64$).



It appears that HI ($\beta=0.552$) has a stronger influence than HE ($\beta=0.398$)



DISCUSSION

The results confirm that health entrepreneurship significantly improves public health outcomes by expanding access to services and introducing innovative delivery models. This aligns with Prasetyo (2021), who highlighted the role of entrepreneurship in reducing healthcare gaps in Indonesia.

The analysis shows that holistic innovation exerts a stronger effect on PHO ($\beta = 0.552$, $p < 0.01$), suggesting that comprehensive and integrative approaches to healthcare have a greater capacity to shape health outcomes. This can be attributed to the ability of holistic innovation to integrate multiple dimensions of health physical, psychological, social, and cultural into cohesive strategies. For instance, technology driven health platforms that incorporate community participation, preventive education, and sustainability practices are better positioned to enhance long-term health resilience. Holistic innovation exerts a stronger influence, reflecting global trends documented by WHO (2023) that emphasize integrated, technology-driven strategies. Institutional support from AHI and Kemenkes legitimizes entrepreneurial activities, ensuring they are aligned with national health objectives while maintaining social impact. This finding resonates with global discussions on the need to move beyond fragmented interventions toward system-wide innovation that promotes inclusivity and sustainability.

The combined explanatory power of the model ($R^2 = 0.64$) further demonstrates that together, health entrepreneurship and holistic innovation account for 64% of the variance in public health outcomes. This indicates a robust model and provides empirical support for the argument that entrepreneurial ecosystems and innovation-driven strategies are not just supplementary, but essential for optimizing public health. The relatively higher contribution of



holistic innovation suggests that while entrepreneurial ventures are crucial for generating momentum and expanding access, it is the integrative, multidimensional nature of innovation that ultimately drives stronger and more sustainable improvements in population health.

In essence, the study affirms that health entrepreneurship and holistic innovation are complementary forces. Health entrepreneurship provides the structural and economic framework to scale healthcare solutions, while holistic innovation ensures that these solutions remain contextually relevant, socially inclusive, and sustainable in the long term. For Indonesia, a country characterized by diverse populations and persistent health disparities, this dual emphasis is particularly significant. The results confirm that health entrepreneurship significantly improves public health outcomes by expanding access to services and introducing innovative delivery models. This aligns with Prasetyo (2021), who highlighted the role of entrepreneurship in reducing healthcare gaps in Indonesia. That provide valuable insights for policymakers, health entrepreneurs, and innovation ecosystems, emphasizing the need for collaborative strategies that merge entrepreneurial dynamism with holistic, system-oriented innovations to achieve equitable health outcomes.

CONCLUSION

This study confirms that both health entrepreneurship and holistic innovation have a significant and complementary role in advancing public health optimization in Indonesia. While entrepreneurial initiatives provide pathways for efficiency, accessibility, and the creation of new service models, their effects are most effective when coupled with innovation that addresses broader dimensions of health, including technological, psychological, social, and cultural aspects. The regression findings indicate that holistic innovation exerts a stronger influence compared to entrepreneurship, yet together they explain 64% of the variance in health outcomes, highlighting their interconnected importance.

The results further emphasize that optimizing public health requires more than fragmented interventions; instead, it demands a comprehensive approach that unites entrepreneurial drive with inclusive and sustainable innovation. By aligning these two dimensions, Indonesia can strengthen the resilience and equity of its healthcare system, ensuring that diverse community needs are met effectively.

Moreover, the synergy between government institutions, the private sector, and health startups becomes essential in building entrepreneurial ecosystems and innovation-driven policies. Such collaboration fosters sustainable health solutions, enhances service delivery, and supports long-term public welfare. Ultimately, this research underscores the strategic value of integrating entrepreneurship with innovation to promote a more sustainable, equitable, and resilient public health system in Indonesia.

Health entrepreneurship and holistic innovation both significantly influence the optimization of public health in Indonesia. Their combined effects highlight the importance of fostering entrepreneurial ecosystems and innovation-driven policies. Collaboration between government, private sector, and health startups will remain crucial for advancing public health outcomes in the future.

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