Adoption and Needs of Smart Care Technologies in Long-Term Care Facilities in Taiwan: A Nationwide Survey P. Y. Chu, Y. L. Hsu *Gerontechnology* 25(s*)*

Purpose Smart care technologies have been promoted across Taiwan through national long-term care and smart healthcare initiatives to improve the quality and efficiency of long-term care services [1]. However, nationwide data regarding actual adoption rates and facility needs remain limited. This study conducted a national survey to estimate current coverage of smart care technologies in long-term care facilities and to identify barriers, product needs, and adoption motivations across different service types. **Method** A questionnaire was distributed through an official letter from the Ministry of Health and Welfare, and the survey was conducted from August 18 to September 30, 2025. In this study, smart care technologies are defined in line with national long-term care payment regulations as technologies that, during the care process, sense, record, transmit, analyze and provide feedback on data related to the older care recipient's physical condition, daily care and rehabilitative training [2]. Survey items covered adoption status, reasons for non-adoption, preferred categories of smart care technologies and motivations for implementation. A total of 241 responses were collected, representing 5.98% of all 4,033 facilities. The response rate was low for home-based (4.65%) and community-based providers (5.68%), but considerably higher for residential institutions (43.44%). Weighted adjustments were applied according to the national distribution of the three types of facilities. Analysis included descriptive statistics and comparisons of weighted proportions. Key findings are summarized in Table 1. **Results and Discussion** After weighting, 22.9 percent of facilities reported having adopted smart care technologies, 26.0 percent planned to adopt within 1 year, and 51.1 percent were not considering adoption. Residential institutions demonstrated the highest adoption rate at 52.8 percent, while home-based care agencies showed the lowest at 14.4 percent. The most common reasons for non-adoption were cost concerns and lack of awareness of available products. Small facilities showed a significantly higher level of cost sensitivity. Facilities that had adopted or planned to adopt identified several high-priority product categories, including remote vital-sign monitoring and health management platforms, technologies supporting physical and cognitive enhancement, and service or facility management platforms. Policy initiatives appear to have influenced adoption patterns. The Quality Incentive Program for Residential Institutions introduced in 2024 may have contributed to the higher adoption rate in residential settings. The revised reimbursement policy for renting smart assistive devices, scheduled to take effect in July 2026, is expected to increase adoption among home-based care providers. The findings indicate that nearly half of long-term care facilities have adopted or plan to adopt smart care technologies within one year. Cost, lack of product awareness and usability concerns remain major barriers, particularly for small and home-based agencies. Adoption motivations are dominated by the desire to provide better care, improve service outcomes and enhance precision and convenience in the care process. Subsidy programs play an important role for residential institutions, while community-based centers express a strong interest in differentiation and innovation. Cost reduction, product dissemination, and supporting technology development for home-based care settings are essential to expanding the real-world applications of smart care technologies in Taiwan.

References

1. Yang, C. H., Chen, Y. C., Hsu, W., & Chen, Y. H. (2023). Evaluation of smart long-term care information strategy portfolio decision model: the national healthcare environment in Taiwan. *Annals of Operations Research*, *326*(1), 505-536.
2. Ministry of Health and Welfare. Long-Term Care Service Application and Payment Regulations, smart assistive technology section, 2025.

Keywords: Smart care technology, long-term care, adoption coverage, facility needs
Address: Department of Public Administration, National Chengchi University, Taiwan
Email: yehlianghsu@gmail.com
Acknowledgement: This survey was supported by the National Health Research Institutes and the Department of Long-term Care, Ministry of Health and Welfare, Taiwan.

Table 1. Barriers to Adoption and Technology Needs

Category	Key Findings
Top Reasons for Not Adopting Smart Care Technologies *(n = 106)*	• Cost concerns: 63.2% • Lack of product awareness: 46.2% • Insufficient functions: 27.4% • Do not know how to use: 17.0% • Currently not needed: 17.9%
By Facility Size	Small facilities reported higher cost concerns (72.9%) than medium/large facilities (55.2%).
By Facility Type	Cost concerns were highest in residential facilities (80.0%) and community-based centers (75.8%). Lack of product awareness was highest in home-based agencies (54.0%).
Most Needed Smart Care Technologies *(All facilities, n = 71)*	• Remote vital-sign monitoring platforms: 67.6% • Technologies enhancing physical and cognitive abilities: 67.6% • Service or facility management platforms: 56.3% • Safety monitoring and daily care assistance: 53.5% • Care robots: 35.2%
Needs by Facility Type	Residential facilities: safety monitoring (82.1%), remote monitoring (75.0%). Community centers: management platforms (82.1%), physical and cognitive enhancement technologies (78.6%). Home-based agencies: needs more distributed across categories.