

# ORAL PAPER PRESENTATION 7: OTHERS

## Comparative analysis of satisfaction by types of medical electric beds

J. A. Jeong, S. H. Kim, K. J. Lee, W.-K. Song, O. Y. Kim

**Purpose** With the rapid aging of the population, the demand for care is soaring, and the burden of care is surging simultaneously. Shifting the body position for the prevention of bedsores is one of the more burdensome acts of care. To alleviate this burden, the global medical electric bed market is developing steadily, growing at a CAGR (Compound Annual Growth Rate) of 8.3%(Ugalmugle&Swain et al., 2019). **Method** This study was conducted using a self-produced questionnaire whose validity and objectivity were verified by seven experts (medicine, engineering, and nursing). There were 19 verified common items, and the perfect score for each item was converted to 7 points. Items that could not be evaluated by the subject were deleted, so that 15 items were evaluated for care-receivers, and 19 for caregivers and experts. The subjects were healthy adults, ten capable of role-playing with the disabled, nine caregivers, and ten experts who fully understood the functions and properties of electric beds and could observe and evaluate the characteristics of disabled individuals. The target devices were functional fully automatic bed (JINB-1000, Jungin ENS Inc. (5-way)) with an adjustable back, legs and the left, and right sides; and a general medical electric bed with an adjustable back, legs, and height (WS9300, Woosung ENG Inc. (3-way)). **Results and Discussion** The satisfaction results were classified into three questions of 'design', three questions of 'convenience', six questions of 'composition', five questions of 'functional', and two questions of 'overall satisfaction'. The non-evaluated items of the care-receiver group were deleted. In the care-receiver and caregiver groups, high satisfaction scores were obtained for all questions in terms of reducing the care burden on the left and right position conversion functions of functional fully automatic beds. The expert observation group gave high satisfaction scores for the functional fully automatic bed in 'design', 'functionality', and 'total satisfaction' among the detailed questions. In the 'convenience' and 'configuration' questions, the electric bed for general medical use received higher scores, due to the complicated UI and operation method of the functional fully automatic bed that did not take into account the age of the actual caregiver. This suggests that it is desirable to develop a 'consumer-friendly' functional bedsores prevention electric bed with high usability by identifying the needs of caregivers.

### References

- Sumant Ugalmugle & Rupali Swain. (2019), Medical Bed Market Size By Product, By Bed Type, By Application, By Medical Institution/Facility, By End-use, Industry Analysis Report, Regional Outlook, Application Potential, Price Trends, Competitive Market Share & Forecast, 2020 – 2026, Global Market Insights, Report ID: GMI1883  
 Statistics on the Elderly in 2021. National Statistical Office  
 Ro Eun-Rae, Myung-Joon Lim, Hyo-Sun Kweon, Won-Kyung Song. (2018). A Preliminary Study of the Care Needs Analysis for People with Severe Disability. *Journal of Rehabilitation Welfare Engineering & Assistive Technology*,(),101-102.

Table 1. Results of satisfaction survey by subject

	Number of questions	Care-receiver scores		Caregiver scores		Observation of Expert	
		Functional fully automatic bed	General medical electric bed	Functional fully automatic bed	General medical electric bed	Functional fully automatic bed	General medical electric bed
<b>Design</b>	3	88.1	86.7	85.7	82.5	79.5	75.2
<b>Convenience</b>	3(care-receiver :2)	89.3	81.4	86.8	80.4	71.9	74.8
<b>Configuration</b>	6(care-receiver :4)	91.4	90.7	88.6	82.5	69.3	72.9
<b>Functionality</b>	5(care-receiver :4)	90.4	82.9	89.2	69.5	69.1	58
<b>Overall satisfaction</b>	2	88.6	79.3	88.9	74.6	74.3	65

**Keywords:** care burden, electric bed, satisfaction

**Address:** Department of Rehabilitative & Assistive Technology, National Rehabilitation Center, Korea

**Email:** [ohnew33@korea.kr](mailto:ohnew33@korea.kr)

**Acknowledgements:** This study was funded by the Translational Research Program for Care Robots (grant number: HK19C0002) from the Ministry of Health and Welfare of South Korea.