

# ORAL PAPER PRESENTATION 3: PHYSICAL AND MENTAL HEALTH

## The effect of smart health care systems as remote monitoring on health-related quality of life in the elderly with chronic diseases

C. H. Oak, H. K. Choi, K. Y. Lee

**Purpose** Korean society is rapidly aging, and it is expected that more than 10 million elderly people will enter the super-aged society by 2025. It is very important for the elderly to have a physically and mentally healthy old age. However, according to the 2020 Survey on the Elderly, 84% of the elderly answered that they had one or more chronic diseases, 27.1% of the two chronic diseases, and 27.8% of the elderly with three or more chronic diseases. Serious problems in chronic diseases are related to heart failure, diabetes, and infection such as Covid19. Recently Covid19 pandemic swept across global aging societies and put elderly people with chronic disease more vulnerable to mobility (Kim & Oak, 2022). Therefore, remote monitoring an elderly with chronic disease is an important issue than ever. Smart health care systems as remote monitoring is so called telemetry system which enable doctors or health care providers to manage remotely to consult, diagnose and treat patient with chronic disease and infectious disease as well. The goal of telemetry system is to meet timely medical need in elderly people in distant place through communication technologies. Through technological breakthrough, particularly in real-time health care industry, telemetry system with real-time monitoring of heart rhythm and blood glucose level can play an important role in managing healthcare services in elderly (Kim & Oak, 2022). The purpose of this study was to examine effectiveness of smart health care as remote monitoring on health-related quality of life of the elderly with chronic diseases. **Method** The survey was conducted from July to November 2021 on 32 elderly people with diabetes and heart disease among outpatients in endocrinology, cardiology, and respiratory medicine. On the first day, a pre-test investigated gender, age, living family, disease, subjective health awareness, and health-related quality of life (mobility, self-care, usual activities, pain/discomfort, anxiety/depression) and post-test was conducted after real-time ECG monitoring and blood glucose monitoring for 2 weeks. We used the EQ-5D scale of EuroQol to measure health-related quality of life. There were 14 women (44%) and 18 men (56%) and their average age was 66. 27 (84%) had diabetes and heart disease, and 4 (14%) had diabetes. Subjective health awareness was responded by 7 (22%) for good, 18 (56%) of normal, 6 (19%) for bad. After real-time ECG monitoring and blood glucose monitoring for 2 weeks, paired t-test was conducted to analyze changes in health-related quality of life.

**Results and Discussion** As a result, there was significant positive result on the health-related quality of life of the elderly with chronic disease after real-time ECG monitoring and blood glucose monitoring for 2 weeks (Table 1). This study was conducted as an exploratory study in the first year, targeting only experimental group, but it is very meaningful that positive changes in health-related quality of life were observed. Therefore, in the second year study, we plan to more precisely verify the effectiveness by dividing a larger number of study subjects into experimental and control groups.

### References

- Kim, J. W. & Oak, C.H. (2022). Real-time remote-health monitoring systems: a review on patients with chronic diseases. *World Environment and Island Studies*, 12(1), 33-36
- Tsang J, Dobaño C, VanDamme P, et al. Improving vaccine-induced immunity: can baseline predict outcome? *Trends Immunol* 2020 April 8
- Vaduganathan M, Vardeny O, Michel T, McMurray JJV, Pfeffer MA, Solomon SD. Renin-angiotensin-aldosterone system inhibitors in patients with Covid-19. *N Engl J Med*. DOI: 10.1056/NEJMsr2005760.
- Wayne C. Koff, Ph.D., and Michelle A. Williams, Sc.D. Covid-19 and Immunity in Aging Populations; A New Research Agenda *N Engl J Med* 2020; 383:804-805 August 27, 2020.

**Keywords:** smart health care systems as remote monitoring, health-related quality of life, elderly, chronic diseases

**Address:** Department of Internal Medicine, Kosin University College of Medicine, Busan, Korea

**Email:** [hchoi96@hanmail.net](mailto:hchoi96@hanmail.net)

Table 1. Positive Changes in Health-Related Quality of Life (EQ-5D)

	Pre		Post		P-value
	No problem	Any Problem	No problem	Any Problem	
Mobility	25(78.1%)	7(21.9%)	28(87.5%)	3(9.4%)	
Self-Care	27(84.4%)	5(15.6%)	29(90.6%)	3(9.4%)	
Usual Activities	24(75.0%)	8(25.0%)	29(90.6%)	3(9.4%)	
Pain/Discomfort	19(59.4%)	13(40.6%)	24(75.0%)	8(25.0%)	
Anxiety/Depression	17(53.1%)	15(46.9%)	27(84.4%)	5(15.6%)	
EQ-5D index ***	0.869(0.149)		0.933(0.125)		<0.001

\*\*\* p<0.001

Eq-5D=EuroQol-5 Dimension

Values are expressed as mean(standard deviation)