

Original Research

## Improving the Quality of Life of Elderly through GALASEMA Application



Pepin Nahariani<sup>1\*</sup>, Shanti Rosmaharani<sup>1</sup>, & I'in Noviana<sup>1</sup>

<sup>1</sup>Jombang Institute of Health Science, Jombang, Indonesia

Article Info	Abstract
<p>Article history: Received: 29 August 2022 Accepted: 27 January 2023</p>	<p><i>Introduction:</i> Elderly is vulnerable to a decline in health status that may affect their quality of life. The proposed alternative that involved technological sophistication is an application, namely Galasema (Healthy and Independent Elderly Movement). This application was developed to improve the health status in elderly population. This study aimed to investigate the quality of life improvement of elderly through the Galasema application.</p>
<p>Keywords: elderly, Galasema application, quality of life</p>	<p><i>Methods:</i> This study employed a pre-experimental one-group pre-posttest design. The study population included 345 elderlies. One hundred eligible participants were eventually selected using a simple random sampling technique. WHOQOL-BREF enrolled to assess the quality of life.</p> <p><i>Results:</i> Wilcoxon statistical test yielded a p-value of <math>0.00 &lt; 0.05</math>, which indicated the significant effect of the Galasema application on the quality of life among the elderly.</p> <p><i>Conclusion:</i> These findings suggested the availability of the application for the elderly population to be used at home independently with the family.</p>

\*Corresponding Author:

e-mail: [pepin.nahariani@gmail.com](mailto:pepin.nahariani@gmail.com)



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## INTRODUCTION

Elderly is the final stage in the human life cycle. According to the National Regulation in Indonesia, Law No. 13 of 1998, the elderly population is defined as citizen who is over the age of 60 years and given the same rights to the life of society and the state [1]. Globally, the population aged 65 years and over increased from 6% in 1990 to 9.3% in 2020. This population growth is estimated to escalate by 16% in 2050 or one in six persons in the world aged 65 years or older [2] In Indonesia, the growth of the elderly population has increased annually. According to the National Statistics Board, the number of elderlies had increased by 0.9% in the previous years, and would be increased to 10.82% or 29.3 million from the total population. By 2045, the elderly population in Indonesia is forecasted to reach a number of almost one-fifth of the total population. [2].

The elderly population is a group that would experience the aging process. This group is prone to a decline in health status. In accordance with Miller's theory, a declining function in various body organs is the natural result of the older age in humans in functional consequences [3]. The decline in the health status of the elderly will affect their quality of life. Quality of life is an individual's perception of his life in society in the context of the existing culture and value system in relation to expectations, goals, norms, and concerns [4]. Quality of life (QoL) covers very broad aspects and influences by psychological, physical, levels of independence, and social relationships, both with individuals and with the surrounding environment.

The decline in the QoL often occurs due to a decrease in physical health status that will cause health issues. Common physical health issues encountered in older age population were hypertension, diabetes mellitus, kidney failure, osteoporosis, and gout arthritis. In addition to physical health issues, a decreased quality of life is also influenced by psychological factors such as loneliness, depression, stress, social isolation, and anxiety [5]. Health issues also could arise from the elderly environment. Thus, elderlies would demand a safe and comfortable environment. A safe environment assures their safety and prevents the occurrence of physical injury. While, a comfortable environment refers to a situation that is identical to cleanliness, free from noise, and prevents the psychological stress [6].

Nowadays, many initiatives have been constructed by the national government and the local community to generate human wellness, from newborn to the elderly. Health monitoring, treatment, rehabilitation, and education are extensively directed to achieve better health status. However, confinement measures to control infection transmission during the Covid-19 pandemic provided complex challenges, disrupting these health efforts. Activities for the elderly population in Local Integrated Healthcare Centers required to be stopped due to these measures, resulting in discontinuity of health status monitoring. This situation was risky since most elderly have been diagnosed with progressive degenerative diseases. Through the rapid development in the technology field, several health efforts were developed to improve the quality of life among the elderlies. Galasema

application (Healthy and Independent Elderly Movement) targets the elderly population and their families. Technology helps the elderly to live better lives. Technology is a very promising means to prevent cognitive disorders, improve function for daily work, and enhance the quality of life among elderlies [7]. Galasema application provides educational content on physical and psychological disease prevention through simple exercises. All information could be accessed anytime and anywhere, especially in their leisure time. This application also offers a self-assessment questionnaire to identify mental health status. This application serves all parties, both medical professionals and the general population, as it uses relatively simple vocabulary and explanation. Galasema also could be used to monitor the health status of the elderly at home.

## **METHODS**

This study employed a pre-experimental one-group pre-posttest design. The study population was 345 elderlies, both productive and non-productive individuals. One hundred eligible participants were selected using the simple random sampling technique. The independent and dependent variable in the study was the implementation of the GALASEMA application and QoL, respectively. The study was conducted in Bandung Village, Jogoroto District, Jombang Regency.

This implementation of the Galasema application consisted of several steps. It initially began with information dissemination about how to use the Galasema application. This step engaged the

participants, accompanied by their family members and local cadres. The next step was the distribution of the pretest questionnaires. Subsequently, participants and their family members were asked to use the application for daily activities at home for a month. Cadres were instructed to monitor the use of the application during the study. All issues were required to be reported in a regular meeting with the research team once a week. Obstacles and issues were discussed in that meeting to find a sufficient alternative to deal with them. After one month, the posttest questionnaire was distributed to measure the participant's QoL.

The Galasema application was complemented with a pocketbook, which was a summary of all alternative methods of degenerative issues prevention in older age. The application also added diet information that can be used to meet the recommended daily nutrition for the elderly. A consultation feature was also provided to anticipate questions in using the application. This application was expected to improve the QoL among the elderly. Not only due to information provided in the application, but also the active participation of their family member in assisting them to use the application. Improvement of the QoL could also be influenced by the level of support from the family member. Accompaniment from family members would increase their motivation in using the Galasema application, this situation may improve their QoL.

Several questionnaires were employed in this study: Barthel Index, Mini Mental Status Exam (MMSE), Quality of Life (QoL), Geriatric Depression Scale (GDS), UCLA

Loneliness scale, and Daily Spiritual Experience Scale (DSES). From the initial assessment, several relatively simple health issues were spotted and addressed through an independent nursing intervention. Questionnaires were given before and after using the Galasema application to measure their QoL. Data collected were then analyzed using the Wilcoxon Sign Rank Test statistical test. This study adhered to the ethical principles, including the principle of nonmaleficence, beneficence, autonomy, anonymity, confidentiality, justice, veracity, and consent. This study has received ethical clearance from the ethics commission with the number of 0621120014/KEPK/STIKES-PEMKAB/JBG/XII/2021.

## RESULTS

Table 1 shows that the majority of participants were female (85%). Only 15% of them were male. Further, most of them were

aged between 55 to 65 years (47; 47%), which could be classified into the elderly category.

Table 2 reveals the QoL of the participants before and after the use of Galasema application. There were three levels of QoL assessed before the intervention: moderately good (28%), good (66%), and very good (6%). This study asked the participants to use the Galasema application for one month. After one month, there was a significant increase in the QoL. Eighty-four percent of participants demonstrated very good QoL. Only 16% of them identified with good QoL, and none of them showed a moderately good level of QoL.

Further, the Wilcoxon statistical analysis test, with a significant level of 0.05, obtained a p-value of 0.00. Thus, the p-value was < 0.05, indicating the significant influence of Galasema application on the improvement of QoL among the elderly.

**Table 1**  
Characteristic Distribution of Respondents by Gender and Age

<b>Indicator</b>	<b>F</b>	<b>%</b>
<b>Gender</b>		
Female	85	85.0
Male	15	15.0
<b>Age</b>		
45-54 years ( <i>middle age</i> )	33	33.0
55-65 years ( <i>elderly</i> )	47	47.0
66-74 years ( <i>young old</i> )	12	12.0
75-90 years ( <i>old</i> )	8	8.0

**Table 2**

Distribution of Pre-test and Post-test Quality of Life Levels

Indicator	Pretest		Posttest		p
	f	%	f	%	
Enough	28	28.0	-	-	0,000
Good	66	66.0	16	16.0	
Excellent	6	6.0	84	84.0	

**DISCUSSION**

QoL among the elderly could be improved through the miscellaneous type of activities and therapies. Fortunately, these activities could be neatly wrapped, only in an application program. The Galasema application in the recent study aimed to provide an easier and more convenient way of activities and therapies for the elderly population, as it could be accessed anytime and anywhere, enabling them to adapt to the current era of the technology ubiquity.

Nowadays, the use of technology is rapidly increasing, offering alternatives to overcome existing limitations in all age groups, including the elderly population [7]. Unfortunately, elderly tend to ignore the existence of technology and the use of technology-based applications to receive information. This situation may occur due to their lack of interest and the unappealing looks of the application/information within it, not to mention their limitation in operating the devices.

Two factors in the Technology Acceptance Model Theory are introduced as elements with the most powerful impact on the acceptance level and use of information systems: perceived usefulness and perceived

ease of use [8]. Galasema application was designed by employing multiple colors combination to overcome boredom while using the application. Further, several alternative therapies and health information to improve health were also provided in the application, such as anti-hypertension exercises, diabetes exercises, *taichi* exercises, and kegel exercises. This type of design was in line with a study conducted by Misbakhul Anwari that mentioned the benefit of physical exercise, particularly in alleviating the levels of anxiety, stress, and depression. Exercise would decrease the peripheral nervous system (autonomic nervous system) stimulation, especially the parasympathetic nervous system, causing vasodilation of the cross-section of blood vessels, resulting in a reduction in both systolic and diastolic blood pressure [9].

Support from the family becomes a very important element for the elderly, particularly to increase their self-confidence, improve motivation, assist the elderly in meeting their needs, and finally enhance their QoL [10]. A similar finding was also mentioned by Nurul Fadhliha and Rina Puspita Sari, they highlighted the essential role of family members in delivering proper

guidance, assistance, and helping the elderly to overcome life problems [11].

### **STUDY LIMITATION**

Most participants did not personally own their mobile phones. Sometimes, they required intensive help from their family members to use the application. At some points, this situation extended the study process. Further, we encountered challenges due to the confinement policies during the pandemic

### **CONCLUSION AND RECOMMENDATION**

Galasema application provides essential assistance for spiritual, physical, and psychological wellness among the elderly. Therefore, we suggested the availability of the Galasema application for broader parties, such as family members, cadres, health professionals, the community, and even students for their additional source of learning reference. Most of the participants did not personally own and use their use smartphones. At some points, it interrupted the study. Further studies are expected to provide another alternative to deal with this issue.

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### **CONFLICTS OF INTEREST**

Authors disclose no conflicts of interest related to the work in this manuscript.

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