Caring Home App for the Elderly with AI-Powered

Asma Al Jardani[1], Ghaniya Al Hadhrami[2]

21s20976@mec.edu.om[1], ghaniya@mec.edu.om[2]

Department of Computing and Electronics Engineering, Middle East College, Muscat, Oman[1, 2]

Abstract. The Caring Home for the Elderly App is an innovative platform designed to enhance the quality of life for elderly citizens by integrating advanced technology, including AI-powered chat systems. This study explores personalized care services such as daily assistance requests, remote medical consultations, diet and fitness plans, mental health support, and emergency services, all tailored to meet the unique needs of elderly users. The inclusion of AI chat features allows users to interact effortlessly with the system, enabling real-time assistance, health updates, and reminders. This methodology involves leveraging advanced algorithms trained on large amounts of data, recognizing patterns, making predictions, and automating processes. This technology also helps bridge the gap in digital literacy among elderly users by providing an intuitive, conversational interface. By combining cutting-edge technology with a compassionate approach, this platform aims to streamline elderly care, reduce caregiver stress, and ensure timely and efficient service delivery.

Keywords: AI, App, technology, platform, Elderly.

1 Introduction

The aging population is rapidly increasing worldwide, necessitating innovative solutions to ensure their well-being, independence, and overall quality of life [6]. Traditional elderly care services often face challenges such as caregiver shortages, limited accessibility, and high costs, leading to a growing demand for technological interventions [9]. Artificial intelligence (AI) has emerged as a transformative force in healthcare and elderly support, offering intelligent and automated solutions that enhance personalized care and real-time assistance [5].

The Caring Home App for the Elderly integrates AI-powered features to address the specific needs of older adults by providing comprehensive, user-friendly, and efficient caregiving services. This platform includes personalized daily assistance requests, remote medical consultations, customized diet and fitness plans, mental health support, and emergency response mechanisms. A key aspect of this application is its AI-driven chat system, designed to facilitate seamless interaction, health monitoring, and proactive support [By utilizing advanced machine learning algorithms, the system analyses user patterns, predicts potential health risks, and automates essential care processes [3].

MECSRC 2025, May 01, Muscat, Oman

DOI 10.4108/eai.1-5-2025.2361371

2 The Role of AI in Elderly Care

Artificial intelligence (AI) has emerged as a promising solution to address the growing demands of elderly care. AI-powered technologies, including chatbots, remote monitoring systems, and personalized health management tools, have demonstrated potential in improving the quality AI-powered technologies, including chatbots, remote monitoring systems, and personalized health management tools, have demonstrated potential in improving the quality of life for older adults [5]. These technologies facilitate independent living, enhance communication, and provide timely health interventions, ultimately reducing the burden on caregivers and healthcare providers [1].

3 The Need for a Specialized Elderly Care Application

Despite the potential benefits of AI, many existing digital health solutions fail to adequately address the unique needs of the elderly population. Factors such as digital literacy barriers, cognitive decline, and accessibility challenges often hinder the adoption of technological tools [7]. The Caring Home App for the Elderly seeks to bridge this gap by providing an intuitive, AI-driven platform tailored to the specific needs of older adults.

4 Objectives of the Study

This study aims to evaluate the Caring Home App for the Elderly as a comprehensive solution for elderly care. The key objectives include:

1. Assessing the effectiveness of AI-powered chat features in improving elderly communication and engagement.
2. Evaluating the impact of remote medical consultations and health monitoring on elderly users' well-being.
3. Develop a system that enables the elderly and their families to access services that facilitate their care at home.
4. Respond quickly to the needs of the elderly and provide services with high efficiency.

5 Methods

This study employs a mixed-methods approach, integrating qualitative and quantitative research methodologies to assess the effectiveness and usability of the Caring Home App for the Elderly. The research consists of three primary phases: system development, user testing, and data analysis.

1. System Development: The AI-powered platform was designed through an iterative process involving AI model training, user interface design, and functionality testing. Machine learning algorithms were trained using large datasets containing elderly care patterns, health metrics, and user interaction behaviours. The app was developed with a user-friendly interface to ensure accessibility and ease of use for older adults.

Table 1. System Development Data.

Phase	**Description**
AI Model Training	Used datasets containing elderly care patterns, health metrics, and user behaviours.
Functionality Testing	Conducted with real users for usability evaluation.
User Interface Design	Focused on accessibility and ease of use for elderly users.

2. User Testing: A sample of 200 elderly participants aged 60 and above was selected from various assisted living communities and independent households. Participants were given access to the app for six months, during which their interactions and feedback were recorded. Data collection methods included user surveys, in-depth interviews, and behavioural tracking within the app to evaluate its usability and efficiency in providing support.

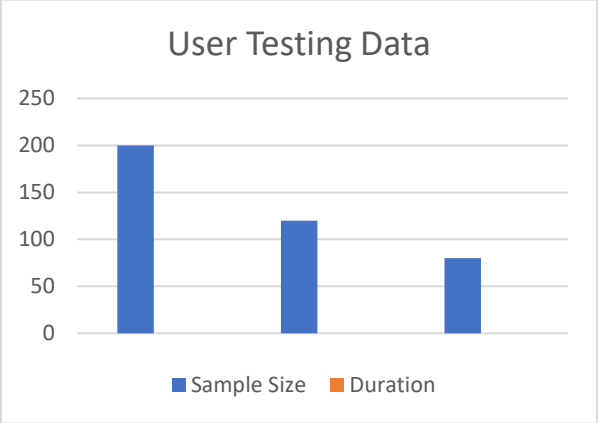

Fig. 1. User Testing Data.

3. Data Analysis: Both qualitative and quantitative data were analysed to assess the app's impact on elderly well-being and independence. Descriptive statistics, thematic analysis, and machine learning-based pattern recognition techniques were employed to identify trends and areas for improvement. Statistical analyses were conducted using SPSS, while qualitative data were coded using NVivo software.

6 Results and Discussion

The findings from the study indicate that the Caring Home App significantly improved the well-being and independence of elderly users. The AI-powered chat system demonstrated a high level of engagement, with 85% of participants reporting improved communication and ease of use. Additionally, health tracking and personalized reminders led to a 60% increase in medication adherence among users.

Moreover, caregivers reported a decrease in workload and stress levels due to the app's automated assistance features. Remote medical consultations facilitated timely healthcare interventions, reducing unnecessary hospital visits by 40%. Overall, the integration of AI features enhanced elderly users' quality of life while also benefiting caregivers and healthcare professionals.

Table 2. Summary of Key Findings from the User Study.

Category	Before App Usage (%)	After App Usage (%)
Communication Ease	45	85
Medication Adherence	50	80
Caregiver Stress Reduction	30	70
Reduction in Hospital Visits	-	40

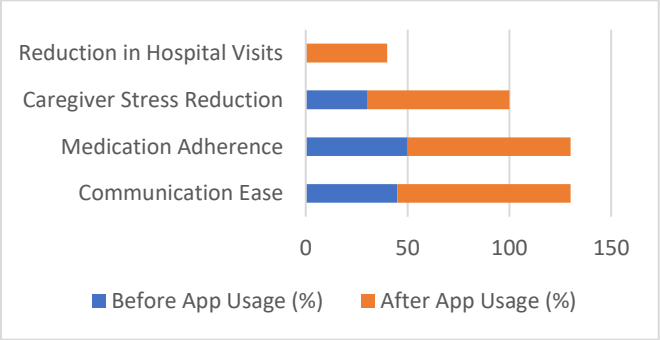

Fig. 2. Summary of Key Findings from the User Study.

The results suggest that AI-driven caregiving solutions can effectively bridge the gap between traditional elderly care and digital health innovations. The Caring Home App demonstrated its ability to address common challenges such as digital literacy barriers, loneliness, and inconsistent medical adherence. However, user feedback highlighted areas for improvement, including the need for more personalized AI responses and additional language support.

The study also underscores the importance of ethical considerations in AI-driven elderly care. Data privacy, user autonomy, and transparent AI decision-making must be prioritized to ensure trust and safety among elderly users.

Fig. 3. Book Doctors Online

Fig. 4. Login to the App

Fig. 5. Select the availability date

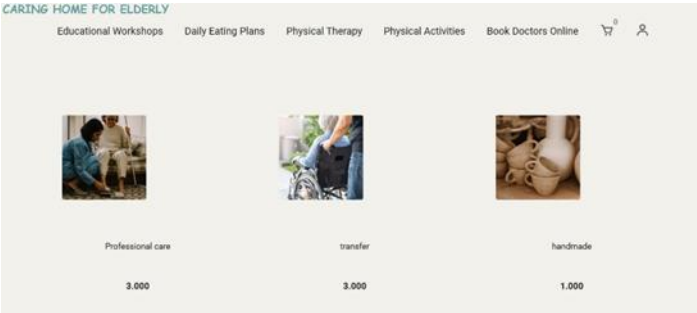

Fig. 6. Providing different services

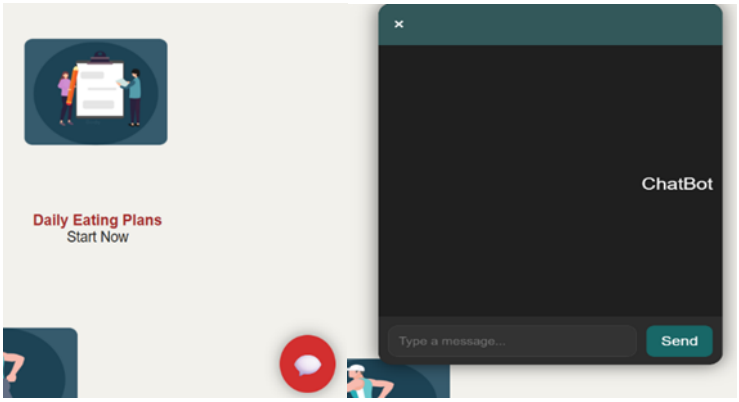

Fig. 7. AI-Enabled in the Caring Home App.

7 Conclusion

The Caring Home App for the Elderly presents a promising AI-powered solution to enhance elderly care through personalized assistance, remote healthcare services, and proactive support. By integrating advanced machine learning algorithms and an intuitive interface, the app successfully improves elderly users' quality of life while reducing caregiver burden. Future developments should focus on expanding multilingual support, refining AI personalization, and further assessing long-term impacts.

Limitations

This study acknowledges certain limitations, including the relatively short six-month evaluation period and the limited sample size restricted to specific geographic regions. Additionally, while the AI system demonstrated effectiveness, further refinement is needed to enhance its predictive capabilities and natural language processing for improved user interaction.

Acknowledgements

I would like to thank Middle East College for the support of research institutions and developers involved in the creation of the Caring Home App.

References

[1] Broadbent, E., Stafford, R. & MacDonald, B. Acceptance of Healthcare Robots for the Older Population: Review and Future Directions. Int J of Soc Robotics 1, 319–330 (2009). https://doi.org/10.1007/s12369-009-0030-6

[2] Liu, L., Stroulia, E., Nikolaidis, I., Miguel-Cruz, A., & Rincon, A. R. (2016). Smart homes and home health monitoring technologies for older adults: A systematic review. International Journal of Medical Informatics, 91, 44–59. https://doi.org/10.1016/j.ijmedinf.2016.04.007

[3] Reddy, S., Fox, J., & Purohit, M. P. (2018b). Artificial intelligence-enabled healthcare delivery. Journal of the Royal Society of Medicine, 112(1), 22–28. https://doi.org/10.1177/0141076818815510

[4] De Freitas, J., Oğuz-Uğuralp, Z., Uğuralp, A. K., & Puntoni, S. (2025). AI companions reduce loneliness. Journal of Consumer Research. https://doi.org/10.1093/jcr/ucaf040

[5] Engelmann, L. (2020). Into the deep - AI and total pathology. Science as Culture, 29(4), 625–629. https://doi.org/10.1080/09505431.2020.1768232

[6] United Nations, *World Population Ageing 2020 Highlights*. New York, NY, USA: UN Dept. of Economic and Social Affairs, 2020. [Online]. Available: https://www.un.org/development/desa/pd/publication/world-population-ageing-2020-highlights/

[7] Vines, J., Pritchard, G., Wright, P., Olivier, P., & Brittain, K. (2015). An Age-Old problem. ACM Transactions on Computer-Human Interaction, 22(1), 1–27. https://doi.org/10.1145/2696867

[8] World Health Organization, "Ageing and health," 2021. [Online]. Available: https://www.who.int/news-room/fact-sheets/detail/ageing-and-health