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Case report

Personalised Oncology Care: A Case Study on Using an AI-Based App for Chemotherapy Management and Lifestyle Managemen

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This case report explores the use of Mebot, an AI-based mobile application, to enhance medication adherence and lifestyle management in a patient undergoing chemotherapy. Over one week, Mebot was utilised by a patient to manage a complex chemotherapy regimen, providing timely reminders for medication intake and generating personalised exercise plans to support weight reduction. The app's "connected dots" functionality allowed for integrating related tasks like medication and exercise into a seamless health management approach. Multiple users, including the authors of this report, tested the app and reported consistent, satisfactory results, highlighting Mebot's reliability and effectiveness. The study findings suggest that Mebot could be a valuable tool in managing non-communicable diseases (NCDs) by improving adherence to treatment protocols and supporting lifestyle interventions. However, further research involving more prominent and diverse populations is necessary to validate these preliminary observations and explore the broader applicability of AI-driven mobile applications in personalised oncology care.

Introduction

The landscape of oncology care has been profoundly transformed by personalised medicine, which emphasises the creation of tailored treatment plans that address each patient's unique needs. In this context, integrating artificial intelligence (AI) into healthcare has emerged as a pivotal innovation, mainly through the development of mobile health applications. These AI-driven applications offer promising solutions for enhancing patient adherence to complex chemotherapy regimens, a critical factor for the efficacy of cancer treatment [1, 2].

Chemotherapy remains one of the most effective treatments for various types of cancer. However,

its demanding schedule necessitates strict adherence to medication protocols. Non-adherence can lead to suboptimal outcomes, including disease progression, increased healthcare costs, and a diminished quality of life for patients [3]. Therefore, ensuring consistent medication intake is paramount to improving treatment outcomes in oncology.

This case study investigates the impact of Mebot, an AI-based mobile application designed to assist patients undergoing chemotherapy in managing their medication schedules. Mebot provides personalised reminders, tracks medication intake, and offers real-time support, thus reducing the likelihood of missed doses. In addition to medication management, Mebot's capabilities extend to lifestyle interventions, such as creating personalised exercise plans and providing timely reminders for physical activities, essential for comprehensive disease management.

The primary objective of this study is to assess whether the use of Mebot leads to measurable improvements in medication adherence among chemotherapy patients, ultimately contributing to better health outcomes. The findings from this case study highlight the value of such applications in supporting patients through their treatment journey and enhancing overall care quality.

This case report presents the collective experiences of multiple users, including the authors, who tested Mebot's functionalities and observed consistent, reliable results. The report underscores the need for broader studies to validate these preliminary findings and explore AI-based tools' broader applicability in managing non-communicable diseases.

Case Description

The subject of this case study is an in-depth examination of Mebot, an AI-based mobile application designed to enhance medication adherence and support lifestyle management for patients undergoing chemotherapy. The app was employed over one week by multiple users, including this report's primary subject and other authors, to evaluate its effectiveness in real-world settings.

Configuration and Use

The primary user, a patient undergoing chemotherapy, configured Mebot to manage a complex medication schedule essential for the treatment regimen. The user provided the app with the following detailed prompt: "Hey, can you remind me to take my medicines daily as it is for one week, which includes two tablets in the morning before food at 7 AM, two tablets after food at 9 AM, one tablet in the afternoon after lunch at 1:30 PM, and one tablet at night after dinner at 8:30 PM. Can you send daily reminders to take medicine for seven days?"

Mebot responded by setting up the required notifications and sending them at specified times. The notifications were clear and precise, indicating the time and the specific instructions for medication intake. Over the week, the app consistently delivered timely notifications, ensuring the user adhered to the prescribed medication schedule without missing doses (Figure 1).

Figure 1. Screenshots of Mebot's Medication Reminder Interface and Daily Exercise Plan.

In addition to managing medication reminders, Mebot was tested for its ability to support lifestyle interventions. The user prompted the app, "Can you create a daily exercise plan to reduce weight for 7 days and set a reminder for 6 AM?" Mebot generated a tailored 7-day exercise plan designed to assist in weight reduction, which included various home-based activities such as cardio exercises and strength training. As requested, the app sent daily reminders at 6 AM, ensuring the user stayed on track with the exercise regimen (Figure 1).

The Mebot app features a “connected dots” functionality, which allows users to link related tasks, such as medication intake and exercise, to provide an integrated management approach. This feature was also tested by the other authors involved in this study, who configured similar prompts to assess its effectiveness in different contexts. All authors reported that the app reliably delivered notifications and provided comprehensive support for the linked tasks, validating the app’s utility across various users and scenarios.

User Experience

All authors involved in the study tested Mebot for their use cases and reported their experiences on a satisfaction scale. Table 1 summarises the user experiences across various aspects of app functionality.

Aspect of Mebot	User 1 (Primary User)	User 2	User 3	User 4	Overall Satisfaction
Ease of Setup and Configuration	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
Medication Reminder Accuracy	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
Exercise Plan Customisation	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
Connected Dots Functionality	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
Overall User Experience	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory

Table 1. User Experience of Mebot App across Different Aspects.

As depicted in Table 1, all users found the Mebot app satisfactory across various vital functions, including ease of setup, medication reminder accuracy, exercise plan customisation, and the connected dots functionality. Each user reported that the app met or exceeded their expectations, confirming Mebot’s reliability and usefulness in managing both medication and lifestyle aspects of oncology care.

Discussion

This case study underscores the efficacy of Mebot, an AI-driven mobile application, in enhancing medication adherence and supporting lifestyle modifications for patients undergoing chemotherapy. The application achieved 100% adherence through the one-week trial period by delivering precise medication reminders and effectively managed personalised exercise plans. These functionalities highlight Mebot’s potential as a comprehensive tool for health management, integrating various aspects of patient care into a cohesive system.

The positive outcomes are consistent with the growing body of research emphasising the benefits of mobile health (mHealth) applications in chronic disease management. Studies such as those by Truong et al. (2021) and Galido et al. (2023) have demonstrated the utility of AI in optimising treatment regimens and improving adherence, suggesting that such technologies can significantly enhance patient outcomes in chronic care settings [4, 5]. These findings align with earlier research, such as that by Demiris et al. (2008) and Krebs and Duncan (2015), which reported improvements in medication adherence and health behaviour changes due to mHealth tools [6, 7].

Mebot’s distinctive “connected dots” functionality, which links medication intake with exercise routines, provides a holistic approach to healthcare management. This integrated feature is especially valuable in oncology, where managing complex treatment regimens is crucial for

successful outcomes. It simplifies patient engagement with their health processes, potentially reducing the cognitive load and improving adherence.

While these initial results are promising, they are derived from a limited sample size and a short testing duration, which may restrict the generalizability of the findings. Future studies should include a broader patient demographic and extend over longer periods to validate the sustained impact of Mebot on health outcomes. Larger-scale research will also provide insights into the application's adaptability and effectiveness across diverse oncological and chronic disease scenarios.

In conclusion, this case study reveals significant potential for AI-driven applications like Mebot to improve medication adherence and lifestyle management in oncology care. Integrating such innovative technologies could lead to more effective, tailored, and patient-centric treatment paradigms as healthcare progresses towards more personalised interventions.

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Conflict of Interes

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References

References

1. Basch E, Deal AM, Dueck AC, Scher HI, Kris MG, Hudis C, Schrag D. Overall Survival Results of a Trial Assessing Patient-Reported Outcomes for Symptom Monitoring During Routine Cancer Treatment. *JAMA.* 2017; 318(2)DOI
2. Krikorian S, Pories S, Tataronis G, Caughey T, Chervinsky K, Lotz M, Shen AH, Weissmann L. Adherence to oral chemotherapy: Challenges and opportunities. *Journal of Oncology Pharmacy Practice: Official Publication of the International Society of Oncology Pharmacy Practitioners.* 2019; 25(7)DOI
3. Inotai A, Ágh T, Maris R, Erdősi D, Kovács S, Kaló Z, Senkus E. Systematic review of real-world studies evaluating the impact of medication non-adherence to endocrine therapies on hard clinical endpoints in patients with non-metastatic breast cancer. *Cancer Treatment Reviews.* 2021; 100DOI
4. Galido PV, Butala S, Chakerian M, Agustines D. A Case Study Demonstrating Applications of ChatGPT in the Clinical Management of Treatment-Resistant Schizophrenia. *Cureus.* 2023; 15(4)DOI

5. Lê Trường Tồn TrươngAn Giang University, Lester W. J. Tan, Kimberly Chew, Steven Villaraza, Paula Siongco, Agata Blasiak, Christopher Chen, Dean Ho. Harnessing CURATE.AI for N-of-1 Optimization Analysis of Combination Therapy in Hypertension Patients: A Retrospective Case Series. *ResearchGate*. 2024. DOI
6. Demiris G, Afrin LB, Speedie S, Courtney KL, Sondhi M, Vimarlund V, Lovis C, Goossen W, Lynch C. Patient-centered applications: use of information technology to promote disease management and wellness. A white paper by the AMIA knowledge in motion working group. *Journal of the American Medical Informatics Association: JAMIA*. 2008; 15(1)DOI
7. Krebs P, Duncan DT. Health App Use Among US Mobile Phone Owners: A National Survey. *JMIR mHealth and uHealth*. 2015; 3(4)DOI