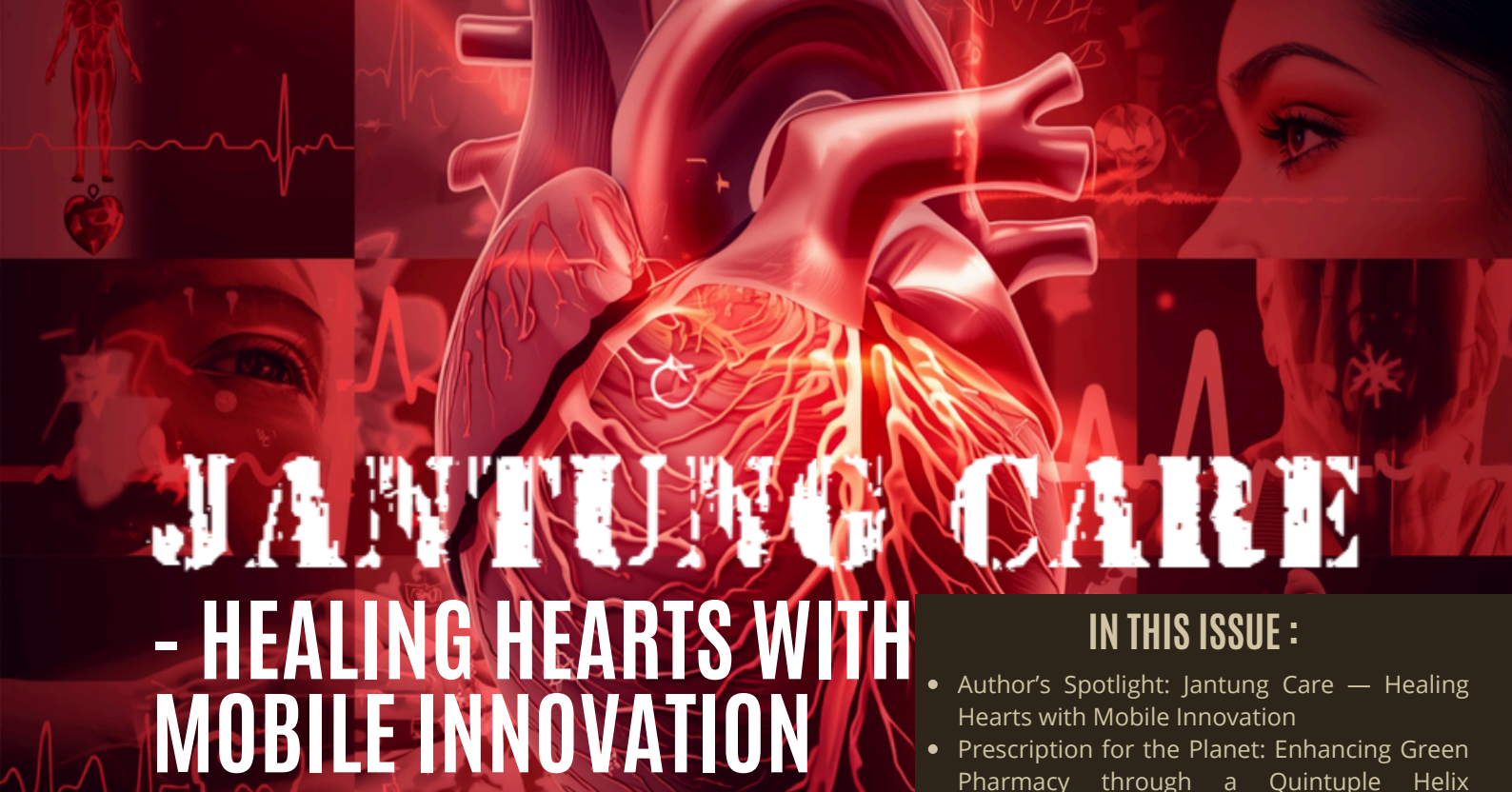


PRESCRIPTION

Latest news and updates from the Faculty of Pharmacy, Universiti Teknologi MARA



JANTUNG CARE - HEALING HEARTS WITH MOBILE INNOVATION

By Assoc. Prof. Dr. Hanis Hanum Zulkifly, Mr. Muhammad Najmie Aliff Kamaruddin, Mdm. Nur Syazwani Taridi, Dr. Raja Ezman Faridz Raja Shariff

In the landscape of 2026, the management of chronic illness has shifted from the clinic to the palm of the patient's hand. For heart failure (HF) patients in Malaysia, the journey post-discharge is often fraught with "continuity of care" gaps. Limited healthcare manpower and physical burnout among providers are significant factors contributing to insufficient follow-up. To bridge this divide, we developed **Jantung Care**, a mobile application specifically tailored to the Malaysian context to foster better self-care maintenance, monitoring, and management.

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WHY CONTEXT MATTERS?



While mHealth solutions are abundant globally, many are developed in high-income countries and are less adaptable to the Malaysian community. Jantung Care was built using the Contextualised Instructional Design (CID) Framework. This ensures that evidence-based recommendations from the Malaysia Clinical Practice Guideline for Heart

Failure 2023, the European Society of Cardiology (ESC), and the American Heart Association (AHA) are translated into a culturally relevant digital format.

FEATURES DESIGNED FOR LIFE

The mobile application serves as a comprehensive digital companion for patients:

Self-Care Maintenance

- Provides guidance on healthy eating, fluid restriction, and physical activity.

Self-Care Monitoring

- Includes easy-to-use logs for daily weight, heart rate, blood pressure and critical "early warning" signs for HF instability.

Self-Care Management

- Offers pharmacological information, helping patients recognize symptoms and respond promptly to health changes.

PROOF OF CONCEPT



Our research evaluated **Jantung Care** mobile application through two rigorous phases to establish its pre-launch quality:

01**Expert Quality Evaluation (MARS).****02****Patient Usability Assessment (MAUQ)**

Expert Quality Evaluation (MARS)

Five healthcare professionals including a cardiologist, medical officers, and pharmacists assessed the mobile application using the Mobile Application Rating Scale (MARS) questionnaire.

**Functionality with a mean score 4.20/5.0****Information Quality with a mean score 3.71/5.0****Subjective Quality with a mean score 2.80/5.0**

- This was the highest-rated category. Experts specifically praised **Jantung Care's** navigation (mean score 4.4) and ease of use (mean score 4.2), indicating a highly reliable technological foundation.

- This domain confirmed the **Jantung Care** provided a high quality of information (mean score 4.2) with clear visual presentation (mean score 3.8).

- This lowest score suggests that while the **Jantung Care** is technically sound, there is room to enhance design flexibility beyond the current readymade prototype.

Patient Usability Assessment (MAUQ)

A cohort of heart failure patients (n=44) evaluated Jantung Care via the mHealth App Usability Questionnaire (MAUQ).



Exceptional Satisfaction

- Usability ratings were positive, with 52.3% rating it as "good" and 43.2% as "very good". Notably, no participants rated the mobile application as poor.



Domain Success

- The highest median scores were found in the "user interface" and "satisfaction" (median score 5.14 respectively), followed by "ease of use" (median score 5.0).



Socioeconomic Insight

- Exploratory analysis revealed a significant association between a patient's income level and their perceived usefulness of **Jantung Care** ($p < 0.05$), suggesting that digital tools may be particularly valued across different economic strata.

ADDRESSING FUTURE CHALLENGES

While the initial reception was positive, the study illuminated the realities of the digital divide in healthcare. A significant finding was the **Jantung Care's** current dependence on internet connectivity; every participant in our usability study noted that the inability to access tools offline is a hurdle for consistent daily monitoring. This feedback is invaluable as we move toward the next iteration of the prototype. Additionally, our initial testing was conducted with a predominantly Malay sample at a single site. To ensure **Jantung Care** is truly a "Malaysian" solution, our upcoming research phases will expand to multi-ethnic cohorts across various healthcare settings.

THE PATH FORWARD

By placing supportive self-care tools directly into the hands of patients, Jantung Care aims to move beyond simple symptom monitoring. This technology is designed with the potential to empower patients in managing their health, with the goal of supporting better clinical stability and personal well-being, one heart at a time.

READER'S QUIZ:

TEST YOUR KNOWLEDGE

01

WHAT IS THE PRIMARY PURPOSE OF THE JANTUNG CARE MOBILE APPLICATION?

Answer: To support self-care practices in heart failure patients by providing tools for maintenance, monitoring, and management tailored to the Malaysian context.

02

WHICH FRAMEWORK GUIDED THE DEVELOPMENT OF THE JANTUNG CARE MOBILE APPLICATION?

Answer: The Contextualised Instructional Design (CID) Framework.

03

IN THE EXPERT QUALITY EVALUATION (MARS), WHICH SUBCATEGORY RECEIVED THE HIGHEST MEAN SCORE?

Answer: The Functionality subcategory, which received a mean score of 4.20

04

PARTICIPANTS IN THE USABILITY STUDY INDICATED THEY COULD EASILY USE JANTUNG CARE WITHOUT AN INTERNET CONNECTION. TRUE OR FALSE?

Answer: False. 100% of participants "Strongly Disagreed" that they could use the app offline, identifying internet reliance as a topic for future improvement.



ABOUT THE AUTHOR



Associate Professor Dr. Hanis Hanum Zulkifly is the Deputy Dean of Academic Affairs and a Senior Lecturer at the Faculty of Pharmacy, Universiti Teknologi MARA (UiTM). She holds a PhD from the University of Birmingham, UK, specialising in anticoagulation control in patients with atrial fibrillation, and a Master's in Clinical Pharmacy from the University of Queensland, Australia.

Her clinical and research expertise focuses on cardiovascular therapeutics, specifically in areas such as heart failure, anticoagulation control, stroke prevention, and thromboembolism. She has authored over 25 Scopus-indexed journal publications and is a frequent invited speaker at national and international conferences on topics like heart failure management and atrial fibrillation.

She is an active member of the European Society of Cardiology (Heart Failure and Stroke Chapters) and leads the Cardiology Therapeutics Research Interest Group at UiTM. In addition to her administrative and research roles, she has supervised over 15 postgraduate students at the Master's and PhD levels.