

Using Two Mobile Apps to Improve Medication Adherence Among Patients with Coronary Heart Disease

Duke University School of Nursing

Zhao Ni

July 21, 2018



Duke University

Heart disease is a big issue!



- Cardiovascular disease is the world's number one killer.

Taking medications matters!



- An important way to treat cardiovascular disease and prevent cardiovascular events is taking cardio-protective medication.

Heart disease is a big issue!



VS

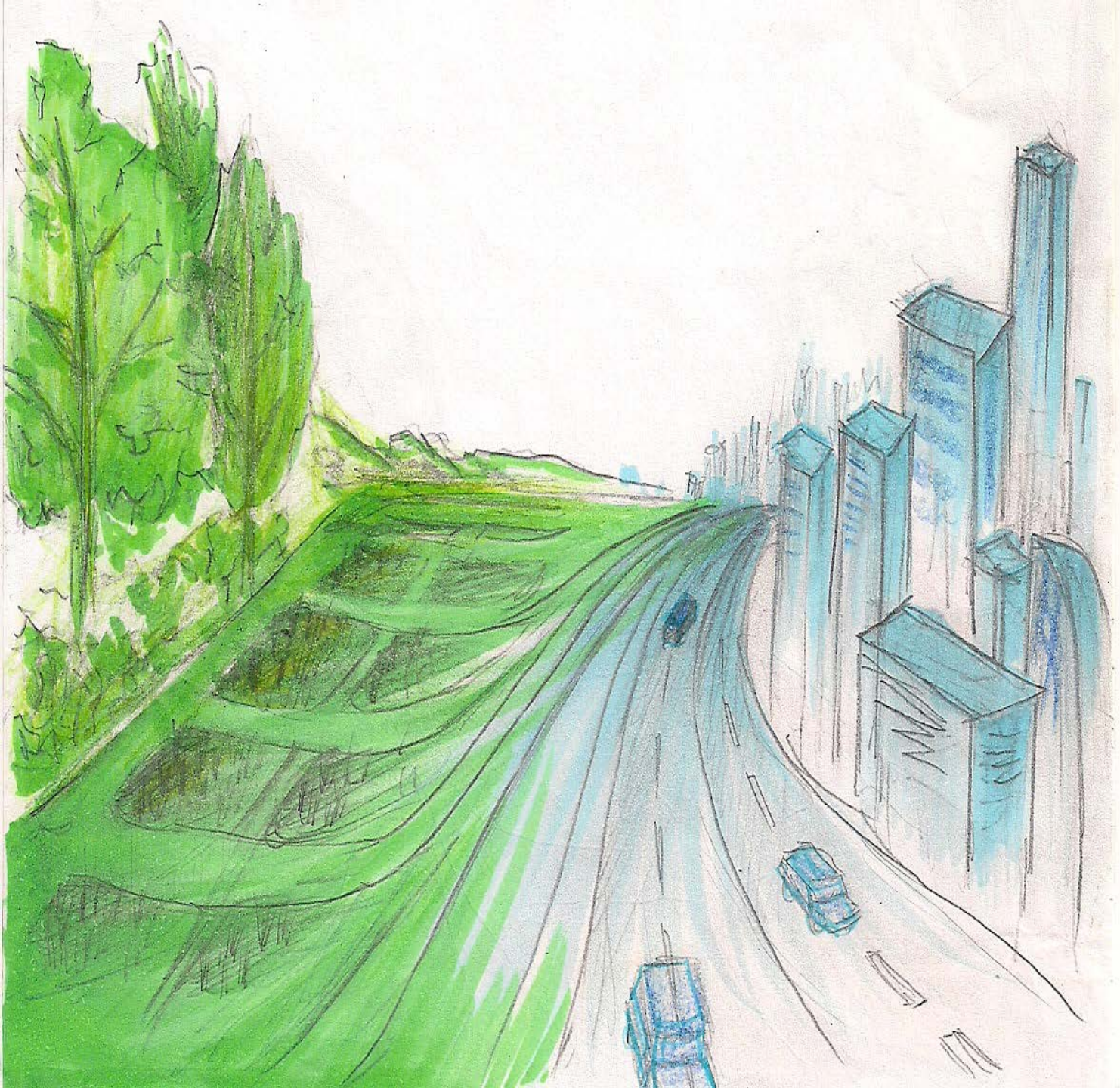
Taking medications matters!



- However, poor adherence to cardio-protective medications is a public health issue in China.



- This geographical barrier increases costs and inconvenience for patients.



- In China over 80% of medical institutions are concentrated in cities.
- Seeing a health care provider is a time consuming process for people living in rural areas.

- One proposed solution is to use mobile technology (mHealth) to increase access to care and care delivery for patients.



■ A systematic review on medication adherence among patients with coronary heart disease in China

Cardio-Protective Medication Adherence among Patients with Coronary Heart Disease in China: A Systematic Review

ZHAO NI

School of Nursing, Duke University, NC, U.S.A

LATEFA DARDAS

School of Nursing, University of Jordan, Amman, Jordan

BEI WU

Rory Meyers College of Nursing, New York University, NY, U.S.A

RYAN JEFFREY SHAW*

School of Nursing, Duke University, NC, U.S.A

* Corresponding author Email: ryan.shaw@duke.edu

Acknowledgements

We thank Jamie Conklin, who is Research & Education Librarian at Duke University Medical Center Library, for assistance in building the combination of index and search terms.

Introduction

Coronary heart disease (CHD) is the second leading cause of death in China (World Health Organization, 2015; Zhang et al., 2008) leading to 1.5 million deaths each year (World Health Organization, 2015). Cardio-protective medications, including antiplatelet drugs, beta-blockers, statins, and angiotensin-converting enzyme inhibitors, are an essential treatment modality for CHD (National Institutes of Health, 2016) and can significantly reduce the mortality rate of this disease (Hamm et al., 2011; Ho et al., 2009; Jin et al., 2014; Menzin et al., 2008; Zhang et al., 2015; Du et al., 2017). However, poor adherence to cardio-protective medications is a public health threat in China (Bi et al., 2009; Jiang, J. et al., 2012) **as adherence rate to statins after discharge from hospital among Chinese patients with a history of acute coronary syndrome has been found to be as low as 56.3%** (Jiang J. et al., 2012). A deeper understanding of the interplay of factors related to adherence to cardio-protective medications among the Chinese population is needed in order to develop interventions that will appropriately target this phenomenon (Martin et al., 2005; Jimmy, B. & Jose, J., 2011). Therefore, the purpose of this systematic review is to describe and synthesize factors that influence medication adherence among Chinese people with CHD and to describe interventions to improve their medication adherence.

Methods

Search Strategy

We chose the databases PubMed, the Cumulative Index for Nursing and Allied Health Literature (CINAHL), Embase, Scopus, Global Health, and PSYCINFO as primary data sources for this review, as together they provide a comprehensive coverage of research in health-related disciplines. Two authors (ZN and LD) searched each database using key words and algorithms

Findings

- We organized our findings with three core themes:
 - ◇ (1) Patients lack of knowledge as barrier to medication adherence;
 - ◇ (2) Demographic, health, and medication characteristics influencing adherence;
 - ◇ (3) Interventions to improve medication adherence vary in methods, but education and reminders are the two core elements.

Findings

■ (2) Demographic, health, and medication characteristics influencing adherence

◆ Demographic influencing adherence

Age (≥ 65), Gender, Education, Income

◆ Health influencing adherence

Comorbidity, Discharge, Adverse effects

◆ Medication characteristics influencing adherence

Number of discharge medications, Medication cost/Insurance

Findings

■ (3) Interventions to improve medication adherence

- ◆ Follow-up phone call
- ◆ Booklet
- ◆ Medication memo card
- ◆ Short message service
- ◆ Mobile app
- ◆ Educational session/ individual face-to-face education

WeChat



BB Reminder





Methods

- RCT (N=50) and phone-call interviews (n=10).
- All participants received the same educational materials via WeChat every five days.
- Participants in the experimental group (n=25) received daily medication-taking reminders. These reminders were sent through BB Reminder.
- Duration: 30 days for each participant.
- The research team compared the medication adherence scores, which were collected at baseline enrollment and days 15 and 30 post-baseline, between the intervention group and control group.

Findings

- (1) mHealth intervention improved medication adherence total scores better over the 30-day period when compared to the control intervention;
- (2) Fifty patients enrolled, 72% of them completed the study and responded over time;
- (3) All interviewees indicated the reminders improved their medication adherence.

Conclusion

- (1) The feasibility of using mHealth in China to remind CHD patients to take their medications is high.
- (2) mHealth intervention can improve medication adherence among patients with coronary heart disease.
- (3) A larger scale study should be done to evaluate the efficacy of using mHealth to improve health outcomes, including blood pressure and heart rate.

Thank you!

- Zhao Ni, BMedSci, BSN, RN
- PhD student, Duke University
- Zhao's research focus is using mobile technology to help CVD patients improve their health
- Email: zn7@duke.edu

