

Background

Hypertension is a leading modifiable risk factors for cardiovascular disease, which is the leading cause of death worldwide. Prevention and management of hypertension in low- and middle-income countries (LMICs) is inadequate due to multiple factors including the lack of resources, knowledge, and awareness. Mobile health (mHealth) technology has shown promise in lowering blood pressure in clinical trials, but a comprehensive review of these studies is still needed.

Study Aims

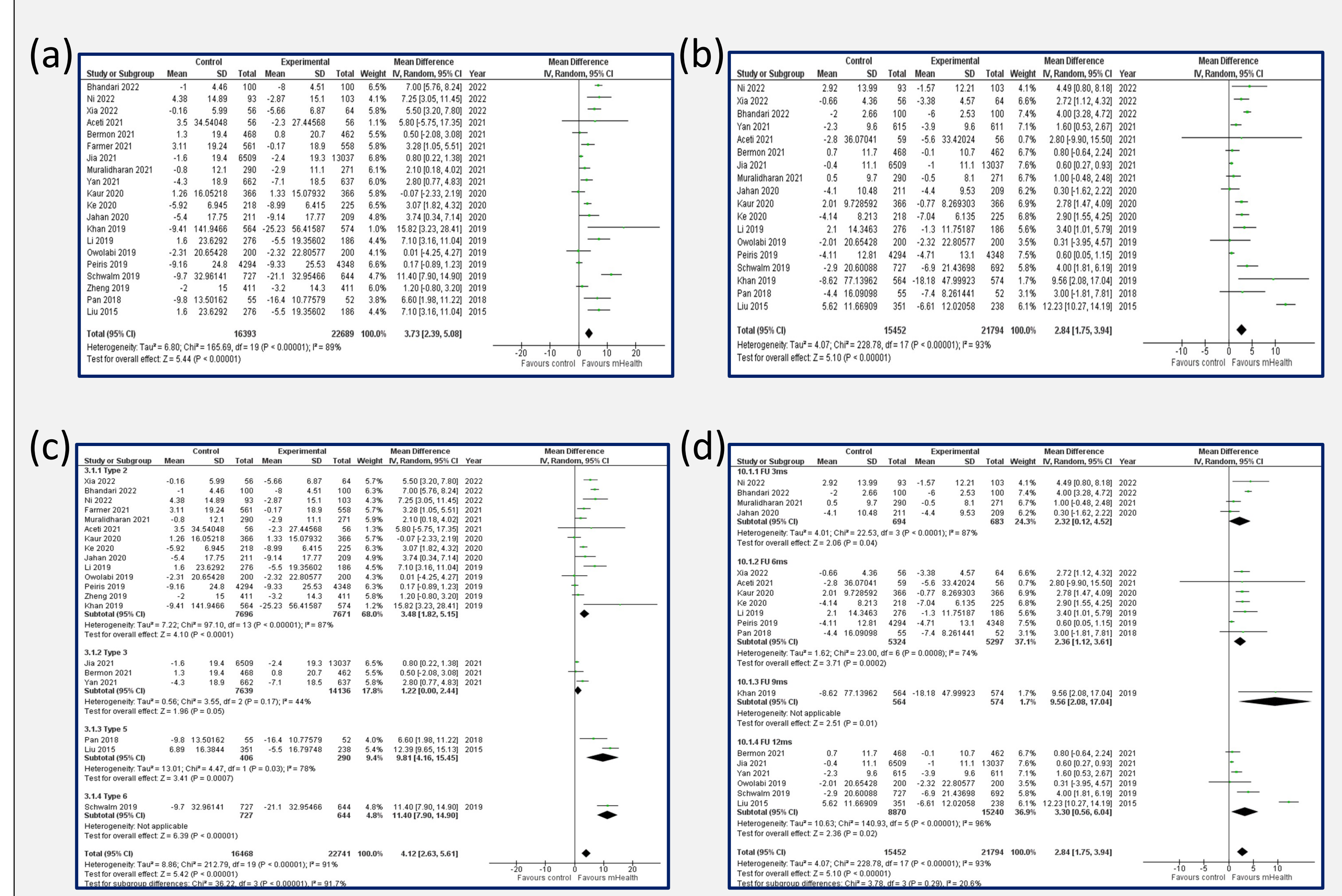
We are aimed to assess the effectiveness of digital health interventions in reducing high blood pressure among adult patients in LMICs.

Design and Methods

For the report identification, Duke University librarians systematically searched PubMed, Embase, and Web of Science.

Seven researchers independently extracted and assessed literature quality based on inclusion and exclusion criteria, followed by meta-analysis and systematic review.

Results



A total of 20 studies with 39,082 participants were included. All studies provided systolic blood pressure (SBP) and diastolic blood pressure (DBP) data.

Meta-analysis showed significant decreases in both SBP and DBP in the mobile healthcare intervention group compared to the control group, with reductions of 3.73 mmHg (P<0.001; 95% CI: 2.39 to 5.08) (Fig. a) and 2.84 mmHg (P<0.001; 95%CI: 1.75 to 3.94) (Fig. b), respectively.

Subgroup analysis suggested mHealth communication between institutions and individuals was more effective in lowering BP than communication between medical staff only. (Fig. c).

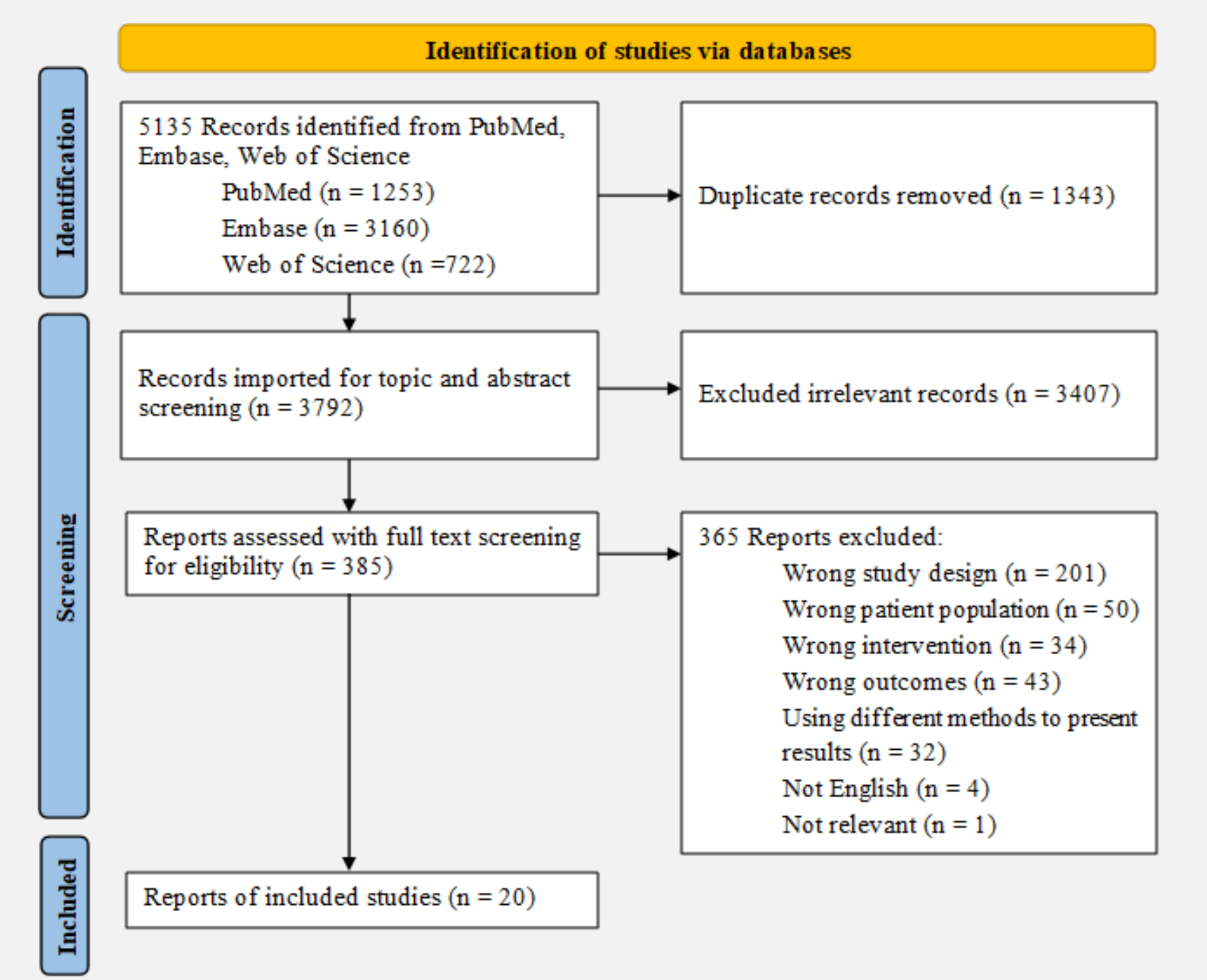
Blood pressure monitoring at 3, 6, 9, and 12 months post-mHealth showed continued effectiveness (Fig. d).

Conclusion

This study found that mHealth is effective in controlling systolic and diastolic blood pressure among adult population in LMICs.

Future Implications

Future efforts should prioritize the integration of mHealth into healthcare systems and explore ways to improve the accessibility and affordability of mHealth interventions for underserved populations.



1. Schutte, A. E., Srinivasapura Venkateshmurthy, N., Mohan, S., & Prabhakaran, D. (2021). Hypertension in low-and middle-income countries. *Circulation research*, 128(7), 808-826.
2. Beratarrechea, A., Lee, A. G., Willner, J. M., Jahangir, E., Ciapponi, A., & Rubinstein, A. (2014). The impact of mobile health interventions on chronic disease outcomes in developing countries: a systematic review. *Telemedicine and e-Health*, 20(1), 75-82.