A GACD Implementation Science e-Hub Case Study

GISMAL Initiative: mHealth Intervention for Cardiometabolic Risk Reduction in Latin America

This case study was developed based on the work of

GISMAL (Grupo de Investigación en Salud Móvil en America Latina)

Project team members

Adolfo Rubinstein, J Jaime Miranda, Andrea Beratarrechea, Francisco Diez-Canseco, Vilma Irazola, Antonio Bernabé-Ortiz, and Manuel Ramirez-Zea

Case study summary

The GISMAL (Grupo de Investigación en Salud Móvil en América Latina) initiative in Latin America implemented a mobile health (mHealth) intervention targeting adults with prehypertension. This intervention combined motivational interviewing phone calls and SMS text messaging to encourage healthier lifestyle behaviours, aiming to reduce the risk of cardiovascular disease (CVD) in low-resource urban settings across Argentina, Guatemala, and Peru.

Although the intervention did not result in statistically significant reductions in blood pressure, it demonstrated a dose-response relationship for body weight and BMI reductions. Participants who received over 75% of scheduled calls exhibited sustained improvements in these metrics up to five years post-intervention, highlighting the long-term potential of mHealth approaches in resource-limited environments.

Identification and characterisation of implementation issues

Healthcare challenge: Prehypertension is a precursor to hypertension and a significant contributor to global CVD burden, especially in low-resource settings. Conventional interventions often fail to address the systemic barriers to behavioural change, such as limited access to healthcare and education about risk factors.

Systemic issues: The implementation of lifestyle interventions in low- and middle-income countries (LMICs) faces challenges, including infrastructure constraints, variable participant engagement, and low baseline readiness to adopt healthier behaviours.

Selection, adaptation, and application of implementation strategies

Mobile-based health promotion: The GISMAL initiative used motivational phone calls and personalised SMS messaging to promote dietary improvements, physical activity, and reduced intake of high-fat and high-sugar foods. Messages were culturally adapted for each country and delivered weekly over 12 months, with content informed by validated behavioural change models such as the transtheoretical model and the health belief model.

Dose-response adaptation: Participants who engaged more intensively with the intervention (e.g., receiving at least 75% of phone calls) experienced greater improvements in weight-related outcomes, demonstrating the importance of sustained engagement.

Development and delivery of the stakeholder engagement strategy

Collaborative framework: The program was implemented in collaboration with local healthcare providers, nutritionists, and researchers in each country, ensuring relevance to community-specific needs.

Community involvement: The design phase included focus groups and pilot testing to adapt the intervention to local cultural and technological contexts. This approach fostered participant trust and increased program feasibility.

Evaluating implementation

Methodological framework: The program was evaluated through a randomised controlled trial across three countries, followed by a five-year post-intervention analysis in Peru to assess long-term outcomes.

Impact assessment: At one year, the intervention group demonstrated a significant reduction in body weight (-0.66 kg) and improved dietary habits compared to controls. These effects persisted in Peru, where a follow-up study observed a mean weight reduction of -5.42 kg and BMI decrease of -2.56 kg/m² among high-engagement participants.

Results and key findings

Weight and BMI reductions: The intervention led to sustained decreases in body weight and BMI, particularly among participants who engaged with a majority of the program.

Behavioural outcomes: While no significant changes were observed in physical activity or fruit and vegetable intake, participants reported reduced consumption of high-fat and high-sugar foods.

Strength and Limitations

Strengths

- Culturally tailored messaging enhanced participant engagement.
- Use of low-cost, scalable mHealth technologies demonstrated feasibility in resource-limited settings.

Limitations

- Limited effects on blood pressure outcomes.
- Challenges in maintaining participant engagement across the intervention period.

Success factors and challenges

Success factors: The intervention's strength lay in its integration of evidence-based behavioural models, robust community engagement, and adaptability to diverse cultural contexts.

Challenges: Participant retention and ensuring sustained intervention adherence were significant challenges, especially in the face of competing priorities in low-resource settings.

Next steps

Scale-up **and policy integration:** Future initiatives will focus on refining intervention components to enhance blood pressure outcomes and integrating mHealth strategies into broader CVD prevention policies across LMICs.

Long-term sustainability: Efforts will aim to identify cost-effective pathways for scaling and sustaining mHealth interventions, leveraging lessons learned from the GISMAL initiative.

References

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Key learning objectives

1. Learn how the GISMAL initiative designed and implemented a culturally tailored mHealth intervention to promote lifestyle modifications for cardiometabolic risk reduction in resource-constrained settings.
2. Examine the systemic barriers to behaviour change, such as participant engagement, infrastructure limitations, and cultural diversity, and analyse how these were addressed, including arranging the timing of calls with participants and ensuring flexibility to improve acceptability and continuity of the intervention.
3. Gain insights into evaluating mHealth interventions' effectiveness using randomized controlled trials and long-term follow-up, while assessing potential pathways for scaling and sustaining such programs to influence policy and public health outcomes in LMICs.