

Code to Community: Identifying themes for an initial beta version of a mobile health app for Latino and Native Hawaiian and Pacific Islander communities

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Abstract

Through a co-design and community-based participatory approach with Latino and NHPI communities, we identified key themes for an initial beta version of a mHealth app, including priorities around mental health, access to resources, and chronic disease prevention. Social and cultural connectedness and generational approaches emerged as important strategies for successful intervention design and long-term adoption.

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Original Manuscript

Research Letter

Code to Community: Identifying themes for an initial beta version of a mobile health app for Latino and Native Hawaiian and Pacific Islander communities

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Key Words: community co-design; CBPR; mobile health; mHealth

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Abstract

Through a co-design and community-based participatory approach with Latino and NHPI communities, we identified key themes for an initial beta version of a mHealth app, including priorities around mental health, access to resources, and chronic disease prevention. Social and cultural connectedness and generational approaches emerged as important strategies for successful intervention design and long-term adoption.

Introduction

The adoption of innovation has become increasingly important, driven by the post-pandemic growing use of technology for wellness and healthcare.¹ New social norms and attitudes, and new patterns of behavior impact health and participation in health behavior interventions. Some of the fastest growing minority populations in the U.S., including Latinos and Native Hawaiian Pacific Islanders (NHPI)², experienced exacerbated health disparities. Heart disease, cancer, and diabetes are leading causes of death for Latinos and NHPs, and both populations have high rates of obesity.³ While stigma of mental health has seen reduction in recent years,⁴ Latinos and NHPs continue to be less likely to receive mental health services.³

Formative research is essential to informing culturally tailored and innovative strategies that can help to reduce health disparities and address timely community priorities. Preliminary analysis of the PIC Health study data will inform the first phase of developing the beta version of a mHealth app. With this first beta version, we can further collect more detailed feedback on the app acceptability, feasibility, and general design from community leaders, members, and other stakeholders. The objective of this study is to identify community priorities and general themes to begin building an initial beta version of a mHealth app.

Methods

Through a co-design and community based participatory research (CBPR) approach, we partnered with Latino and NHPI communities to conduct key informant interviews, focus groups and community stakeholder meetings. Divided equally across Latino and NHPI groups, there were a total of 12 key informant interviews, 4 focus groups, and 2 community meetings. Participants who identified as Latino were primarily of Mexican origin and NHPI participants largely included Samoan, Native Hawaiian, and Chamorro community members. All participants resided in North County San Diego, CA and were 18 years old or over.

Interviews from key informants and focus groups were audio-taped, transcribed, and uploaded into ATLAS.ti software for qualitative coding and analysis. At least two research team members coded, verified, and extracted themes from the interview and focus group transcripts. Transcripts were analyzed using directed content analysis (DCA) to identify and categorize meaningful information about participants' opinions, perceptions and experiences.⁵ Coding strategies included the selection of responses for emergent themes and a priori categories.⁶ Verification of emergent themes were further examined through team discussions and the coding framework. Once themes were identified, the research team worked with a senior software engineer and computer science students to design a Progressive Web Application (PWA) as an initial mHealth app beta version. Research was approved by the CSU San Marcos Institutional Review Board.

Results

Across all participants, three major themes were identified for community health priorities:

(1) mental health, (2) access to resources and health education, and (3) attention to chronic disease prevention (e.g., diabetes, cancer, heart disease). Latino participants emphasized access to health resources and NHPI participants emphasized mental health. In response to questions about improving intervention success, both communities identified two major themes: (1) social and cultural connectedness and (2) attention to generational approaches. For the latter, Latinos identified a need for intergenerational strategies (interactions across generations), while some NHPI participants mentioned multigenerational strategies (tailoring to specific generations); Table 1. Based on community stakeholder meetings, theme prioritization, and adaptability to different cultures, the initial mHealth app beta version was created in PWA format and included the following components: social connectedness (calendar), cultural connection (design, language, and culturally tailored resources), and separate tabs for community resources (health, education, and a combined section for culture, arts, and language); Figure 1.

Discussion

Our research identified major themes from qualitative data that translated into components of a mHealth app beta version, designed for the Latino and NHPI community. The themes identified in the preliminary analysis for community health priorities include mental health, access to resources, and chronic disease prevention. Themes surrounding intervention success included social and cultural connectedness and generational approaches. While many themes overlapped between the Latino and NHPI community, cultural details and tailoring would differ.

The initial beta version incorporates both communities; however, future work may lead to the need for separate mHealth applications or other advanced strategies to tailor information in real-time, such as use of artificial intelligence (AI) to populate appropriate resources, although challenges of AI in mHealth must be addressed.⁷ The initial beta version allows us to seek further community insights and collaboration for co-designing a final mHealth app for beta testing. Overall, to address health equity, co-design and CBPR approaches with the communities who benefit are essential for adoption of new technology and greater mHealth intervention success.

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Conflict of Interest

None declared.

Abbreviations

AI: artificial intelligence

CBPR: community-based participatory research
CSUSM: California State University San Marcos
DCA: directed content analysis
mHealth: mobile health
NHPI: Native Hawaiian and Pacific Islander
PIC Health: Pacific Islander Community Health (Elige Salud)
PWA: progressive web application

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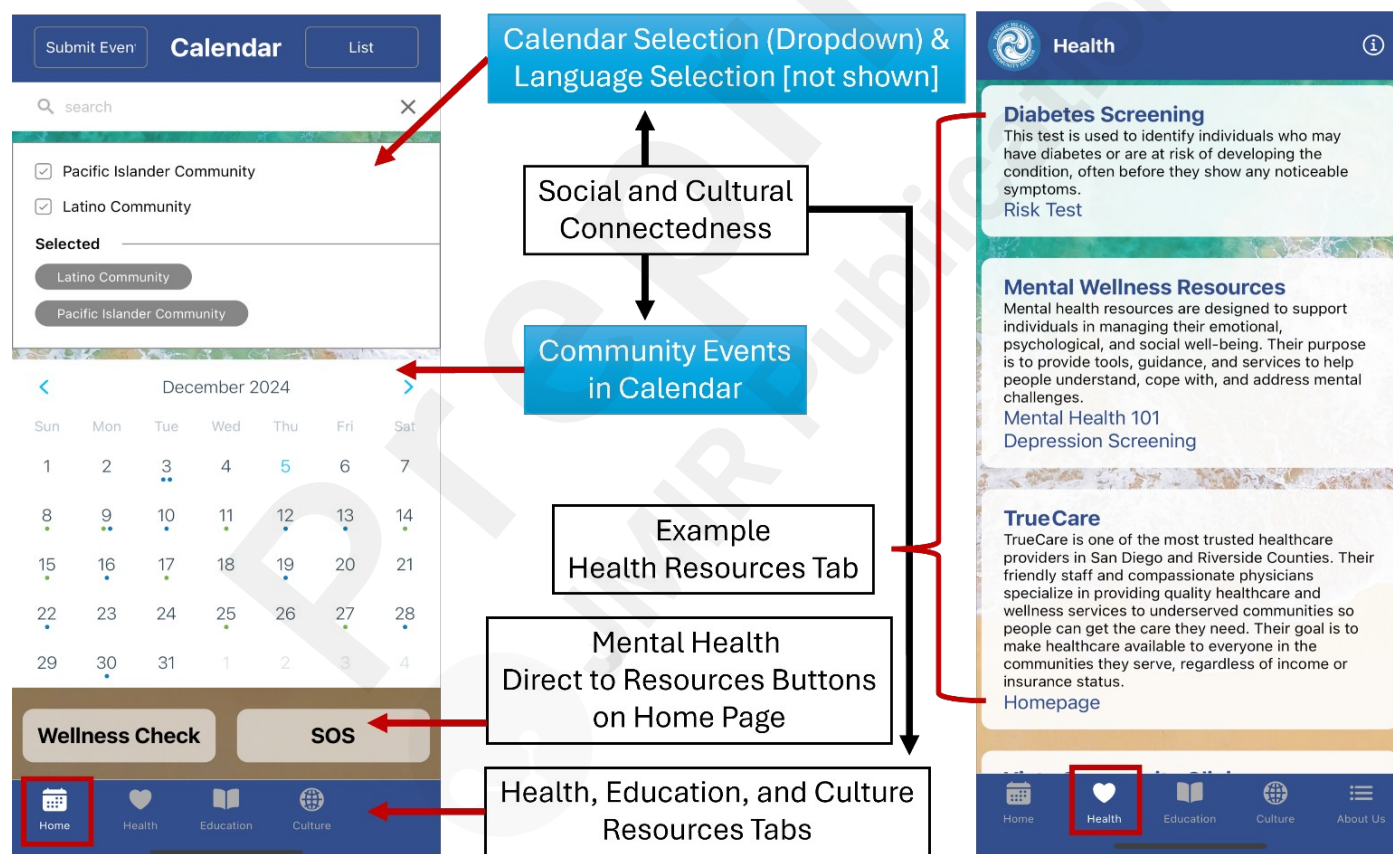
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- 8.

Table 1. Themes, definitions, and participant quote examples.

Theme	Definition Participant describes...	Example
Community Priorities		
Mental Health	Psychological and emotional well-being; mental health	"...when I'm thinking about the young people that we've worked with is, um, mental health and access to mental health." – NHPI Participant "Also, I feel like there's just like a stigma with like mental health, you know, sometimes with the community, with like behavioral health and stuff like that..." – Latino Participant
Access to Health Resources	Need for access to health services or the options to improve services approach; Not only the first access also continuous service.	"If we just had access to education or if we just had better trust with some of these things – [family member] would not have passed away." – NHPI Participant "It's still a lack of access. Just a lack of knowledge of what, like, what services are out there." – Latino Participant
Chronic Disease Prevention	Diseases or conditions like hypertension, diabetes, obesity, and other chronic diseases; could be mentioned as underlying conditions.	"I see a lot of diabetes related complications." – Latino Participant "I would say they struggle with like obesity and diabetes and gout heart disease are the big ones." – NHPI Participant
Intervention Success		
Social & Cultural Connectedness	Specific ways to connect to culture; cultural protocol.	"Definitely reminding people, at least on the Latino side for me with my family, like that connection back to a little more of like our roots and more like, because real, traditional, healthy, organic Mexican food, it's not bad. It's all the additional everything that we end up with, particularly in the US." – Latino Participant "I love it when I see... programs where they can connect to traditions ... You know this is what our ancestors did, and this is why they did it, or this was their philosophy, like I love it when they can take something that's you know... contemporary. You know, but still

		connecting it to the past." – NHPI Participant
Generational Approaches	a.	And I think I'd agree with that really having the younger generation, you know...They're the ones that are being exposed to... nutrition classes in school... and really encouraging students to go home and share this with your parents. Go home and share this with... mom and dad or grandma and grandpa. – Latino Participant
Intergenerational	b.	
Multigenerational		
		"...If you had exclusively for that age group meeting. I don't think putting them all together in a forum would be the ideal. – NHPI Participant

Figure 1. Mobile application components and theme alignment.



Supplementary Files

Figures

Mobile application components and theme alignment.

