Title:
Mobile App to Prevent Depression in the Dominican Republic: Sociocultural Adaptations and International Collaborations

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Session Title:
Enhancing Patient Care With the Use of Technology

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Scheduled Time:
11:15 AM

Keywords:
Dominican Republic, global mental health and mHealth

References:


Abstract Summary:
This presentation will discuss preliminary findings on a mobile application adaptation to provide preventative cognitive behavioral strategies for Dominican primary care patients with symptoms of depression. Attendees will be able to identify opportunities and challenges, including sociocultural and linguistic considerations, in leveraging mobile technologies for public health in low-resource settings.

**Learning Activity:**

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<tr>
<th>LEARNING OBJECTIVES</th>
<th>EXPANDED CONTENT OUTLINE</th>
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<tr>
<td>Explain the rationale for the development of a mobile application intervention to prevent depression among primary care patients in the Dominican Republic.</td>
<td>1. Mental health beliefs and stigma in the Dominican Republic. 2. Effects of limited mental health infrastructure in the Dominican Republic 3. Potential of technology-based interventions to improve mental health care in low-resource settings.</td>
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<tr>
<td>Describe five sociocultural and linguistic considerations in adapting an evidence-based therapy for use in a mobile phone application to prevent depression among Dominican primary care patients.</td>
<td>1. Develop collaborative relationships 2. Build upon existing strengths and incorporate cultural values 3. Personalize – Provide examples that people can identify with, build-in familiarity, including linguistic adaptations 4. Don’t challenge core beliefs that intervention is designed to change 5. Opposites attract – incorporate core beliefs simultaneously with evidence-based messaging.</td>
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**Abstract Text:**

**Purpose:** Globally, depression is among the most significant contributors to burden of disease (Whiteford et al., 2013). The rapid increase of mobile phone use in low-and-middle income countries provides an opportunity to leverage technology-based interventions to improve global health (mHealth) (World Health Organization (WHO), 2011). This study builds on previous research and ongoing collaboration with the Dominican Ministry of Public Health on mental health stigma and mental health service needs in the Dominican Republic (DR), which found unmet mental health care service needs, particularly in terms of access to care, affordability of treatment, and stigma (Caplan, Little, Reyna, Sosa Lovera, Garces-King, Queen, & Nahar, 2016). Nearly 85 percent of the population in the DR has cell phones (WHO, 2011), thus mHealth is a feasible alternative to address some limitations of face-to-face mental health service delivery. However, research is needed about methods to socioculturally adapt mHealth interventions for mental health in low-resource settings (Farrington, Aristidou, & Ruggeri, 2014), specifically in terms of incorporating voice in mHealth and the many ramifications of the use of voice. We report on findings related to the sociocultural adaptation of an evidence-based face-to-face cognitive behavioral therapy (CBT) delivered through a mobile application (app) to treat depression among Dominican patients.

**Methods:** With ongoing collaboration with mental health professionals in the DR and the United States, the face-to-face CBT program was modified for use in the app. Modifications were designed to compensate for the absence of therapist/patient live interaction by incorporating daily salutations and dichos (short parables or instructive comments. These modifications were piloted among a convenience sample of 24 interview participants (14 patients and 10 clinic staff in different capacities). The validated Spanish language Patient Health Questionnaire (PHQ-9), a depression measure was administered to patients and clinic staff in a primary care clinic in Santo Domingo, DR to identify a purposive sample of subgroup of respondents who had symptoms of depression. All three interviewers were Spanish-


speakers with substantial experience working with Dominican populations; one was trained in psychology and from the DR. Semi-structured individual interviews were used to assess demographics, mental and physical health, use of mental health care, and use of mobile phones and applications for health behaviors. Participants offered structured feedback on the content of the sample messages, their voice gender preferences (woman vs. man), and emotional resonance with their mental health needs. Additionally, participants provided feedback on the length, wording, clarity, and comprehension of the audio messages. Qualitative interview questions were iteratively changed as participant perspectives contributed new areas of inquiry, such as questions about safety concerns in publicly using a cellphone in the DR. Survey data were reviewed and systematically analyzed by the investigators using descriptive techniques. Our study was approved by the Rutgers Institutional Review Board.

Results: Most participants had a mean age of 37 years and were women (n=17). One-fourth of all participants scored at least “moderate” depression symptoms. Some patient participants and a few clinic staff disclosed mental health challenges, and a limited subset reported previous use of mental health resources, including face-to-face therapy. Overwhelmingly, participants preferred in-person therapy over medications. Early all participants had cell phones, predominantly smart phones, and almost all reported interest in mobile application therapy due to its convenience, privacy, and affordability. Regarding mobile application features, most participants reported a preference for the female voice because they perceived a woman’s voice to be more calming and reassuring than a man’s voice, who was perceived as more emotionally detached. Almost all participants responded that the sample of audio messages could be helpful to manage life stress. Both patient and clinic staff participants found the recording on meditation to be relaxing but expressed concern about the culturally-implied religiosity of the word “meditation,” and proposed a substitute word, “relaxation.” Most participants preferred informal salutations in the messages, and said that they would like to receive cell phone messages multiple times daily or weekly. There were differences between patient and medical doctors (a subset of the clinic staff) as to the appropriateness of some of the recommended treatment strategies. Specifically, doctors felt that the use of humor in one of the audio messages would be ineffective, which was a reflection of provider conceptions of patients with depression as being incapable of responding to humor. Patient participants were in general interested in and responsive to the humor message. Lastly, a number of modifications that were suggested by participants were incorporated into the final contents of the app.

Conclusion: Our findings from participants in a low-resource clinic in urban DR reveal strong enthusiasm for using a mobile application to provide preventative cognitive behavioral strategies for symptoms of depression. Participant feedback informed the further sociocultural and linguistic adaptation of the mobile app. The subsequent proof-of-concept study will be conducted in spring 2017 to assess acceptance, feasibility, perceived helpfulness, and preliminary depression outcomes among Dominican primary care patients. Study findings address gaps in the literature pertaining to specific qualitative aspects of voice-based mHealth interventions and the methodology of sociocultural adaptation of mHealth mental health interventions (Farrington, Aristidou, & Ruggeri, 2014) across diverse settings and target groups (WHO, 2011), particularly in Latin America (Janevic et al., 2016).