

Abstract

Effectiveness and Implementation of a Text Messaging Intervention to Reduce Depression and Anxiety Symptoms Among Latinx and White Adults During the COVID-19 Pandemic

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Abstract

Background: SMS text messaging interventions are increasingly being used to help people manage mental health symptoms due to the COVID-19 pandemic. Despite the widespread adoption of SMS text messaging interventions, little is known about racial and ethnic differences in effectiveness, feasibility, and implementation factors.

Objective: A hybrid type 1 mixed-methods study was conducted to compare the effectiveness and implementation of the StayWell intervention for Latinx and non-Latinx White (White) adults using elements of the RE-AIM framework.

Methods: Adults using the StayWell intervention received daily mood inquiries and skills-based text messages for 60 days and reported symptoms via online surveys and the HealthySMS portal. Reach was assessed by the share of adults reached via distinct recruitment methods, and effectiveness was evaluated using the Personal Health Questionnaire (PHQ-8) depression scale and General Anxiety Disorder (GAD-7) scale. Adoption was assessed with user engagement, defined as the share of responses to the (60) daily mood inquiries. Implementation was evaluated based on user feedback on the number/timing of messages, the difficulty of using the program, and the System Usability Scale. Maintenance was assessed with user reports of the likelihood of continuing and recommending the program. Quantitative RE-AIM indicators were assessed using a *t* test for continuous outcomes and a chi-square test for categorical outcomes. Mixed-effects linear regressions examined heterogeneity among Latinx and White users in the outcomes' (ie, PHQ-8 and GAD-7) changes over time. A thematic text analysis of responses to an open-ended question about participant experiences of the program was conducted to help contextualize differences in the effectiveness and implementation of StayWell between Latinx and White users.

Results: Among 398 users, 262 (65.8%) responded to the postintervention assessment. Upon completion, depressive (-1.48 ; $P=.001$) and anxiety (-1.38 ; $P=.001$) symptoms decreased among all users. Compared to White adults, Latinx adults reported an additional -1.45 ($P<.05$) decline in PHQ-8 scores, adjusting for demographics, recruitment sample, and engagement. Among Latinx adults, StayWell resulted in a greater improvement of depression symptoms (25.8% vs 13.8% reduction; $P=.02$) but not in anxiety symptoms (21.2% vs 15.9% reduction; $P=.23$). Despite Latinx adults reporting lower usability (76.8 vs 83.9; $P=.001$) than White adults, they were more likely to report interest in continuing the program (7.5 vs 6.2; $P=.001$) and recommend StayWell to a family member or friend (7.8 vs 7.0; $P=.013$). Repetitive content was a critical barrier to engaging Latinx adults in StayWell; among Latinx adults, support groups and bidirectional messages were considered important program modifications.

Conclusions: Although anxiety and depressive symptoms decreased among all StayWell users after receiving 2 messages daily for 60 days, Latinx users experienced greater reductions in depression symptoms compared to White users. Bidirectional text messaging using contextual information and ecological momentary analysis of mood data are promising adaptations to enable the tailoring of messages and improved usability of StayWell, which may be especially effective in improving Latinx user engagement.

Trial Registration: ClinicalTrials.gov NCT04473599; <https://clinicaltrials.gov/ct2/show/NCT04473599>

Conflicts of Interest: None declared.

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KEYWORDS

hybrid design; mental health; text messaging intervention; depression; anxiety; effectiveness; implementation

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