Mobile Mental Health Apps for Suicide Prevention

NCT number: NCT04536935

Document Date: 08/21/2020

Purpose. Access to mental health care by essential workers and the unemployed during the COVID19 pandemic has been challenging. Usual access to mental health care is limited by social distancing, and for many now unemployed due to closures of businesses, insurance is insufficient to cover the costs of mental health care. For these individuals who are at risk for suicide (isolation, unemployment, financial crisis plus past suicide attempts, significant mental health challenges), access to care is crucial and many maybe turning to online and accessible interventions, such as mental health apps and other online resources. Indeed, organizations such as the VA have already created free access mobile applications for mental health in anticipation of this need. Using Psyberguide, we will identify the top ten free apps that address mental health issues and conduct a nation-wide evaluation of these apps with participants who are essential workers and unemployed with risk for suicide. Participants will first be surveyed about which strategies they have used to manage mental health issues, what apps and online tools they have used, and what usability challenges they have faced. We will then ask a random sample of participants to engage in a randomized trial of these top-rated apps for 4 weeks. Apps will be rated on usability, acceptability, feasibility and effectiveness. Results from this trial will be quickly disseminated through several avenues: (1) the UWAC website and ALACRITY Centers network; (2) through CREATIV Lab's partnership with Mental Health America; (3) through the UW Center for Suicide Prevention and Recovery (CSPAR) and partnerships with other suicide focused organizations including Forefront, the American Foundation for Suicide Prevention, that American Association of Suicidology, the Rocky Mountain MIRECC, and the Defense Suicide Prevention Office and (4) through local partnership with King County and WA state contact tracers.

Aim 1: To determine the acceptability, feasibility, usability and effectiveness of mobile mental health apps for addressing risk factors associated with suicide risk in essential workers and unemployed individuals and to disseminate findings.

Question 1: Which mental health apps will be deemed to be acceptable (Acceptability of Intervention Measure), Feasible (Intervention Feasibility Measure), and Usable (Intervention Usability Measure) by essential workers and the unemployed?

Question 2: What features of these interventions did participants find particularly helpful?

Question 3: Which apps result in reduced depression (PHQ-9), anxiety (GAD-7) and better emotional regulation (DERS)?

Aim 2: To disseminate our findings and recommendations through national partnerships, the UWAC website, the ALACRITY Centers network, CSPAR and suicide prevention organizations, and WA state DPH.

Methods

Participants. Participants will be recruited in three ways: (1) mTurk; (2) MHA ads; and (3) Facebook Ads. We will aim to recruit 2,000 participants over the course of one week. Based on our past research, this sample is feasible to recruit in our proposed time frame. We have been able to recruit samples larger than this in 3 weeks using all of these methods. Participants will be eligible if (1) they are an essential worker or unemployed due to COVID19; (2) they have a past history of mental health issues or experiencing suicide ideation motivational risk factors based on the Integrated Motivational-Volitional (IMV) Model of Suicidal Behaviour. Participants will be compensated for their participation in this study.

Procedures. Participants will first be asked questions about their mental health needs, challenges they face accessing care, and strategies they have used to manage their mental health. All participants will then be shown App Store descriptions of ten apps that have received the highest rating by PsyberGuide, a non-profit company that consistently rates existing apps for their safety, data privacy and user ratings. Participants will provide initial impressions on the acceptability and feasibility of using these apps. We will then ask participants if they would be willing to participate in a randomized trial to test these apps, with the aim of recruiting 1000 participants. Participants will be randomized (100 per group) to one of the ten apps. They will be asked to download their assigned app and use it for 4 weeks. We selected four weeks because (1) this is ample time to determine the usability, acceptability and feasibility of these apps (2) based on past remote research, this is when we will see the first effects of apps on mental health outcomes and (3) also based on past research, this is the longest period of time we will be able to maintain a 100-80% of the

sample. After 4 weeks of use, participants will be asked to provide an evaluation of acceptability, feasibility and usability of the app, how often they used the app, and if they found the app helpful. They will also complete PHQ9, GAD7, and brief Difficulties with Emotion Regulation Scale (DERS) and four measures from the IMV model of suicidal behavior – defeat, entrapment, thwarted belongingness, and perceived burdensomeness. The Suicidal Behaviors Questionnaire-Revised (SBQ-R), a four-item self-report that assesses suicide attempts, ideation, communication, and intent since the last assessment. Given some limitations of the attempt item in the SBQ-R (which is combined with suicidal ideation), an additional item "Have you attempted to kill yourself?" will be added. This single-item has been demonstrated to identify a research rated suicide attempt in 89.3% of cases. We will also ask if they used any other mental health apps or services during this 4-week period.

Our findings will be rapidly complied and disseminated through the UWAC website and ALACRITY Centers network, through CREATIV Lab's partnership with Mental Health America; UW Center for Suicide Prevention and Recovery (CSPAR) and partnerships with other suicide focused organizations including Forefront, the American Foundation for Suicide Prevention, and that American Association of Suicidology, the Rocky Mountain MIRECC, and the Defense Suicide Prevention Office. We have also begun discussions with King County and WA state contact tracer training sites to determine the best means of distributing this information directly to people identified as exposed to C19.

Analysis

T-tests and chi-square tests will compare demographic and baseline clinical outcomes by missing data status at follow-up timepoint. Chi-square tests will examine the association between condition assignment and compliance (whether a participant used the app they were assigned to or used an alternative app). All analyses are intent-to-treat. Sensitivity analyses will be conducted excluding those who never downloaded or used the app they were assigned. Analyses of variance will be used to compare conditions on AIM, IAM, and IUS scores at follow-up. A series of mixed effects models using restricted maximum likelihood estimation will be built to test linear time change on the PHQ-9, GAD-7, and DERS-SF, and to test for condition differences at follow-up and change slope. Models will be built in an outwardly nested fashion, such that an initial null model was computed, followed by models that add a random intercept, random time component, condition assignment, and condition x time interaction effects. To test whether there was a dose-response relationship such that the app use frequency was associated with rate of change on PHQ-9, GAD-7, and DERS-SF scores, we will compute another series of mixed effects models for each outcome. An initial model will include variables for time and frequency of use, a second model will add condition terms for each app using Beautiful Mind as reference, a third model will add condition x frequency interaction terms for each app, and the fourth model will include time, frequency, and a time x frequency interaction term. Model comparisons will apply -2 Log Likelihood, Akaike Information Criterion, and Bayesian Information deviance statistics. To test the impact of app use frequency on change over time, similar nested model testing will be applied using an initial null model, followed by models that added dosage, dosage x time interaction, and condition assignment.

Sample Size and Power. A priori power analysis for an ANOVA F test indicated that a sample size of 1,000 (n=200 participants in each of the active and control app conditions) would be sufficient with a power of .80 and an alpha of .05 for a minimum detectable effect size (MDES) of Cohen's d=.24 for main effect comparisons between any two conditions.