

## Improving youth well-being in Nicaragua through mental health education: A pilot project

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**Background:** Youth in Nicaragua have high prevalence of mental illness and addictions, and the highest suicide rates in Central America. Limited mental health services, lack of information, and stigma reduce help-seeking. A potential solution may be school-based mental health literacy programs, which have been effective in improving mental health knowledge, coping skills and help-seeking, and reducing stigma, among youth.

**Purpose:** To evaluate the efficacy of a school-based mental health curriculum in enhancing functioning and access to care among youth in Leon, Nicaragua.

**Methods:** Students (15–19 years) at all 4 high schools and the local university in Leon were recruited. Two high schools and some university departments received the 12-week mental health curriculum (intervention group), and the remaining high schools and university departments were a control group. Intervention group teachers were trained to deliver the curriculum, identify and support distressed students, and make referrals for specialized care. Students completed self-report measures of health/mental health knowledge and personal functioning at the start of the project (baseline), after 12 weeks and at 6 month follow up.

**Results:** A total of 913 students (567 intervention, 346 control) completed baseline measures, of which 671 students (446 intervention, 225 control) completed 12-week measures. There were no differences in demographics or baseline scores between the control and intervention groups. However, after 12 weeks, intervention group students showed significantly better mental health knowledge, reduced stigma and increased help-seeking ( $p \leq 0.05$ ) than control group students. Decrease in perceived stress and improvement in health behaviours was also noted in the intervention group compared to baseline ( $p \leq 0.05$ ). Attrition was also lower in the intervention group than in the control group ( $p \leq 0.05$ ). There was also a significant increase in referrals of distressed youth by teachers from the intervention schools compared to control schools ( $p \leq 0.05$ ).

**Conclusion:** These pilot project results show that a mental health curriculum is effective in improving functioning, mental health knowledge and help-seeking among Nicaraguan youth. Use of schools as a hub for mental health education and support was also effective in improving early detection and access to care.

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## Mobile phone use and pre-trial perceptions of the WelTel mobile health intervention among English-as-a-second-language participants with latent tuberculosis infection

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**Background:** The majority of active tuberculosis (TB) cases in high-income countries occur as a result of reactivation of dormant infection in foreign-born persons. Successful treatment of latent TB (LTBI) is a critical component of TB control; however, incomplete adherence is common. Mobile health technology (mHealth) and text messaging services are increasingly used as an innovative way to engage patients in care, but there is limited research on the feasibility of English-based programs for patients with English as a second language (ESL). The aim of this study was to assess text-message use and preliminary perceptions of the WelTel mHealth intervention among ESL participants.

**Methods:** Between June 2012 and September 2015, adults with LTBI were recruited for the WelTel LTBI trial ([ClinicalTrials.gov:NCT01549457](http://ClinicalTrials.gov/NCT01549457)) from two urban clinics in BC, Canada. After providing informed consent, participants completed baseline questionnaires on demographics, mobile phone use, fluency in English, and perceived value of the WelTel intervention to improve contact with healthcare providers. This data was then analyzed using descriptive statistics. Ethical approval was obtained from the UBC Clinical Research Ethics Board.

**Findings:** Of the 358 participants recruited, 268 were considered ESL. Approximately 90% ( $n=242/268$ ) of ESL participants were from one of the 22 World Health Organization high TB burden countries. Tagalog was the most commonly reported native language (94/268), followed by Chinese (50/268) and Punjabi (33/268). Text messaging was prevalent among participants: 82% (216/263) texted at least once per week and 85.5% (219/256) didn't require help sending or receiving messages. Almost 70% (179/264) reported they were most comfortable communicating in English, and over 90% (243/261) indicated they preferred to text in English. On a Likert-type scale of one to five, the median response to a question on the perceived capability of a cell phone program to improve contact with health care providers was 5 (very much so).

**Interpretations:** Pre-trial data analysis indicates that English-based mHealth strategies are well received in this ESL population. Regardless of native language, the majority of participants preferred to text in English and believe that mHealth has the ability to improve contact with their healthcare providers.

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