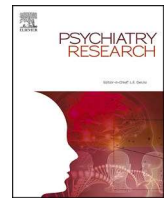
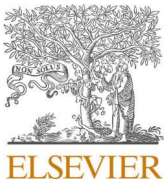




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An on-line mindfulness-based stress reduction program for health workers in Uruguay amidst the COVID-19 pandemic April 2020

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On March 13, 2020, the first 4 cases were confirmed in Uruguay. A week later health emergency was declared, and measures were introduced to reduce the spread of the virus. Although the Uruguayan government did not declare mandatory quarantine measures, a quarantine scenario did unfold with high level of compliance. The number of COVID cases remained relatively steady with 3082 cumulative cases (or 887 per 1 million population) as of November 1, 2020 (WHO, 2022). We delivered the MBSR Program from April to June 2020. The declaration of health emergency was maintained until November 2021, where more than 70% of the population received at least 2 doses of the vaccine.

During the same period, the psychological stress or mental health problems increased, with 34.9% of the Uruguayan population reporting depressive symptoms and 6.4% severe depressive symptoms (Selma, 2020). To help health professionals cope with stress of caring for patients and operation in the environment of uncertainty, we developed an online Mindfulness-Based Stress Reduction Program (MBSR) program. Due to quarantine, the program was delivered online.

In a recent systematic review, the MBSR intervention was effective in maintaining and improving mindfulness and self-compassion levels and decreasing burnout, depression, anxiety, and stress common among health care professionals (Lamothe et al., 2018). No prior studies were conducted with health professionals in Uruguay. The purpose of our study was to evaluate the feasibility of our online MBSR for health professionals in Uruguay during the first month of the COVID-19 pandemic.

Our pilot study utilized a one group pre-test, post-test study design to assess feasibility of the MBSR program in a virtual environment. The program was offered after the introduction of public health measures to address COVID-19 pandemic in Uruguay, starting at the end of April 2020.

The MBSR program was offered to healthcare providers. Recruitment strategies included postings on Facebook and the website of the academic department. Twenty-three providers registered for the course; of whom 15 started the program and 7 completed it. Informed consent was obtained orally at the beginning of the program, and the intervention had the approval of the School of Medicine Ethical Board.

The primary outcome of perceived stress was measured using the

Cohen Stress Perceived Stress Scale. Upon program completion, an on-line group interview was conducted to learn about general perceptions of study participants about the program and their experience. The group interview was based on open-ended questions about participants' experience and learnings in the program and its appropriateness in terms of format and duration.

The MBSR intervention was conducted according to the standard curriculum developed for MBSR programs at the University of Brown, School of Public Health.

All data analyses were conducted using the Statistical Package for the Social Sciences (SPSS), version 10.0. Mean scores on the PSS-10 and frequency counts and percentages for categorical variables were calculated. Differences in pre- vs. post-test scores on the Cohen Scale were examined using a paired-samples Wilcoxon test (Table 1).

Assessments were collected for 15 participants pre-intervention, 13 women and 2 men. They were all health care professionals, working in public and private settings, in the fields of Mental Health ($N = 7$), Pneumology ($N = 1$), General Practice ($N = 3$) Pediatrics ($N = 1$), Nursing ($N = 3$). Post-intervention, 7 participants (46.6%) completed the assessment scale, 6 women and 1 man.

We used Mann-Whitney-Wilcoxon test, with a significance level of 95%. There was a statistically significant improvement in the Cohen Scale scores post-intervention, with a decrease of 8 points (p -value < 0.007). The effect size of the change in terms of Cohen's d was small. ($d = 0.208$).

Decreases in stress levels as quantified by the scale were mirrored by participants' qualitative feedback.

Participants reflected about program usefulness in terms of coping with the uncertainty and stress of the current situation.

"The program gave me concrete and practical tools to cope with stress, to improve responses to stressful situations, complicated situations, beautiful learning in terms of communication in pleasant or unpleasant situations".

Participant 1

"For me the important thing was the group support, I think I understood now how important it is to meditate, now it makes sense to me...before it seemed to me more of the same stuff....".

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Table 1
Cohen scale average scores ($N = 7$).

Pre-intervention	Post-intervention
27	19 *

* P -value < 0.001.

The program promoted group process focused on problem-solving related to impediments to effective practice, how apply the learnings in everyday life, and supportive interaction between group members.

“In a peak of stress at work I found that it works ...”.

Participant 2

“The ability to breathe before speaking or acting.”

Participant 3

Regarding the on-line format, participants reflected that the on-line format seemed to be the only way to offer this intervention, in the pandemic context.

Systematic reviews of interventions based on MBSR programs shown improvements in measures of anxiety and depression, helping to develop empathy and emotional competencies in health care professionals.

Uruguay does not have a history of applying the MBSR in the clinical setting. Our reliance on the single-arm design and small sample size known to have limitations, was justified by an exploratory type of research.

Author agreement

We certify that all authors have seen and approved the final version of the manuscript being submitted: “ An on-line Mindfulness-based stress reduction program for health workers in Uruguay amidst the COVID-19 pandemic. April 2020”. They warrant that the article is the authors’ original work, hasn’t received prior publication and isn’t under

consideration for publication elsewhere.

Declaration of Competing Interest

The authors have no conflicts of interest to disclose.

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