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**Abstract**

# A Technology-Based Intervention to Help Health Care Provider Parents Manage Stress During the COVID-19 Pandemic: Findings From a Pilot Microrandomized Trial

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**Abstract**

**Background:** The COVID-19 pandemic has increased the stress levels of parents, especially health care workers and other COVID-19 frontline workers. Nonetheless, little is known about stress management for this population.

**Objective:** This pilot study tested the impact of a mobile app *apt.mind* in reducing stress in health care provider parents by delivering a 30-day microrandomized intervention.

**Methods:** Participants included 102 parents who work in health care and their coparenting partners. They were given smartwatches and access to a mindfulness app. Each day, all parents were randomly assigned to (1) brief stress reduction messages, (2) meditation audio activities via the app, or (3) no intervention. Stress was evaluated using a self-reported COVID-19 Family Stressor Screener (10 items; 5-point Likert scale) to rate levels of stress regarding food security, job stability, family conflict, mental health, and social isolation. Dosage was measured by the percentage of parents who received any of the activities (app or messages; mean 66%, SD 9.8%), and parents were divided into 3 groups by dosage level: low (below 60%), middle (61%-70%), and high (above 71%).

**Results:** Using a pre-post test, this study assessed changes in mental health symptoms and parenting by individuals' dosage levels. Participants who received high levels of intervention reported significant decreases in COVID-19-related family stress ( $t=-2.50$ ;  $P=.02$ ) and a significant increase in parenting efficacy ( $t=2.39$ ;  $P=.03$ ), while those who received low or middle levels of the intervention did not show those changes.

**Conclusions:** This study supports the feasibility and efficacy of technology-based tools to reduce stress and the need to examine just-in-time interventions. Future studies can improve by focusing on microchanges in the parents' stress level on a daily basis and including physiological data such as heart rate variability to include objective stress data.

**Conflicts of Interest:** None declared.

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**KEYWORDS**

stress; parenting; meditation; microrandomized trial; smartwatches; mobile application; app; COVID-19

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