

# Use of a Self-Guided Computerized Cognitive Behavioral Tool During COVID-19

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## Background

Technology can help provide accessible and inexpensive behavioral health care to those in need. The Dartmouth PATH Program is a multimedia-based computerized cognitive behavioral therapy tool designed to address stress, depression, and conflict management. The program was developed as a psychosocial training and treatment resource for NASA with the aim of addressing psychological challenges endured by astronauts on long duration spaceflights. The program maintains anonymity and requires no identifiable information from the user (eg, e-mail address). This program was shaped into an open-access resource and grew in popularity during the COVID-19 pandemic.

## Objectives

- 1) Determine the levels of stress and depression as well as the nature of problems affecting individuals during the pandemic.
- 2) Contrast program use and efficacy for individuals who completed one session versus those who completed multiple sessions to understand the high dropout rates associated with online open access behavioral programs.
- 3) Assess the acceptability and usability of the PATH content and determine whether such program would be useful as a stand-alone open-access resource.

## Methods

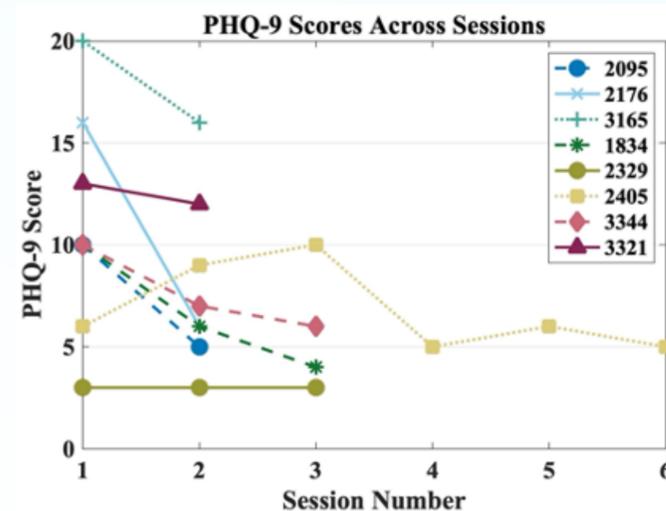
Acceptability and usability data were analyzed using non-parametric statistics. Self-reported stress and depression scores over time were analyzed using linear mixed-effect models. Data were collected from April through October 2020.

## Results

### Effects on Mood

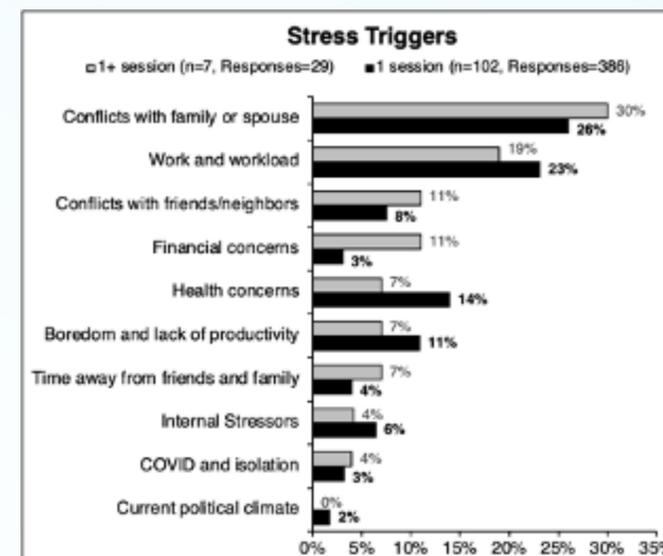
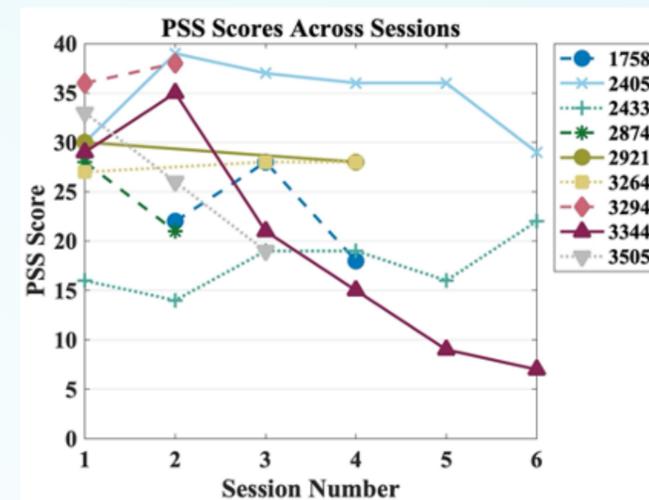
Characteristic	Total	Completion (%)
Number of registered users	2484	
Age (years), mean (SD)	44 (15.2)	
Female, n (%)	53%	
Male, n (%)	42%	
Non-identified, n (%)	3%	
Conflict Module	156	13%
Mood Module- Session 1	246	17%
Stress Module- Session 1	117	25%
Guided Self-Assessment	4,724	4%
Mood Assessment	224	13%
Conflict Assessment	100	6%

There was a 20.0% (35.2) decrease in depression severity level, as measured by PHQ-9 scores, between sessions 1 and 2, which was not statistically significant ( $P=0.6$ ). However, there was a significant decrease in the depressive symptoms over time ( $P=0.01$ ).



### Effects on Stress

Difference in symptoms of stress as measured by PSS scores indicated a significant improvement over time ( $P=0.03$ ). The major stressful triggers selected by participants included conflict with family/spouse and work/workload. Noticeably, COVID-19 and isolation, political climate, and time away from friends and family were also mentioned as stressful triggers.



## Conclusion

The present study shows that an open-access online behavioral program aiming to treat depression, stress, and conflict management can be effective and rated highly for usability, and acceptability by users. A significant proportion of users reported that they preferred to address behavioral health programs on their own using an on-line resource. Despite this, the completion rate for activities was low and few people returned for repeat visits. Those who did return for return visits tended to report more issues with worry, stress, and anxiety and on average rated the programs less usable than those who completed just one session. For acceptability, however there were differences in response patterns between the Mood and Stress module. While those who returned for more visits in the Mood module rated the program as more acceptable, the opposite trend was true in the Stress module. The ultimate value of this program as a stand-alone resource will depend understanding the reasons for the low completion rates and addressing them effectively.

## Acknowledgments

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