

## Introduction

- The prevalence of mental health problems is high amongst post-secondary students, yet many individuals still do not access services due to a variety of barriers [1,2].
- Mobile mental health applications have been found to be effective for improving a variety of mental health related symptoms [3]. These apps have the potential to offer services in a largely scalable way.
- The Minder mobile application has been co-developed with post-secondary students in order to better understand and respond to the needs of the end-users, students. This pilot study aims to gain additional feedback from students on the feasibility of the current Minder app in order to improve it further for Canadian post-secondary students.

## Research Objective

To assess the feasibility of a mental health and substance use app co-developed with university students.

## Methods

- Participants were randomized upon completion of the baseline survey into the intervention or control condition in a 2:1 ratio, respectively. The intervention group was given full access to the Minder app. The control group was only given access to a restricted version of the app which included the surveys and an introduction video.
- In total there were 101 participants (69 INT, 32 CON), of which there were 2 withdrawals.
- Participants in both groups completed a baseline survey and a follow-up survey at 6-weeks which included questions on demographics, the Kessler-10, the USAUDIT-C, cannabis use, opioid use, and stimulant use. Those in the intervention group also completed a short form of the survey at 2 and 4-weeks.
- Recruitment was completed in 2 rounds, between which changes to e-Coaching were made. Participants in the intervention group were offered access to an e-Coach based on utilization and mental health or substance use outcomes. In round 1, participants were not offered an e-coach until 2-weeks or 4-weeks. In round 2, some participants were offered e-coaches at baseline depending on baseline survey scores.

## Minder Overview

The Minder app consists of 4 main components: Intervention, Services, Community and e-Coaching.

- **Intervention:** evidence-based content delivered through an automated chatbot. Content is sorted into 6 categories—University Life, Relationships, Wellness, Sadness, Stress & Anxiety, and Substance Use
- **Services:** students complete a short triaging survey which provides recommendations and resources based on the students current needs and preferences.
- **Community:** a directory of university clubs and groups filtered by interest.
- **E-Coaching:** peers trained to help other students navigate the app or by providing peer support sessions. This can be offered through either texting or audio/video sessions. Participants can either schedule an appointment to chat with their coach or message them asynchronously through the app.

## Results

- 67% of participants were undergraduate students, 25% were graduate/professional students, and 8% were Other.
- 82% of participants were female, 13% were male, and 5% were Other.

**Table 1. Pilot survey completion rates**

Survey	Percentage Completed
Baseline	78%
2-week	84%
4-week	66%
6-week	88%
	(83% INT, 94% CON)

Preliminary trends indicated improvement in mental health, cannabis, and alcohol outcomes, though the sample size limited our ability to determine significance.

## Intervention Content Engagement

**Table 2. Intervention content engagement**

Degree of Intervention Engagement	Overall (n=67)
Finished at least 1 chat/video	33%
Made it halfway or finished at least 1 chat/video	57%
Started at least 1 chat/video	76%
Completed Triage survey	68%
Meaningfully engaged with app (completed triage survey or half/End a chatbot activity)	87%

65 out of 67 participants in the intervention group were assigned an e-Coach based on their outcomes or app utilization.

All e-Coaching engagements happened through in-app texting.

Some reasons provided by participants for not engaging with their e-Coach were they didn't think they needed it (n=9), process/system related issues (n=15), and individual factors (n=9).

## Participant app feedback

**Table 4. Intervention group general app feedback**

Using the Minder app helped me manage my mental health.	59% agree
Using the Minder app helped me manage my alcohol use.	29% agree
Using the Minder app helped me manage my substance use.	30% agree
Using the Minder app helped improve my overall quality of life.	57% agree
I would recommend the Minder app to a friend.	77% agree

The most popular chatbot activities were:

- Time Management
- Relationships
- An Introduction from the UBC President

**Table 3. E-Coaching engagement**

E-Coaching Engagement Method	Number of participants (n=67)
Total users engaged	9
Engaged meaningfully with coach	6
Had an appointment*	4
Texted coach asynchronously*	5

\*Some users had an appointment and texted coach asynchronously

Top things participants liked about Minder:

- Design
- Resources/ Services
- Easy to navigate

Top things participants would improve:

- Staying signed in
- E-Coaching interface
- Adding motivational components/ notifications

## Discussion

- The goal of this pilot study was to test the feasibility of a newly developed mental health and substance use app for university students. Overall, we found that the majority of participants meaningfully engaged with the app content.
- We found that many participants were not engaging with their e-Coaches initially, so changes to the process of assigning e-Coaches were made between rounds of recruitment in an attempt to reduce barriers to accessing this service. Participants identified process/system related issues such as their coach not being online, not knowing how to use it, and technical issues as the main reasons for not engaging. We will be modifying how the e-Coaching component is delivered in future versions of the app to further reduce barriers to access.
- In general we found more engagement with content related to general wellbeing as opposed to more clinically relevant topics such as sadness, anxiety, or substance use. Further research is needed to identify how to increase engagement with these topics.

## Future Directions

- Based on the findings from this pilot feasibility study, we will be evaluating how to improve the Minder app. Focus groups will be conducted with students to help interpret our results, in particular, how to improve engagement with e-Coaching and certain app content.
- The Minder app will be further tested for efficacy in a larger Randomized Controlled Trial. Additionally, only half of the developed content was programmed for this pilot feasibility study, so all of the remaining content will be tested during this upcoming trial.

## References

1. Hunt, J., & Eisenberg, D. (2010). Mental health problems and help-seeking behavior among college students. *The Journal of Adolescent Health, 46*, 3–10. <http://dx.doi.org/10.1016/j.jadohealth.2009.08.008>
2. Eisenberg, D., Golberstein, E., & Gollust, S. E. (2007). Help-seeking and access to mental health care in a university student population. *Medical Care, 45*, 594–601. <http://dx.doi.org/10.1097/MLR.0b013e31803bb4c1>
3. Linardon, J., Cuijpers, P., Carlbring, P., Messer, M., & Fuller-Tyszkiewicz, M. (2019). The efficacy of app-supported smartphone interventions for mental health problems: a meta-analysis of randomized controlled trials. *World Psychiatry, 18*(3), 325–336.