Project title: Mobile Electronic Repository to Address Patients' Support Needs in coping with Chronic obstructive pulmonary disease

Start date: June 30, 2022
End date: June 30, 2024

Investigators:
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Final Report
Prepared by: Shirley Quach

The principal investigator is required to complete a final report detailing:

1. **A summary of expenditure and explanation of unexpended funds, if any;**

Awarded: $6,100

The total expenses for this project, which is a subcomponent of SQ's doctoral thesis was used by June 30, 2024 ($6,100). Original budgeted expenses were for participant reimbursement ($500) and research assistant ($2600). The initial method of the proposed research (phase 2) was to have in-person focus group meetings, which would have been coordinated/ facilitated by a research assistant. However, as SQ's thesis developed, the methodology was tailored to optimize accessibility and inclusivity across Ontario by changing the format to virtual meetings. As there were people with lived experiences (with COPD) across Ontario/ Manitoba involved, the change to a virtual format was to minimize participation burden (e.g., travel and avoiding unnecessary exposure to public environments). By removing the need for in-person participation, the responsibilities originally dedicated to a research assistant was assumed by the PI (SQ).

As this project focused on digital health, an innovative modality in today's society, it was imperative to focus on sharing and discussing the role, safety and implications of mobile health applications (mhealth apps) for people with COPD. Thus, sharing our findings from Phase 1 and 2 were imperative to discuss the gaps in research and practice, and also improve decision-making in this novel focus area. The funding was utilized to support wide knowledge dissemination, bringing forward awareness of digital health in practice. This included expenses for open access publication, posters and travel for conference attendance. These conferences

were national (Canadian Respiratory Care conference 2024) and international (European Respiratory Society 2023).

2. **Information on publication and dissemination of research and achievement of project aims:**

Objectives for Phase 1 and 2 outlined in this proposal were met. The objectives were as follows:

1. To evaluate and report on the features and characteristics of COPD-apps available in the app marketplace using the MIND evaluation framework;

Published: Quach S, Benoit A, Oliveira A, Packham TL, Goldstein R, Brooks D. Features and characteristics of publicly available mHealth apps for self-management in chronic obstructive pulmonary disease. Digit Health. 2023;9:20552076231167007. Published 2023 Apr 12. doi:10.1177/20552076231167007

2. To determine whether current COPD-apps meet patients' needs and the gaps and limitations that must be addressed in future.

Published: Quach S, Benoit A, Packham TL, Goldstein R, Brooks D. Public mobile chronic obstructive pulmonary disease applications for self-management: Patients and healthcare professionals' perspectives. Health Informatics J. 2024;30(4):14604582241292206. doi:10.1177/14604582241292206

These findings were discussed at multiple conferences:

ORAL PRESENTATIONS:

1. **Quach S**. (2024, May). Navigating public mHealth apps: How do they fare for COPD self-management? Canadian Society of Respiratory Therapists Annual Education Conference 2024, Banff, Canada.
2. **Quach S,** Brooks D. (2023, October). Public COPD apps: Evaluation to Translation. 3-Minute thesis presentation for Canadian Respiratory Research Network Annual meeting 2023, Ottawa, Canada.
3. **Quach S**. (2023, April). Evaluating Public COPD Apps and Identifying Ideal Designs and Features to Support Patients' Self-Management. Canadian Respiratory Conference 2023, Montreal Canada.
4. **Quach S,** Benoit A, Oliveira A, Packham TL, Goldstein R, Brooks D. (2023, Feb). State of Public COPD Apps - are we there yet? Rehabilitation Science Research Rounds, School of Rehabilitation Science, McMaster University, Hamilton Canada.
5. **Quach S.** (2022, May). Mobile COPD apps in the Android Marketplace. McMaster Women in Science and Engineering Initiative - Current Research in Engineering, Science and Technology Conference 2022, Canada.

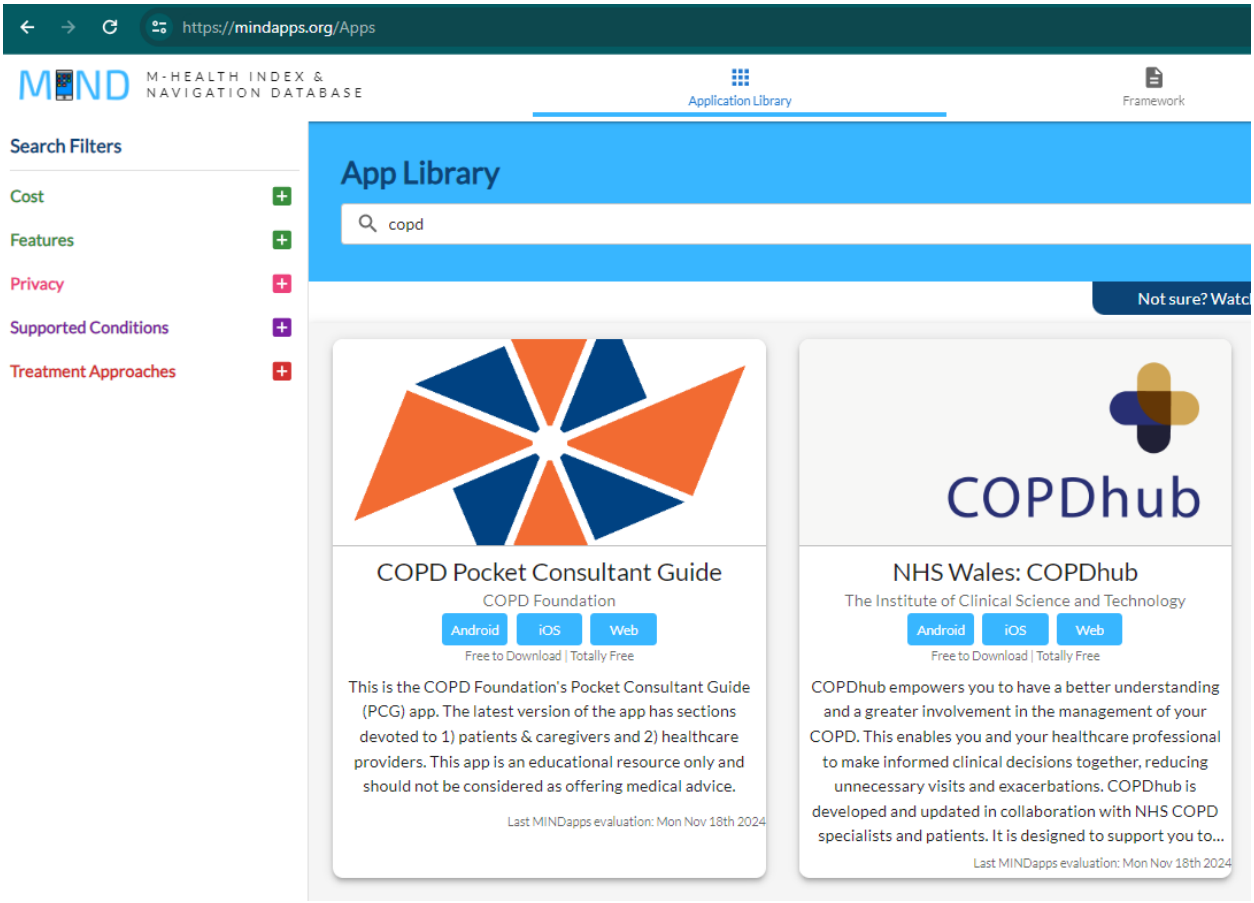
POSTER PRESENTATIONS:

6. **Quach S,** Benoit A, Packham TL, Goldstein R, Brooks D. (2024, April). Publicly available mobile applications in chronic obstructive pulmonary disease (COPD) self-management:

Patients and Clinicians' Perspectives. Canadian Respiratory Care Conference 2024, Toronto, Canada.

7. **Quach S**, Benoit A, Oliveira A, Packham T, Goldstein R., Brooks D. (2022, Sept). Qualities and Features of Chronic Obstructive Pulmonary Disease (COPD) Self-management Mobile Apps in the Marketplace: MIND evaluation. European Respiratory Society Congress, Milan, Italy.
8. **Quach S,** Michaelchuk W, Benoit A, Maybank A, Oliveira A, Packham TL, Goldstein R, Brooks D. (2023, April). Evaluating Mobile apps for Chronic lung disease self-management: A systematic review utilizing the MIND Framework. Canadian Respiratory Care Conference 2023, Montreal, Canada.

The initial overall objective of this project was to create COPD-Library (COPD-LIB), a repository app that will serve as a database to redirect patients and healthcare providers to a compilation of COPD self-management apps that meet accepted standards (MIND framework). As mentioned, the goal was not to create new content or another COPD app but to create a repository, in the format of an app, that will display the current evidence-based apps and resources that patients and healthcare providers can refer to and integrate into their care plan. After conversing with interprofessional peers at multiple conferences, we redirected our efforts to from creating the COPD-Library to seeking partnership with the Harvard Medical school. The Harvard Medical School was able to work with us to display our results for public COPD apps on their online platform (mindapps.org). The COPD-related apps were the first respiratory related apps on their public domain. This was to implement a sustainable knowledge translation and dissemination plan for the public COPD apps. This partnership will allow us to understand the process of ongoing public app evaluations and the global dissemination of this information to all relevant stakeholders. Furthermore, it will guide and advocate for future studies in this space to address the knowledge gaps in mHealth apps in COPD care.



3. **Executive summary of the work;**

Mobile health (mHealth) applications (apps) are publicly available, but their qualities and features need to be verified for their appropriateness in clinical use by clinicians and people living with COPD. By inviting clinicians and patients to participate, we are encouraging the lung health community to be aware and support the efforts to strengthen our understanding of publicly available COPD apps. As clinicians, we are committed to helping our patients/ clients breathe better, and this project was meant to improve the knowledge we have for digital tools that will help Canadians self-manage their lung diseases. We explored and identified the necessity of continuous verification of these public resources, whereby engaging with our patient partners and community can improve the accessibility and safety of public COPD apps, advocating for their ethical integration into care plans.