

Introduction

- In order to improve the effectiveness of interventions targeting non adherence to varenicline, one of the most effective monotherapy treatment for tobacco dependence, a systematic approach to program design is needed.
- APEASE criteria (Acceptability, Practicability,  $\bullet$ Effectiveness, Affordability, Side-effects, Equity)<sup>1</sup> can be an effective tool to select features for the design of a healthbot, developed to help people adhere to their varenicline regimen.

# **Objectives**

To utilize the APEASE criteria to select which behavior  $\bullet$ change techniques (BCTs) should be incorporated into a healthbot for increasing adherence to the medication varenicline.

# Methods

Creation of a list of BCTs (the 'active ingredients' in an intervention designed to bring about change) from:







#### Literature review:

- Barriers and facilitators to varenicline adherence
- BCTs associated with adherence

#### **20** service user interviews:

- Challenges and solutions to varenicline adherence
- BCTs to include in healthbot

**19 service provider interviews:** 

- Barriers and facilitators to digital health solutions
- Theoretical domains to target for behavior change
- BCTs to include in healthbot

# **Applying Behavioral Science to Harness Large Language Models in Scaling Evidence-Based Practice: A Case Illustration**

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# Results

**Table 1: Behavior change techniques included in the** healthbot since all APEASE Criteria fulfilled

| BCTs   | Ways  |
|--|---|
| Problem solving                                  | <ul> <li>Healthbot to p side-effects</li> <li>Healthbot to p missed medica</li> <li>Healthbot to p overcome crav</li> </ul> |
| Feedback on<br>behaviour                         | <ul> <li>Healthbot to p about medicat</li> <li>Healthbot to p smoking</li> </ul>  |
| Behavioral<br>contract and<br>commitment         | <ul> <li>Healthbot to e<br/>establish contr<br/>commitments</li> </ul>  |
| Credible source                                  | <ul> <li>Healthbot to m<br/>trustworthy so</li> </ul>   |
| Instructions on<br>how to perform<br>a behaviour | <ul> <li>Healthbot to p<br/>how to take va</li> <li>Healthbot to p<br/>quitting smoki</li> </ul>                            |
| Self-monitoring                                  | <ul> <li>Healthbot to tr</li> <li>Healthbot to tr</li> </ul>  |
| Social reward                                    | <ul> <li>Healthbot to p<br/>reinforcement</li> </ul>  |
| Self-incentive                                   | <ul> <li>Healthbot to a they would like a achieve goals</li> </ul>  |
| Action planning                                  | <ul> <li>Healthbot to p<br/>to take medica</li> </ul>   |

#### to Operationalize

provide information about

- provide information about ition
- provide strategies to 'Ing
- provide progress updates ion adherence
- provide progress updates on

encourage participants to racts that help them make to take medication regularly

nention evidence-based and ource of information

- rovide information about renicline
- provide advice/strategies for ng
- rack cigarette use rack medication intake
- provide positive
- messages

ask participants what reward ke to set for when they

provide suggestions on how tion

BCTs

Monitoring outcome(s) of behavior by others without feedback:

**Social support** 

#### Punishment









HR Canadian Institutes of Health Research

### Results

#### Table 2: Behavior change techniques excluded from the healthbot since not all APEASE Criteria fulfilled

|   | Ways to Operationalize  |
|---|---|
| S | <ul> <li>Healthcare provider to have<br/>access to patient profile on<br/>healthbot</li> </ul>                                    |
|   | <ul> <li>Healthbot to have communal chat<br/>board to ask questions to other<br/>users and answer their questions</li> </ul>      |
|   | <ul> <li>Healthbot to send negative<br/>messages to participant after they<br/>log they didn't take the<br/>medication</li> </ul> |

# Conclusion

The APEASE criteria provide a systematic framework for determining the intervention components to be included in the healthbot. This ensures that the healthbot's design is grounded in both evidence and theory, employing a comprehensive approach that prioritizes user needs and preferences.

The intervention is now ready for testing in a feasibility study with patients. It is hoped that sharing and documenting the intervention content, design and process will allow for a better interpretation of the future findings of this work.

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### References

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