

Conceptual Development of a Motivational Interviewing-Based Smartphone App to Address COVID-19 Vaccine Hesitancy

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Abstract

Vaccine hesitancy is a normal phenomenon experienced by many that refers to a state of uncertainty towards vaccines despite their availability. With the rise of the COVID-19 pandemic, a multitude of vaccines have been developed with the collaboration of scientists around the world. Despite the reported high efficacy and marginal side effects of these vaccines, a huge number of individuals are still vaccine-hesitant. While a huge proportion of Canadians are fully vaccinated, several Canadians and other populations around the world have yet to be vaccinated which can sustain the community spread of the virus over a longer period and result in mutations that may promote the rise of new variants of concern. Resulting mental and physical health challenges have surfaced due to the pandemic and have been compounded by isolation, quarantine, and lockdown measures. We conceptualize a smartphone application that incorporates an approach utilized in various counselling approaches and healthcare settings called Motivational Interviewing (MI) which may be more beneficial in promoting vaccine uptake than traditional approaches. MI, a guiding and collaborative approach, can be used to tackle various COVID-19 related issues that sustain and promote vaccine hesitancy such as misinformation related to the pandemic and vaccine, concerns about the speed of the development of vaccines, and their long-term side effects, and needle phobia. The smartphone app will employ a hybrid deterministic/conversational artificial-intelligence-based approach that will mimic a realistic MI session as opposed to the frequently used chatbot approaches. This approach incorporates the ask-offer-ask and decisional balance frameworks which are employed during MI to promote change talk and guide one's decision-making through personal autonomy. Due to the nature of the pandemic, a virtual approach through a smartphone app has the possibility of being deployed on a national and international level to address COVID-19 vaccine hesitancy.

Background

Definition:

Vaccine hesitancy is defined as a “delay in acceptance or refusal of vaccines despite availability of vaccine services” (World Health Organization, 2014).

Correlates of COVID-19 Vaccine Hesitancy (Aw et al., 2021):

Sociodemographic factors:

- Younger age, female
- non-white ethnicity
- lower education and income

Vaccine attitudes:

- vaccines are not safe/effective
- lower perceived risk of susceptibility to contracting COVID-19 and its severity

Other factors:

- no chronic medical conditions
- lack of recent history of influenza vaccination
- Less trust in government
- Sources of information are mainly via social media/internet

Motivational interviewing as a Tool to Address Vaccine Hesitancy

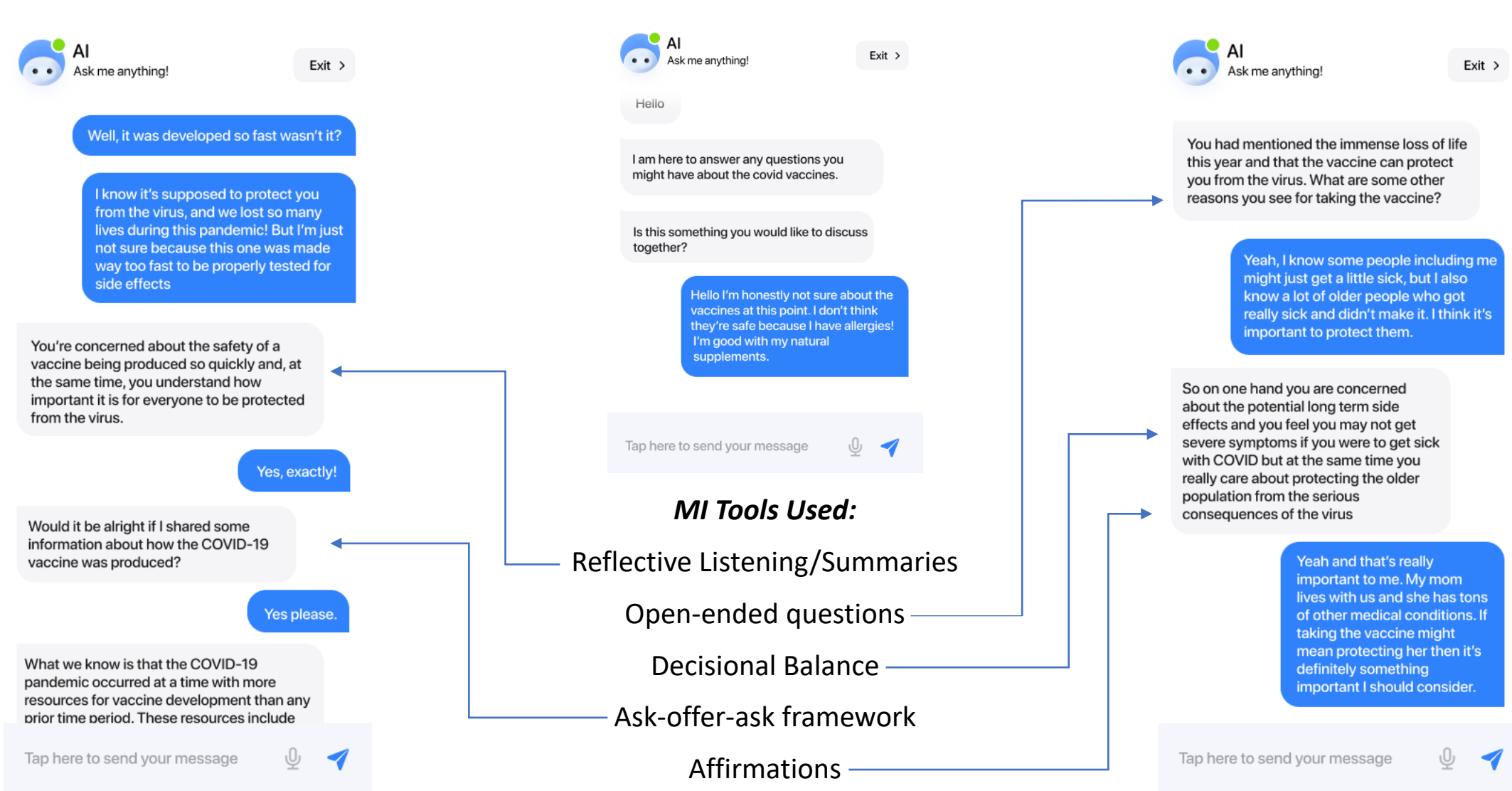
“Motivational interviewing (MI) is a collaborative, goal-oriented style of communication with particular attention to the language of change. It is designed to strengthen personal motivation for and commitment to a specific goal by eliciting and exploring the person’s own reasons for change within an atmosphere of acceptance and compassion.”
(Miller & Rollnick, 2013)

Components of a Motivational Interviewing Intervention

(Boness et al., 2021; Gagneur, 2020; Miller & Rollnick, 2013)

Principles of MI	Objectives	MI Toolbox
Engaging and Expressing Empathy	Showing interest and understanding of their perspective. Ambivalence about change is normal.	Ask-offer-ask (elicit-provide-elicite): ASK = asking about client’s understanding of a topic, asking permission to share information or discuss a topic OFFER = provide information while emphasizing personal choice ASK = reflect on their understanding of the information/feelings and thoughts e.g. What do you think about this information?
Developing Discrepancy	Awareness of discrepancy between current state and goals/values. Promoting readiness for change that will meet one’s goals/values	
Supporting Self-Efficacy	Encouraging, focusing on their strengths and enhancing confidence in client’s abilities to change	Decisional Balance: Exploring pros/arguments for change and cons/arguments against change
Avoiding Argumentation and Rolling with Resistance	Empathizing with concerns, exploring further, and changing approach to promote readiness for change.	OARS: Open-ended questions Affirmations Reflective Listening Summarizing

Motivational Interviewing Intervention Example in the Context of the App



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