Understanding Virtual Care Uptake in the Context of Clinical Audiology: An Implementation Evaluation Using the Normalization Process Theory

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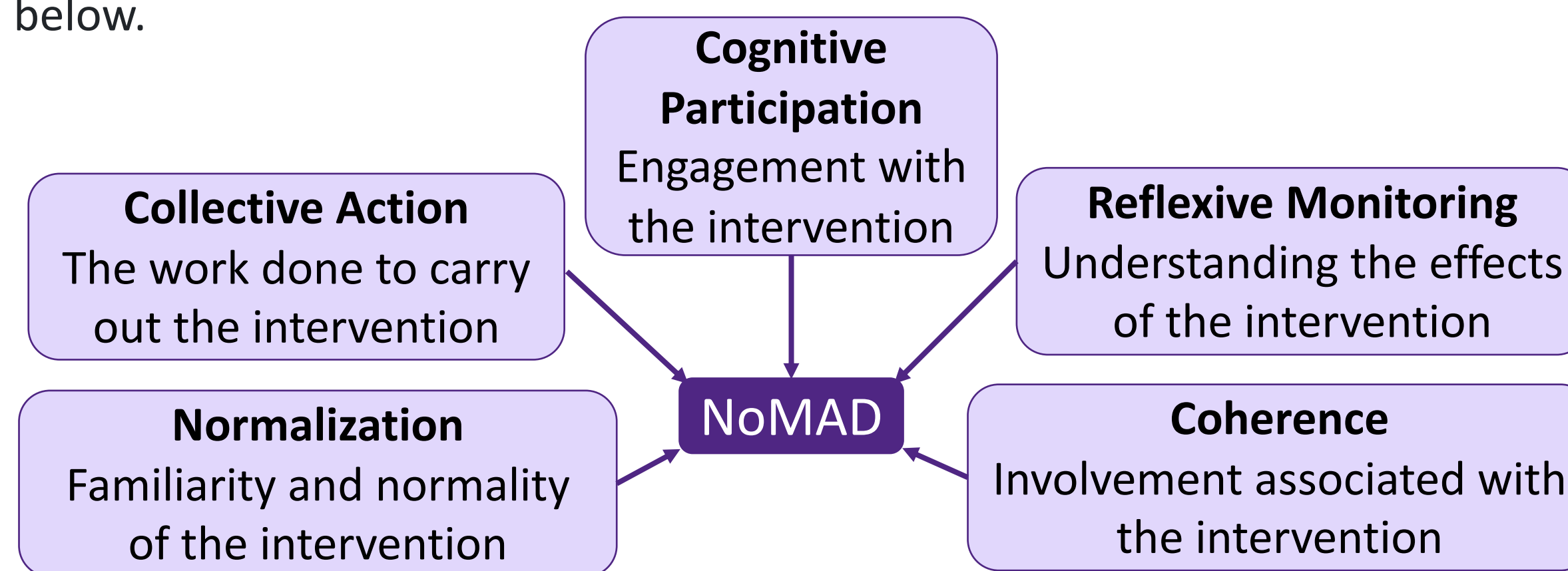
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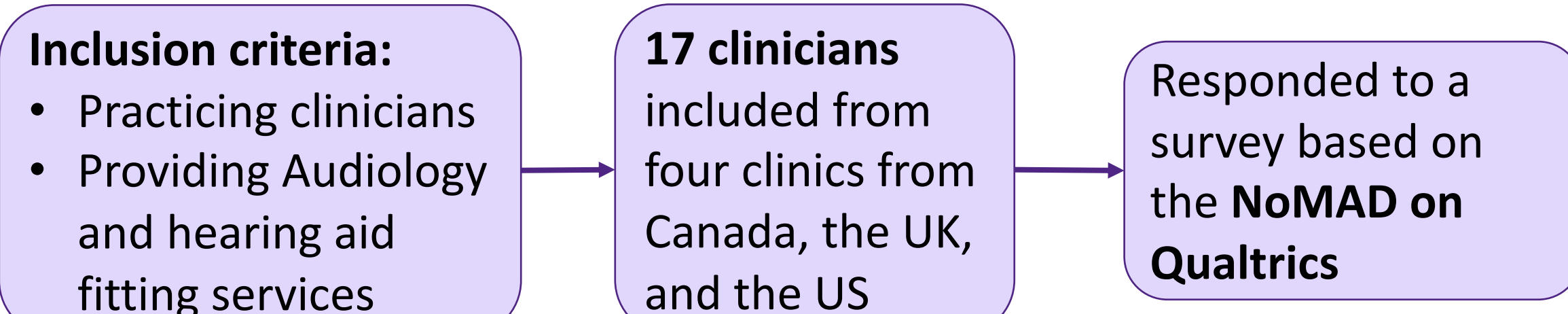
INTRODUCTION

The COVID-19 pandemic severely affected in-person audiology services due to physical/social distancing, limited appointment availability, and/or hesitation to attend in-person appointments. Audiology services are vital in the restoration and/or maintenance of communication ability[1]. Alternative service delivery models can be used to improve appointment access and flexibility for audiologists and clients.

Virtual audiology care enables technology-mediated interaction between audiologists and clients and can include most aspects of hearing aid care. Successful implementation of such **complex health interventions** can vary based on contextual factors[2], requiring multi-level stakeholder support. the **Implementation science** allows us to better understand what factors are creating gaps between evidence and practice[3] and helps promote systemic uptake.

The **Normalization Process Theory (NPT)** was used as the conceptual basis of this study for understanding the implementation of virtual audiology care. NPT can help identify, characterize, and explain mechanisms that motivate and shape implementation and affect outcome[4]. The **NoMAD** is a tool that builds on NPT, which is comprised of specific statements belonging to one of five constructs (see below) to help clinicians reflect on their experiences and progress the implementation process[5]. This study aimed to measure the **systematic and theory-based implementation of virtual audiology care** specific to innovative hearing aid follow-up appointments delivered by audiologists during the COVID-19 pandemic. The core constructs of The Normalization Measures Development (NoMAD) instrument are displayed below.
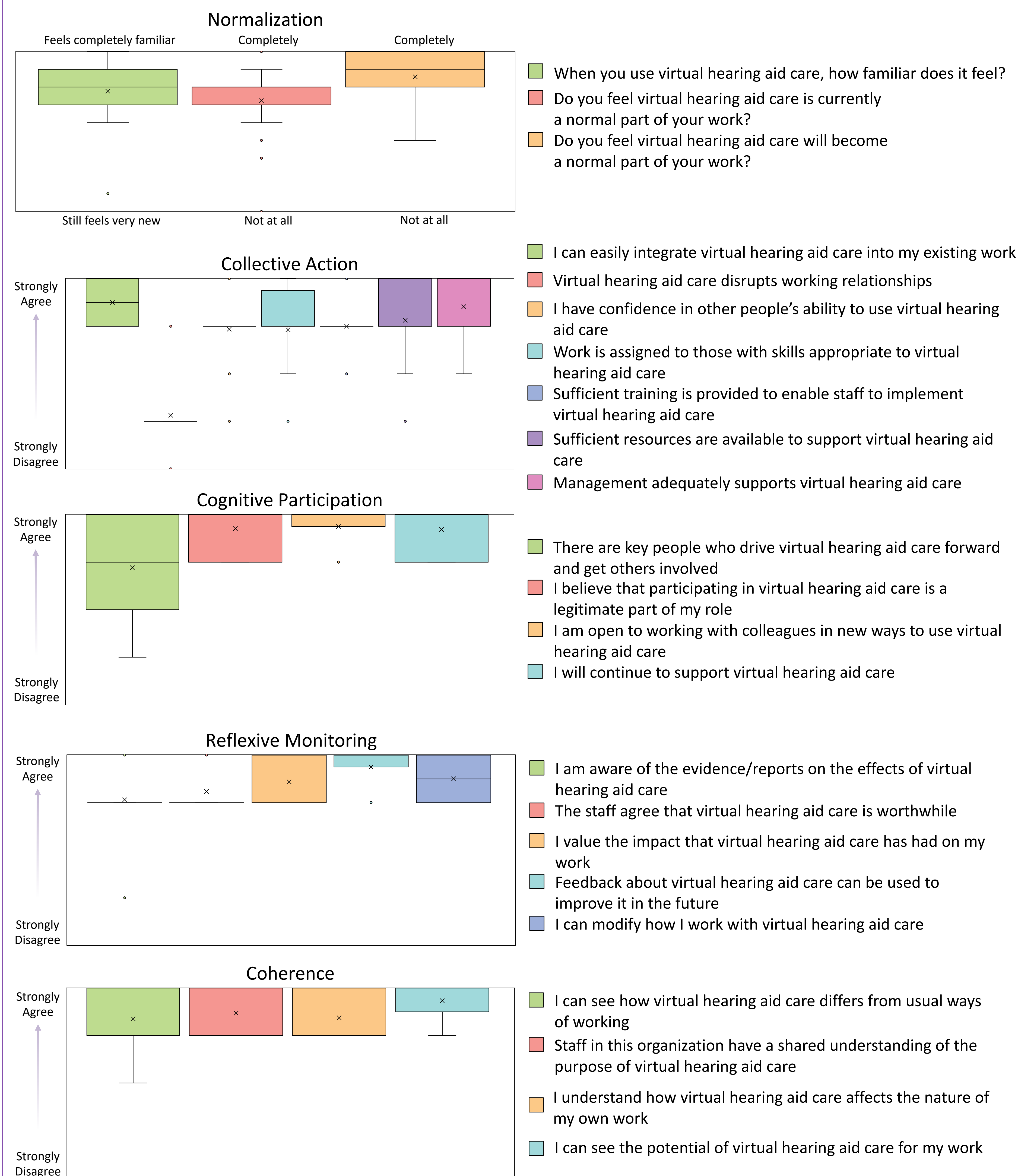
Cognitive Participation
Engagement with the intervention

Reflexive Monitoring
Understanding the effects of the intervention

Collective Action
The work done to carry out the intervention

NoMAD

Coherence
Involvement associated with the intervention

Normalization
Familiarity and normality of the intervention

METHODS

Inclusion criteria:
- Practicing clinicians
- Providing Audiology and hearing aid fitting services

17 clinicians included from four clinics from Canada, the UK, and the US

Responded to a survey based on the **NoMAD on Qualtrics**

Respondents had varying levels of clinical experience; the majority of respondents had more than 10 years of experience (50%) with varying organizational roles, including managers and patient-facing clinicians.

RESULTS

Normalization
- When you use virtual hearing aid care, how familiar does it feel?
- Do you feel virtual hearing aid care is currently a normal part of your work?
- Do you feel virtual hearing aid care will become a normal part of your work?

Collective Action
- I can easily integrate virtual hearing aid care into my existing work
- Virtual hearing aid care disrupts working relationships
- I have confidence in other people's ability to use virtual hearing aid care
- Work is assigned to those with skills appropriate to virtual hearing aid care
- Sufficient training is provided to enable staff to implement virtual hearing aid care
- Sufficient resources are available to support virtual hearing aid care
- Management adequately supports virtual hearing aid care

Cognitive Participation
- There are key people who drive virtual hearing aid care forward and get others involved
- I believe that participating in virtual hearing aid care is a legitimate part of my role
- I am open to working with colleagues in new ways to use virtual hearing aid care
- I will continue to support virtual hearing aid care

Reflexive Monitoring
- I am aware of the evidence/reports on the effects of virtual hearing aid care
- The staff agree that virtual hearing aid care is worthwhile
- I value the impact that virtual hearing aid care has had on my work
- Feedback about virtual hearing aid care can be used to improve it in the future
- I can modify how I work with virtual hearing aid care

Coherence
- I can see how virtual hearing aid care differs from usual ways of working
- Staff in this organization have a shared understanding of the purpose of virtual hearing aid care
- I understand how virtual hearing aid care affects the nature of my own work
- I can see the potential of virtual hearing aid care for my work

RESULTS SUMMARY

Audiologists displayed positive attitudes towards the implementation of virtual audiology care. Most clinicians felt that virtual hearing aid care is currently a normal part of their work, and even more felt strongly that it will become a normal part of their work. Open response questions indicated that some barriers to virtual hearing aid care include receiving adequate training, technological limitations, and a hesitancy to virtually troubleshoot technology issues that arose. Some facilitators identified included having peer support, team meetings, shadowing trained clinicians. Positive outcomes anticipated include efficiency of care, and anticipated benefits for clients.

CONCLUSIONS & IMPLICATIONS

Can virtual hearing aid care be part of the new normal for audiology?
- Virtual care has been integrated well in audiology, and there are great expectations for it to become a normal part of future clinical workflow.
- Clinicians perceive that they fit well into a virtual environment and that there are important anticipated benefits of virtual care in audiology.
- There are some improvements to be made for an effective and collaborative work environment.

There are some challenges that still need to be addressed:
- At the initial stages of implementation, having key people driving virtual care may be helpful for quick adoption, but going forward, a well-balanced team may be more important to have a sustainable program.
- Technical difficulties are still a major concern for clinicians; sufficient training should be provided to ensure clinicians feel adept at handling any unexpected difficulties.
- The study should be replicated in a greater number of community sites to gain a broader understanding of implementation factors related to technological and infrastructure requirements (as possible site-specific differences).

Findings of this study are representative of virtual audiology care delivered during the COVID-19 pandemic and should be replicated post-COVID to reassess the mechanisms motivating and shaping implementation.

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