

## TREATMENT FOR STUTTERING IN AN EVER-CHANGING WORLD

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### ABSTRACT

This paper considers the future of treatment for stuttering. How can we utilise available technology to improve access to treatments for people who stutter? What evidence is there that the emerging use of technology for the management of stuttering is effective? Finally, I will present a vision for the future.

### Background

The International Conference on Stuttering originates from the Eternal City, Rome. Rome is a city that inspires, boasting a rich history and culture with architectural masterpieces that remain 2000 years or so after they were built. The ancient Romans had a vision that the Roman Empire would exist for eternity. When I was searching for inspiration for this talk, I came across a cartoon that aired on television about 60 years ago. It too shared a vision for the future. The cartoon was «The Jetsons». The producers of The Jetsons dared to dream about the future, not unlike the ancient Romans who built the Roman Empire. However, the ancient Empire was not indestructible. Ancient history aside, The Jetsons did get it right.

The Jetsons was about a family living 100 years in the future. Daily life for the Jetsons consisted of flying cars, mobile phones, robot maids,

and, astoundingly, the internet. Today many of the futuristic technologies The Jetsons depicted are our reality. These include human drones, mobile phones, robot vacuums, and, of course, the internet. One of the most interesting predictions from The Jetsons cartoon was telehealth. In an episode, Jane Jetson was depicted with her son Elroy, his mouth open-wide, tongue protruding, facing a large television screen. On the television screen, a doctor is seen peering into Elroy's mouth. And there you have it. Telehealth! The Jetson's vision of telehealth from 60 years ago has become a common-practice reality.

### **Prediction for the future**

Inspired by The Jetsons, I am going to share a prediction for the future. At the Australian Stuttering Research Centre, we predict a world in which any person who stutters, or any parent of a child who stutters, will have access to treatment. The unique part of this prediction is that treatment for stuttering will be accessible online without a speech pathologist present. What evidence is there that online treatments without a speech pathologist being present are effective?

### **Online social anxiety treatments for people who stutter**

#### *iGlebe*

Many adults seeking treatment for stuttering are at risk of developing social anxiety disorder (Blumgart et al. 2010; Iverach et al. 2009; Menzies et al. 2008; Stein et al. 1996). *iGlebe* is an online social anxiety treatment for adults who stutter, developed by psychologists at the Australian Stuttering Research Centre. The treatment is based on established cognitive behaviour therapy procedures (Menzies et al. 2008). *iGlebe* is accessed using the internet, and there is no contact with a psychologist during treatment. Audio voice overs are played on each page of the program. The voices are of real clinical psychologists who guide the participant through the program. Participants

complete questionnaires at the beginning of the program, and the responses to those questions form the basis of the treatment, enabling an individualised treatment for each user.

Treatment with iGlebe has been demonstrated to remove diagnoses of social anxiety disorder and improve scores on a range of psychological measures. In a study with 14 participants, 50% had a diagnosis of social anxiety disorder at pre-treatment. After 5 months of access to iGlebe, only 14% retained that diagnosis (Helgadóttir et al. 2014). When iGlebe was compared to treatment with a psychologist (Menziez et al. 2019), removal of anxiety and mood disorders diagnoses were demonstrated in both groups at 12 months post-treatment. In a study with 267 participants from 23 countries, 49 participants completed all modules of iGlebe within the 5-month time frame. Measures of depression, anxiety, and stress reduced significantly from pre-treatment to post-treatment (Menziez et al. 2016).

### *iBroadway*

iBroadway is a social anxiety treatment for adolescents who stutter. iBroadway was adapted from iGlebe to make content and activities appropriate and appealing for adolescents. In a study with 29 adolescent participants, for those who completed the program, the number of mental health diagnoses reduced significantly from pre- to post-treatment (Gunn et al. 2019).

### *Completion rates with online treatment programs*

In a recent systematic review, iGlebe was shown to have the highest completion rate among other online programs for psychological conditions such as anxiety and depression (Fleming, et al., 2018). In addition, iBroadway reported a compliance rate of just over 50% (Gunn et al. 2019). Why do iGlebe and iBroadway show such high compliance rates compared to other online psychological treatments? iGlebe was developed to be interactive and to encourage engagement with the program (Helgadóttir et al. 2009). Every

user has a unique pathway through the program. Supportive voiceovers of experienced psychologists who guide the participant through the program were unique at the time of development. Finally, at the end of treatment, users can download an eBook containing content from the program.

## **Online speech treatments for people who stutter**

### *iLidcombe*

iLidcombe is an online treatment for children who stutter. It is based on the Lidcombe Program, a treatment that involves parents providing verbal contingencies to their children, based on the presence and absence of stuttering (for detailed reviews, see Onslow 2021; Sjøstrand et al. 2021).

During treatment with iLidcombe, parents are taught the treatment procedures with supportive voiceovers, video demonstrations, and suggestions for activities to do with their children during the treatment. Printable materials about treatment procedures are downloadable. Children do not engage with the program at all. Parents conduct the treatment with their child after they have learnt the procedures, as with the standard Lidcombe Program.

In a study of iLidcombe, eight parents of children who stuttered completed the initial training components of the program (Van Eerdenbrugh et al. 2018). Results demonstrated that parents can be trained to measure their child's stuttering with an online program, without a speech pathologist. Importantly, parent severity scores corresponded with speech pathologist scores. Parents also reported they had acquired the skills to conduct the treatment with their child.

### *iWestmead*

iWestmead is an online treatment for very young children who stutter. iWestmead is based on the Westmead Program during which parents are taught the treatment procedures, including how to talk to their child using

what is called syllable talking (Andrews et al. 2020; for a detailed review, see Onslow, 2021).

iWestmead trains parents to conduct the treatment with their child. As with iLidcombe, children are not required to engage with the program. The program includes voiceovers to guide parents through the treatment, audio demonstrations of the syllable talking, and suggested activities for parents to use with their child. iWestmead is currently undergoing user testing before clinical trials. This involves parents and speech pathologists reviewing the program and providing feedback for clarity of information, ease of navigation, and overall acceptability of the content (Currie et al. 2010).

### *iCamperdown*

For adults wanting to control stuttering, speech restructuring is the most efficacious approach (for a detailed review, see Onslow, 2021). It involves teaching clients to speak in a way that helps them to control their stuttering. The Camperdown Program is one method that teaches speech restructuring (O'Brian et al. 2018). iCamperdown is based on the Camperdown Program. During the treatment, users learn the speech restructuring technique from video examples. The program provides reading material, talking topics, and suggested activities to help the user practice the speech technique and to integrate it into their daily lives. Supportive voiceovers guide the user through the treatment. In a study of iCamperdown with 20 participants, for those who completed the treatment, significant reductions were demonstrated from pre-treatment to post-treatment for stuttering severity measured by percentage of syllables stuttered (Erickson et al. 2016).

## **The future of online treatments**

What is the future of online treatments for stuttering? Artificial intelligence, known as AI, refers to machines or computers that have been developed to think and act like humans. AI has the potential to assess clients and direct them to treatments most suitable for them. Our prediction is

that clients will be managed from assessment through to discharge without a speech pathologist or psychologist.

### **The future for speech pathologists**

What does this mean for the future of speech pathology? Online treatments won't be suitable for everyone. For example, online treatments may not be suitable for clients with complex communication needs, such as those with concomitant disorders. Online treatments can manage simple cases, then speech pathologists can treat clients with more complex needs or those for whom online treatments are not suitable.

### **Conclusions**

The ancient Romans had a vision that the Roman empire would exist for eternity. And yes, Rome exists today in all its glory, but not in the way the ancient Romans had predicted. However, the producers of *The Jetsons* predicted the future and they did get it right. Treatment for anyone who stutters, anywhere in the world, without a speech pathologist or psychologist, is our prediction. And, like *The Jetsons*, we are aiming for that to become a reality.

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