Stammering Research

Dr. Naheem Bashir





- Health and Care Consultant
- PhD (UCL, 2019)
 - Using brain stimulation to enhance speech processes in typical speakers and people who stutter
- Trustee of the British Stammering Association
- London Stammering Support Group
- I stammer

New Approaches

Ecopipam as a pharmacologic treatment of stuttering

RESULTS: The results showed that a majority of participants demonstrated improvement in their stuttering. The medication was well tolerated.

CONCLUSIONS: These positive, preliminary findings suggest that a doubleblind, randomized controlled clinical trial to examine the efficacy of ecopipam in the treatment of stuttering is warranted.

TABLE 2

Pharmacolog

y

Severity ranking changes from baseline on the SSI-4

Participant	Baseline	End of study
001	26 (moderate)	13 (very mild)
005	46 (very severe)	42 (very severe)
007	31 (moderate)	22 (mild)
008	27 (moderate)	17 (very mild)
010	46 (very severe)	38 (very severe)

SSI-4: Stuttering Severity Instrument-Fourth Edition.

Pharmacolog Y

Beliefs and behavioural intentions towards pharmacotherapy for stuttering: A survey of adults who stutter

Allan McGroarty 온 쩓, Rebecca McCartan

Highlights

- This study aimed to assess beliefs regarding pharmacotherapy for adults who stutter.
- Necessity and concern beliefs were relatively balanced across sample.
- Medication beliefs predicted intentions to initiate pharmacotherapy.
- Reported likelihood of pursuing pharmacotherapy and speech therapy was equal.
- Overall impact of stuttering predicted intentions to seek either therapy.

Neuroscience

Speech Disfluency-dependent Amygdala Activity in Adults Who Stutter: Neuroimaging of Interpersonal Communication in MRI Scanner Environment

Akira Toyomura ^{a, b, c} 은 쯔, Tetsunoshin Fujii ^d, Koichi Yokosawa ^e, Shinya Kuriki ^f

Highlights

- We used a neuroimaging method incorporating "live" interpersonal communication in MRI.
- Adults who stutter and fluent controls answered questions from a stranger of the opposite sex.
- Amygdala activity of adults who stutter was significantly correlated with stuttering occurrences.
- Activity in the prefrontal cortex was decreased in adults who stutter than fluent controls.

Transcranial direct current stimulation over left inferior frontal cortex improves speech fluency in adults who stutter.

Chesters J¹, Möttönen R^{1,2}, Watkins KE¹.

Facilitating fluency in adults who stutter 👌

Jennifer T Crinion 🖂

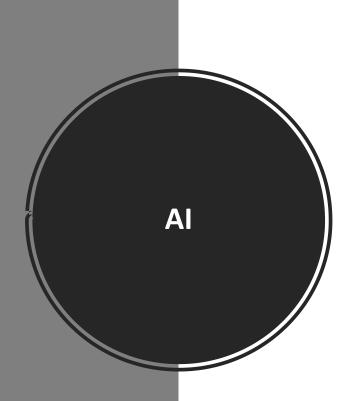
3010 Effects of non-invasive brain stimulation on speech fluency and brain activity in adults who stutter: a randomized controlled clinical trial

Emily O'Dell Garnett ^(a1), Soo-Eun Changv ^(a1), Benjamin Hampstead ^(a1) and Ho Ming Chow ^(a1) 🕀

Online cathodal transcranial direct current stimulation to the right homologue of Broca's area improves speech fluency in people who stutter.

Yada Y^{1,2}, Tomisato S², Hashimoto RI¹.

Brain Stimulation



Single-Trial Classification of Disfluent Brain States in Adults Who Stutter Publisher: IEEE

5 Author(s) John Myers ; Jeffrey Mock ; Farzan Irani ; Kay Robbins ; Edward Golob View All Authors

Most stuttering events occur at the beginning of an utterance. So, in principle, brain activity before speaking should differ between fluent and stuttered speech. Here we present a method for classifying brain network states associated with fluent vs. stuttered speech on a single trial basis. Brain activity was recorded with EEG before people who stutter read aloud pseudo-word pairs. Offline independent component analysis (ICA) was used to identify the independent neural sources that underlie speech preparation. A time window selection algorithm extracted spectral power and coherence data from salient windows specific to each neural source. A stepwise linear discriminant analysis (sLDA) algorithm predicted fluent vs. stuttered speech for 81% of trials in two subjects. These results support the feasibility of developing a brain-computer interface (BCI) system to detect stuttering before it occurs, with potential for therapeutic application.



Comparison of adults who stutter with and without social anxiety disorder

Lisa Iverach ^a 쯔, Mark Jones ^b 쯔, Robyn Lowe ^a 쯔, Susan O'Brian ^a 쯔, Ross G. Menzies ^a 쯔, Ann Packman ^a 쯔, Mark Onslow ^a 옷 쯔

Highlights

- Social anxiety is typically associated with significant life impairment.
- We compared adults who stutter with and without social anxiety disorder.
- Demographic variables were largely similar between groups.
- Socially anxious participants had a more negative view of their speech.
- Psychological difficulties were increased for socially anxious participants.

Exposure Therapy Exposure therapy for social anxiety disorder in people who stutter: An exploratory multiple baseline design

Jennifer A. Scheurich ^a A ⊠, Deborah C. Beidel ^a, Martine Vanryckeghem ^b

Highlights

- An exposure therapy protocol was developed specifically for people who stutter and have social anxiety disorder.
- Efficacy of intervention was evaluated utilizing a multiple baseline design.
- Social anxiety reduced.
- Affective, behavioral, and cognitive experiences of stuttering improved.
- There was no consistent change in stuttering frequency.





Standalone Online Therapy

In-Clinic and Standalone Internet Cognitive Behavior Therapy Treatment for Social Anxiety in Stuttering: A Randomized Trial of iGlebe

Ross G. Menzies, Ann Packman, Mark Onslow 📾, Sue O'Brian, Mark Jones and Fjóla Dögg Helgadóttir

Conclusions

iGlebe is a promising individualized treatment for social anxiety for adults who stutter and offers a viable and inexpensive alternative to in-clinic CBT with clinical psychologists. An issue to emerge from this trial, which requires clarification during future clinical trials of iGlebe, is the posttreatment relation between percentage of syllables stuttered and self-reported stuttering severity ratings.

Therapy

 Teletherapy

 Airedale

- Stammering therapy delivered online
- 12 Month Pilot
 - Reduction of the impact of stammering (OASES)
 - Moderate to severe prior therapy to mild to moderate post therapy
 - All participants rated their feelings towards their speech more positively
 - 100% said they were **comfortable**
 - 100% agreed it allowed **easy access**.
 - 60% agreed it is the same as face to face therapy

Teletherapy

Clients' Experiences of Telepractice for Stuttering

Megann McGill 📾, Laura Cullen and Helen Webb

Results

Four major themes emerged from participant interviews: (a) treatment delivery preference, (b) advantages and disadvantages of telepractice, (c) comfort with technology, and (d) improvements to telepractice treatment. Quantitative results included a slight preference for inperson treatment; a strong belief that personal goals for treatment can be met via telepractice; and a strong feeling that friendly, positive relationships with clinicians can be achieved via telepractice.

The working alliance in stuttering treatment: a neglected variable?

Hilda Sønsterud , Melanie Kirmess, Kirsten Howells, David Ward, Kristin Billaud Feragen, Margrethe Seeger Halvorsen

Outcomes & Results

Analyses demonstrated significant associations between the working alliance and client motivation (r = 0.781) and treatment outcomes (r = 0.644) 6 months post-treatment. The association between client-led goals and therapy tasks appeared particularly important.

Conclusions & Implications

: The working alliance between speech and language therapists and persons who stutter matters. Within the alliance, the level of client–clinician agreement on treatment goals and therapy tasks may be of greater importance than the bond between client and clinician. Further research with greater numbers of participants is warranted.

Therapeutic Alliance Covert Stammering Qualitative investigation of the speech-language therapy experiences of individuals who covertly stutter

Jill E. Douglass ª 옷 쯔, Christopher Constantino ^b 쯔, Jacqueline Alvarado ^c 쯔, Katie Verrastro ^c 쯔, Kaitlyn Smith ^c 쯔 Results

The participants indicated that stuttering therapy was most impactful when it included explicit goals and activities, personalized selection of therapy techniques or strategies beyond fluency techniques, encouraged self-education, and educated those in the person's environment.

Children who Stammer

Co-existing issues

The Coexistence of Disabling Conditions in Children Who Stutter: Evidence From the National Health Interview Survey

Patrick M. Briley and Charles Ellis

This study sample included 62,450 children, of which 1,231 were CWS. Overall, the presence of at least 1 disabling developmental condition was 5.5 times higher in CWS when compared with children who do not stutter. The presence of stuttering was also associated with higher odds of each of the following coexisting developmental conditions: intellectual disability (odds ratio [*OR*] = 6.67, p < .001), learning disability (*OR* = 5.45, p < .001), attention-deficit hyperactivity disorder/attention-deficit disorder (*OR* = 3.09, p < .001), seizures (*OR* = 7.52, p < .001), autism/Asperger's/pervasive developmental disorder (*OR* = 5.48, p < .001), and any other developmental delay (*OR* = 7.10, p < .001).

Elevated attention deficit hyperactivity disorder symptoms in children who stutter

Kerianne Druker ^a, Neville Hennessey ^a, Trevor Mazzucchelli ^b, Janet Beilby ^a ∧ ⊠ Highlights

- One-half (50%) of children who stutter presented with elevated ADHD symptoms.
- This group needed 25% more clinical treatment visits to achieve successful fluency.
- Inattentive ADHD symptoms had the greatest negative effect on treatment response.
- Increased stuttering severity and male sex also predicted poorer treatment response.

Co-existing -ADHD Behavioral, Emotional, and Social Well-Being in Children Who Stutter: Evidence from the National Health Interview Survey

Authors

Authors and affiliations

Patrick M. Briley, Kevin O'Brien, Charles Ellis 🖂

the SDQ. This sample included 48,319 children of which 503 were CWS. CWS were far more likely to: have worries or often seems worried (OR = 1.86), be unhappy/depressed (OR = 2.14), and have difficulties with emotions (OR = 3.26) than their non-stuttering peers. Similarly, CWS were less likely to: be well behaved/do what was requested (OR = .305) or have good attention and complete tasks (OR = .470). Finally, CWS with coexisting developmental disabilities had higher scores on all subscales of the SDQ when compared to CWS without developmental disabilities. Problems associated with well-being issues appear more common among CWS than CWNS in this national sample. These observed problems were even greater in CWS with coexisting developmental disabilities. These issues should be carefully considered and addressed as part of a comprehensive management plan for CWS.



Resilience

An evaluation of an integrated fluency and resilience program for early developmental stuttering disorders

Kerianne C. Druker^b, Trevor G. Mazzucchelli^a, Janet M. Beilby^b 은 阿

Highlights

- Stuttering severity reduced in both groups using an integrated treatment approach.
- Parenting practices improved amongst parents trained in the resilience principles.
- Self-regulation improved in CWS exposed to parent-implemented resilience principles.

Parent Interventions

Methods in Stuttering Therapy for Desensitizing Parents of Children Who Stutter

Ali Berquez 📾 and Elaine Kelman

Conclusion

Desensitization activities can be implemented with parents of CWS to help them recognize and manage their emotional reactions to their child's stuttering, to support parents to feel knowledgeable and confident in managing their child's stuttering, and ultimately to enhance the child's progress in therapy.

Adults who Stammer

Impact

Self-acceptance, resilience, coping and satisfaction of life in people who stutter

Laura W. Plexico 🎗 🖾, Stephen Erath, Hannah Shores, Embry Burrus

Conclusion

Stuttering was associated with lower self-acceptance at higher levels of avoidant coping and maladaptive coping. PWS who have lower levels of resilience were more likely to have a lower satisfaction with life indicating that higher levels of resilience could serve as a protective factor for having a greater satisfaction with life. Further, stuttering was associated with lower self-acceptance at lower levels of resilient **attitude**. Resilience and coping appear to protect against having diminished self-acceptance and satisfaction with life for PWS.



The lived experience of stuttering: a synthesis of qualitative studies with implications for rehabilitation

Amy Connery 🔤 💿, Arlene McCurtin 💿 & Katie Robinson 💿

Results: Five themes are described: (i) Avoidance is used to manage stuttering; (ii) Stuttering unfavourably impacts employment experiences; (iii) Stuttering shapes self-identity; (iv) Stuttering leads to negative reactions; and (v) Stuttering impacts relationships adversely.

The Impact of Stuttering on Development of Self-Identity, Relationships, and Quality of Life in Women Who Stutter

Charn Nang 🖼, Deborah Hersh, Katie Milton and Su Re Lau

Conclusions

Impact on

Women

Stuttering has a pervasive impact on all aspects of women's lives and affects how they view themselves, their relationships, their career potential, and their perceptions of how others view them in society. The women interviewed in this study often had negative self-perceptions and felt that their quality of life had been impacted by their stuttering. However, the women's stories and experiences of stuttering were shaped by a broader context of perceived sociocultural expectations of females in society. Strong verbal communication was highlighted as a crucial factor in developing identity and forming relationships. This study highlights the need to be aware of the experiences of, and issues facing, women who stutter for clinicians to be more equipped, focused, and successful in their stuttering interventions for women.



Enacted stigma and felt stigma experienced by adults who stutter

Michael P. Boyle ^A⊠

Conclusions

People who stutter experience discrimination and social devaluation, and they anticipate future stigmatizing experiences. Both of these types of stigma, enacted and felt, are associated with reduced mental health in adults who stutter. Assessment and therapy with adults who stutter should address these aspects of stuttering.

General Conclusions

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New Approaches

- Pharmacology, neuroscience and technology (AI and VR) provide promising approaches towards intervention.
- Research is in its infancy lot more to understand

• Therapy

- Teletherapy can be as effective as in person
- Therapeutic alliance more important than bond
- Consider individual differences e.g. covert stammer

General Conclusions

Children who stammer

- Co-existing disorders need to be considered
- Wellbeing & resilience must be a focus
- Parental interventions help therapy success

Adults who stammer

- Resilience and coping strategies are important
- Massive impact on quality of life
- Explore unique experience of women who stammer
- Address expectation and experience of stigma



Don't research stammering. Do research for people who stammer.