Review Article

Understanding Stuttering: A Taxonomic Review of Models, Paradigms, and Theories

Srinivasan Venkatesan[1]

1. Independent researcher

This review article attempts to provide a comprehensive examination of 57 models, theories, and paradigms that have shaped the understanding of stuttering. Stuttering, a complex speech disorder, is characterized by disruptions in fluency. Stuttering has been the subject of extensive research across multiple disciplines, including psychology, linguistics, and neurology. Existing frameworks can be categorized into domains like psychological models, which explore cognitive and emotional factors; neurological theories, focusing on brain structure and function; and social paradigms, emphasizing the role of environment and communication dynamics. Through a critical analysis of these diverse approaches, the interplay between their influences on stuttering is presented. The review also addresses the evolution of these theories over time, noting significant advancements and the integration of interdisciplinary perspectives. Their implications for clinical practice, particularly in the development of effective intervention strategies, are mentioned. By synthesizing current knowledge, this article seeks to foster a deeper understanding of stuttering and encourage future research that bridges gaps between theoretical frameworks and practical applications. Ultimately, the ongoing dialogue surrounding this multifaceted disorder and promoting collaborative efforts in the fields of speech-language pathology and related disciplines is promoted.

Corresponding author: S. Venkatesan, psyconindia@gmail.com

Models simplify complex social phenomena, aiding in the understanding, explanation, and prediction of behaviors and outcomes. They function as analytical tools, helping researchers visualize relationships among various variables and processes. For instance, the multifactorial model considers genetic, neurological, developmental, environmental, and psychosocial factors in explaining

stuttering. For example, the social model of disability argues that stuttering is influenced by societal attitudes and barriers, highlighting the importance of creating inclusive environments and support systems to enhance communication and reduce stigma[1][2].

Unlike models, theories offer systematic explanations. Grounded in specific principles, social learning theory, for example, aids in the interpretation of how social behavior is learned via observation and imitation, and guides research through testable hypotheses. Paradigms serve as broader frameworks that shape researchers' perspectives and methodologies, influencing key questions and research strategies. In stuttering research, the Psycholinguistic Paradigm examines cognitive and linguistic processes, while developmental paradigms differentiate typical from disfluent speech[3][4].

Need, Rationale, and Justification

There is no comprehensive source on stuttering theories. This research is vital for understanding mechanisms, filling research gaps, combating stigma, fostering empathy, and enhancing treatment and support systems.

Research Questions

There are unanswered questions in stuttering theory regarding the cataloging of ongoing and historical theories. How do these theories relate to current therapies and influence treatment practices? In what ways do they contribute to the stigma surrounding stuttering, and how can we change societal views? How can filling literature gaps advance research and provide empirical support for these theories? Why is it important to recognize cultural factors and past therapy effectiveness in enhancing speech-language pathology education and treatment approaches?

Objectives

To identify and analyze key themes in stuttering research, emphasizing their historical context and milestones. To create a timeline of their evolution, evaluate research trends, and identify literature gaps. To explore how historical studies have influenced current treatment practices, societal stigma, and cultural factors while assessing empirical evidence and providing recommendations for future research.

Method

Using PRISMA2020 guidelines, 150 original research publications up to December 2024 were analyzed[5]. Excluded materials included descriptive essays, newsletters, magazines, unpublished dissertations, seminar proceedings, webinars, conferences, audiovisual content, and misleading references. Ethical considerations in stuttering research, such as respecting diversity, individual autonomy, informed consent, confidentiality, awareness of potential harm, emotional distress, and cultural sensitivity, were upheld[6]. This analysis adhered to academic principles by creating a structured introductory review that articulated the purpose, objectives, and scope of the study, providing the necessary context. It was organized logically with headings and subheadings for easier navigation and included a critical examination of existing literature, highlighting key findings, trends, and research gaps. The conclusion encapsulated essential points and suggested areas for future research, accompanied by a flow diagram to illustrate the review process (Figure 1). The guidelines also outlined search strategies and the interpretation of findings[7][8].

PRISMA-narrative guidelines require a clear introduction, outlining objectives and rationale, formulating research questions, and developing a theoretical framework, along with stating a comprehensive search strategy, data extraction methods, and summarizing findings. A survey method was employed to gather research articles, reviews, and publications from linguistics, psychology, neuroscience, speech-language pathology, education, and communication sciences. Keywords such as theories, paradigms, and models in stuttering were utilized to search databases like Google Scholar, PsycINFO, and PubMed. The search strategy identified various sources, including books, journal articles, and websites, for data extraction. Details like authors, publication dates, titles, volume, issue, page numbers, and URLs were recorded following the 2021-APA-7 style. Accuracy checks ensured the precision of the reference list. Extracted data was organized in an Excel spreadsheet for easy access. Data synthesis involved reviewing and extracting relevant information to highlight main ideas, arguments, or results, with key points and themes summarized and compared across sources to maintain cohesive organization with proper citations in the designated style.

Procedure

After entering the raw data on reference listing in an Excel spreadsheet, the codification, categorization, and classification of the themes reflected by the titles included in the study were

generated and subjected to inter-observer reliability checks by involving two mutually blinded independent coders for at least a quarter of the entries in the overall sample of research articles to minimize the risk of bias, which yielded a robust correlation coefficient (r: 0.94). A descriptive and interpretative statistical analysis was carried out by applying measures of non-parametric statistics using IBM SPSS Statistics (Version 27). Effect sizes were analyzed using Cohen's guidelines as 0.93[9], which is interpreted as an 'almost perfect agreement'[10]. Face validity is found to be high for the classification of the thematic categories covered by the research papers.

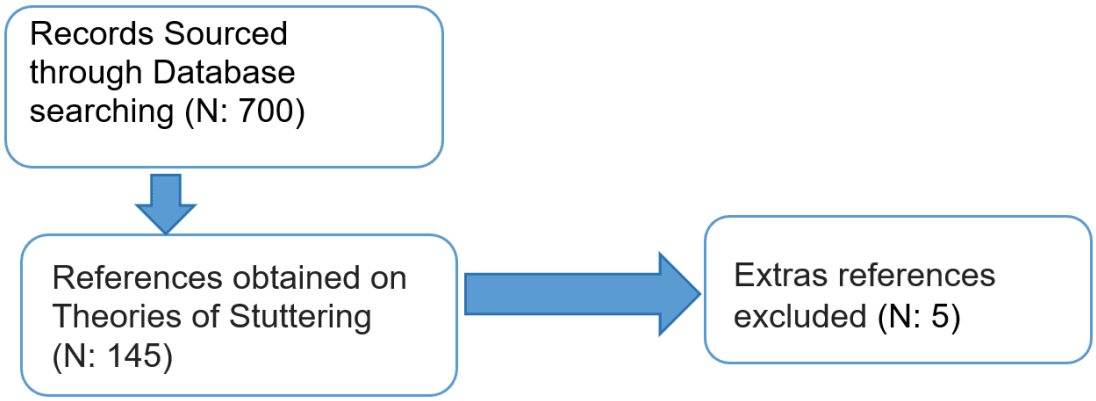

Figure 1. Flow diagram illustrating the literature review process used in this study.

Results

Below is a comprehensive taxonomy of 58 stuttering theories arranged alphabetically (Table 1), outlining each theory's origins, manifestations, and treatments based on their framework, approach, and evidence level, with pertinent references and a ranking of research reliability.

I. Systematic Reviews & Meta-Analyses of Multiple Studies;
II. Randomized Control Trials (RCTs);
III. Cohort/Observational Studies;
IV. Case-Controlled Studies;
V. Cross-Sectional Studies;
VI. Case Studies, Reports & Series;
VII. Anecdotal, Expert, or Personal Opinion.

To evaluate a stuttering theory, the process involved defining the theory, collecting relevant studies and data, and categorizing the findings based on evidence level, methodological quality, sample size, study design, bias, confounding factors, and statistical analyses. Two blinded raters confirmed inter-observer reliability, resulting in a strong correlation coefficient (r: 0.94). The final rating for each theory is determined by its highest evidence level: strong for Level I, moderate for Levels II or III, low for Levels IV or V, and very weak for VI-VII.

In this study of 58 theories of stuttering, only the Lidcombe Theory/Program and Behavioral Theory received the highest evidence-level rating of I. The Multifactorial, Organic, Phonological, and Physiological theories were rated II. Theories related to Anticipatory Struggle, Attachment, Attribution, Cognitive Load, Communicative Failure, Bio-adaptive, Cybernetics, Familial Theory, and Developmental Crises received a rating of III. Theories on Cerebral Dominance, Chinese Medicine, Cross-Cultural Perspectives, EXPLAN, and Gender and Stuttering earned a rating of IV. The Evolutionary Theory, Diagnosogenic, Festingers, and Personal Construct Theory of Stuttering fell midway with a rating of V. Oriental theories such as Ayurveda, Unani, and Homeopathy, along with Action Theory, Conflict Theory, and Neurological theories, received the lowest ratings of VI-VII.

SNos	Title of Theory	Description	Reference	LOE	N
1	Action Theory	Disruptions in coordinating cognitive, linguistic, and motor functions cause speech interruptions, highlighting the fluidity of speech production and fluency.	[11]	VII	1
2	Anticipatory Struggle Theory	Individuals who stutter anticipate difficulty in speaking, which leads to increased tension and struggle during speech attempts. Highlights psychological aspects of stuttering.	[12][13]	III	2
3	**Attachment & Clinging**	Stuttering stems from insecure attachment styles, causing communication anxiety. This emotional reliance results in speech disruptions, highlighting difficulties in self-expression and relationships.	[14]	III	1
4	**Attribution Theory**	**F**ocus on personal explanations and beliefs about the causes of stuttering. Labeling leads to stigma and identity issues, whereas attribution influences motivation, coping mechanisms, and emotional well-being.	[15][16][17]	III-IV	3
5	**Ayurveda Theory**	Stuttering, known as Gadgada, is associated with dosha imbalances (Vata, Pitta, Kapha). Holistic treatment includes lifestyle changes, dietary modifications, yoga, acupuncture, herbal remedies, and natural therapies to restore balance and enhance speech fluency. Sangama grahonmada, a subtype of rakshasa grahonmada, features interrupted voice and vocal tics, known as bhinna gadgada kantham	[18][19][20][21] [22][23]	VI-VII	6
6	**Behavioral Theory**	Stuttering (operant behavior) is learned through conditioning. Negative experiences and reactions to speech disfluencies reinforce avoidance behaviors (instrumental avoidance act), leading to increased stuttering over time through a cycle of anxiety-fear.	[24][25].	I-II	2

SNos	Title of Theory	Description	Reference	LOE	N
7	**Bio-adaptive Theory**	Speech disruptions arise from a combination of biological factors and adaptive responses as coping mechanisms to manage stress or environmental challenges affecting speech fluency.	[26][27][28]	III-IV	3
8	**Capacities & Demands Theory**	Stuttering occurs when the demands of speaking exceed an individual's cognitive and linguistic capacities, leading to breakdowns in fluency during communication.	[29][30][31][32][33]	IV-VII	5
9	**Cerebral Dominance or Orton-Travis Theory**	Stuttering results from atypical brain lateralization, lack of cerebral dominance, or hemisphere imbalance, particularly in speech areas, disrupting communication and fluency. Forced left-handers tend to stutter more frequently.	[34][35][36][37][38][39][40][41][42]	IV-VII	9
10	**Chinese Medicine Theory**	Sees stuttering as a disruption of Qi, the body's vital energy, emphasizing balance through acupuncture, herbal remedies, and Qi Gong. Emotional well-being is vital for fluent speech, with studies showing Qigong's effectiveness in treatment.	[43][44][45]	IV-VII	3
11	**Cognitive Load Theory**	John Sweller in the 1980s, suggested that increased cognitive demands during speech can overwhelm working memory, leading to disruptions in fluency. Interventions aim to reduce cognitive load, facilitating smooth speech production and communication.	[46][47]	III-IV	2
12	**Communicative Pressure Theory**	Examines how social expectations and performance anxiety heighten disfluency	[48]	III-IV	1
13	**Communicative Failure Theory**	Results from a breakdown in the communication process, where individuals struggle to convey thoughts fluently due to anxiety, pressure, or negative experiences, leading to increased disfluency during speech.	[49]	III-IV	1

SNos	Title of Theory	Description	Reference	LOE	N
14	Conditioned **Disintegration Theory**	Arises from learned reactions to anxiety and negative speaking events, where initial disruptions increase fear and avoidance, creating a cycle that reinforces disfluency and highlights conditioning's impact.	[48]	VI-VII	1
15	**Conflict Theory**	Arises from a conflict between the desire to speak and fear of negative evaluation. This internal struggle leads to avoidance behaviors and increased speech disfluency, perpetuating the stuttering cycle.	[50][51]	VI-VII	1
16	**Cybernetics Theory**	Speech production is a feedback-controlled system. Dysregulation in feedback loops leads to inconsistencies in speech timing and coordination, resulting in stuttering. Increased anxiety leads to more stuttering, necessitating self-monitoring, and fluency shaping.	[52][53]	III-IV	2
17	**Cross Cultural Theory**	Cultural beliefs, values, and social norms influence perceptions and experiences of stuttering. Highlight variations in stigma, treatment approaches, and support systems across different cultures, affecting individuals' experiences and coping strategies.	[54][55]	IV	2
18	**Developmental Crises Theory**	Arises during critical developmental phases when children face challenges in language acquisition and social interactions, potentially leading to increased disfluency as they navigate these transitional periods in communication skills.	[56]	III-IV	1
19	**Diagnosogenic Theory**	William M. Johnson asserts that stuttering arises not from inherent speech difficulties but from negative reactions to normal disfluencies that create anxiety and self-awareness.	[57]	V-VI	1
20	**Dysfluency Theory**	Interruptions in speech are a natural part of communication. Stuttering occurs when these normal disfluencies are heightened by anxiety,	[58]	III-IV	1

SNos	Title of Theory	Description	Reference	LOE	N
		pressure, or environmental factors, disrupting fluent speech patterns.			
21	**Evolutionary Theory**	Speech disruptions have adaptive origins, serving as a form of communication that signals vulnerability or social status. Stuttering could reflect evolutionary mechanisms related to social cohesion and group dynamics in early human societies.	[59][60]	V	2
22	**EXPLAN Theory**	Peter Howell's "EXPLAN" (EXplanatory model) suggests that stuttering arises from a mismatch between the planning and execution of speech- when speech demands exceed the fluency capacity of the individual thereby leading to anticipatory anxiety.	[61][62][63][64]	IV-VII	4
23	**Familial Theory**	Charles D Van Riper suggested that genetic and environmental factors contribute to the disorder's prevalence within families. Hereditary predispositions, combined with family dynamics and communication patterns, influence the development and persistence of stuttering.	[65][66][67][68]	III-IV	4
24	**Festinger's Theory**	Based on cognitive dissonance, this theory posits that individuals face conflict between wanting to speak fluently and recognizing their disfluency, leading to anxiety that worsens stuttering and fosters negative self-perception	[69]	V-VII	-
25	**Personal Construct Theory or Stuttering as a way of life**	Views stuttering as a complex interaction of personal experiences, perceptions, and social contexts shaping their identity and communication strategies.	[70][71]	V	3
26	**Gender Theory**	**Proposed by C. Michael T. J. L. K. Van Riper** in the **1980s. Ex**amine gender differences in stuttering prevalence and experiences, and highlight the impact of cultural perceptions, communication	[72]	III-IV	1

SNos	Title of Theory	Description	Reference	LOE	N
		styles, and socialization on stuttering behaviors and treatment.			
27	**Genetic Theory**	Hereditary factors and genetic predispose to this disorder. Can also affect brain structure and function to regulate speech fluency and motor control in individuals. Inbreeding, twin studies, and genetic linkage studies estimate a 2-3 times higher risk of inheriting stuttering in these probands than in the general population.	[73][74][75][76][77][78][79][80][81][82]	I-IV	10
28	**Gestalt Theory**	Propose that language is processed in holistic chunks rather than word-by-word sequentially. Stuttering is a complex interplay of cognitive, emotional, and linguistic factors. Highlight the importance of context in speech development.	[83][84]	IV	2
29	**Developmental Tasks/Havighurst Theory**	Highlight developmental tasks and milestones. Stuttering occurs when individuals encounter difficulties with speech expectations during key growth phases, resulting in anxiety and disfluency while striving for effective communication.	[85]	III-IV	1
30	**Homeopathy Theory**	Advocates for individualized treatment using diluted remedies and natural healing methods to address emotional factors underlying stuttering.	[86][87]	V-VII	2
31	**Hormonal Theory**	Hormone fluctuations during puberty or stress, influence speech fluency by affecting neurological functions and emotional regulation related to speech production.	[88][89][90][91][92]	V-VII	5
32	**Labeling Theory**	Focus on the impact of societal labels and stigma on individuals who stutter. Negative labels reinforce disfluency, affect self-esteem, and influence communication behaviors, perpetuate the cycle of stuttering.	[93][94]	VI	2

SNos	Title of Theory	Description	Reference	LOE	N
33	**Lidcombe Theory/Program**	Is a behavioral intervention for young children who stutter. It focuses on positive reinforcement for fluent speech and involves structured practice, parental involvement, and regular assessments to promote the development of speech fluency.	[95][96][97][98][99]	I	5
34	**Linguistic Theory**	Focus on the interplay between language processing and speech production. Disruptions arise from difficulties in integrating linguistic, phonological, and grammatical aspects, leading to breakdowns in fluency during complex speech tasks or language formulation.	[100]	III-IV	1
35	**Mirror Neuron Theory**	Deficits in mirror neuron systems hinder the ability to imitate and anticipate speech movements. This contributes to difficulties in fluency and coordination during speech production. Criticized for narrow focus of the theory, lack of direct evidence, and over generalization of the theory as applicable to explain everything including mental illness, lip reading, and continuous yawning.	[101][102][103][104]	V-VI	4
36	**Multifactorial Theory**	Emphasize the interplay of genetic, neurological, environmental, and psychological factors. This approach seeks to understand stuttering's complexity beyond a single cause, promoting tailored interventions.	[105]	II-III	1
37	Neurochemical Theory	Serotonin, Dopamine, Nor epinephrine, GABA, and Glutamate are implicated in stuttering. This view faces criticism for insufficient evidence, oversimplification, variability neglect, and methodological flaws like small sample sizes and absent control groups.	[106]	V-VII	1
38	**Neurological Theory**	Neural anomalies involve significant deficits in brain timing networks located in the basal ganglia,	[107][108][109]	VI-VII	5

SNos	Title of Theory	Description	Reference	LOE	N
		cerebellum, premotor cortex, and right inferior frontal gyrus			
39	**Neuropsychological Theory**	Arises from atypical brain processing related to speech production. Neural connectivity, motor control deficits, and cognitive-linguistic challenges collectively disrupt fluent speech and communication patterns.	[110]	VI-VII	1
40.	**Organic Theory**	Historically, this theory has advocated for surgery as a treatment for stuttering, attributing it to physiological issues like structural abnormalities. These methods are uncommon, controversial, and now rejected.	[111]	II-III	1
41	**Parenting Theory**	Suggest parenting styles and communication patterns affect a child's speech development/ fluency.	[112][113][114]	VI-VII	3
42	**Perseveration Theory**	Arises from excessive persistence in speech patterns. Emphasize the role of cognitive processes, where individuals struggle to transition between speech elements, leading to repetitions and disruptions.	[115][116][117] [118][119][120] [115]	III	7
43	**Personality Theory**	Personality traits like anxiety, perfectionism, or introversion, predispose individuals to speech disruptions and influence communication styles, leading to increased self-consciousness and fear, which exacerbate stuttering behaviors. The most accepted is the **"Anxiety-Personality" theory**.	[121][122][123] [60][124][125] [110]	V-VII	8
44	**Phonological Theory**	Disruptions in speech arise from phonological processing difficulties, where challenges in organizing and producing sounds lead to increased disfluency when speaking.	[126]	II-III	1

SNos	Title of Theory	Description	Reference	LOE	N
45	**Physiological Theory**	Speech disruptions stem from neurological and physiological factors, including abnormal brain activity and motor control issues affecting speech production. Stuttering is explained as a form of physiological tremor.	[127][128][129]	II-III	3
46	**Psychiatric Theory**	Focus on underlying mental disorders. View stuttering as a symptom of broader psychological issues. In contrast, the psychological theory examines cognitive and emotional factors influencing speech, emphasizing behavior, anxiety, and learned responses rather than mental illness.	[9][130][131][132]	V-VI	3
47	**Psychoanalytic Theory**	emphasizes unconscious conflicts, repressed emotions, and childhood experiences. Stuttering is a manifestation of internal struggles, where speech disturbances reflect deeper psychological issues, often linked to anxiety or unresolved trauma	[133][134]	V-VI	2
48	**Psychodynamic Theory**	focus on broader emotional processes and relationships, including current dynamics influencing speech and behavior.	[135][136][137][138]	V-VI	4
49	**Self and other perception**	Explore how individuals perceive themselves and how they believe others perceive them. Negative self-perception and fear of judgment can exacerbate stuttering, influencing communication behaviors and reinforcing anxiety in social interactions.	[139][140][141]	V-VII	3
50	**Servo Theory of Motor Control**	Proposed by Norbert Weiner, considered as father of Cybernetics, in 1948. Emphasised motor control in speech production, suggests that speech disruptions occur due to impaired feedback mechanisms, affecting the brain's ability to monitor and adjust speech movements for fluency.	[142][52]	III-IV	2

SNos	Title of Theory	Description	Reference	LOE	N
51	**Semantogenic Theory**	Stuttering is connected to language meanings, development, and emotional experience, stemming from the interplay between language development and emotional experiences. Highlights how speech meanings induce anxiety, causing disfluencies and communication breakdowns	[143]	III-IV	1
52	**Stuttering in Sign Language/Non-Verbal Communication**	Appear as hesitations, repetitions, or non-verbal interruptions. These disfluencies, like in spoken Communication language, can result from cognitive load, anxiety, or social pressures, highlighting the need to understand non-verbal communication dynamics.	Available as Unpublished Masters or Doctoral Dissertations only	V-VII	-
53	Theory of Gadgetry	In the 1940s, LAH Van Riper proposed various technological tools to improve speech techniques for individuals who stutter. These methods focus on reducing tension, extending sounds, using strategic pauses, and incorporating rhythmic patterns. Since the 2010s, numerous devices have emerged for diagnosing and treating stuttering. Tools like Speech Analysis Software evaluate speech patterns, while smartphone apps like "Speech4Good" provide exercises and feedback. Additionally, VR tools and noise-cancelling headphones foster supportive environments, and therapy robots help children practice. Brain stimulation and the OASES assessment tool evaluate stuttering from the speaker's perspective.	[144][145]	III-IV	2
54	**Theory of Primary-Secondary Stuttering**	Distinguishes involuntary disfluencies and learned coping mechanisms developed in response to the challenges of primary stuttering, often exacerbating the condition.	[146]	III-IV	1

SNos	Title of Theory	Description	Reference	LOE	N
55	**Theory of Terminal Fluency**	Anecdotal reports show individuals have experienced temporary relief from stuttering just before death.	[147]	VII	1
56	**Unani Theory**	Connects stuttering to humor imbalances, promoting natural remedies, dietary practices, and lifestyle changes. Views luknat or stammering as owing to flaccidity of tongue or Waja-ul-Lisan.	[148]	VI-VII	1
57	**West's Ictocongenital Hypothesis**	posits congenital neurological abnormalities disrupt speech processing and motor control, leading to fluency issues and stuttering episodes in affected individuals. manifests as dyssynergies of motor mechanisms related to "pyknoepilepsy," "phemolepsy," or "speech epilepsy"	[149][150][150] [151][152][153] [154][155]	III-IV	8
					155

Table 1. Taxonomy on Theories of Stuttering

Discussion

The results of this study highlight a significant disparity in the evidential support for various stuttering theories. The Lidcombe Theory/Program and Behavioral Theory, both rated at evidence level I, demonstrate robust empirical backing, indicating their effectiveness in clinical practice. In contrast, theories such as Multifactorial and Organic received a lower rating of II, suggesting that while they offer valuable insights, they may lack comprehensive empirical validation. Theories rated III and IV, including those related to Anticipatory Struggle and Gender, reflect emerging perspectives but require further investigation to enhance their credibility. Notably, theories with evidence ratings VI-VII, including traditional approaches like Ayurveda and Homeopathy, indicate a need for critical evaluation and more rigorous research. Overall, these findings emphasize the importance of prioritizing evidence-based practices in stuttering interventions and encourage further exploration of underrepresented theories to enrich understanding and treatment approaches.

Ideally and expectedly, every theory, paradigm, or model of stuttering has covered a brief description and an overview of their historical context and evolution, their key themes, evaluation of strengths and limitations regarding their level of acceptance for interdisciplinary perspectives, accommodation for different social-cultural perspectives, explanatory power and clinical adaptability, empirical supports, and power of generalization along with the potential for lending future directions[156]. Does the field of stuttering research need a theory at all, or a trans-theoretical model? This is a question that can be raised[157]. Can the field of stuttering research be relegated to an atheoretical discipline[158]?

Summary

The history of stuttering research has evolved significantly, moving from absurd beliefs like possession by spirits or punishment for moral failings to oversimplified explanations such as "tangled" vocal cords. It has also included unfounded claims linking stuttering to diets, genetic mutations, lack of willpower, childhood bilingualism, trauma, anxiety, and personality traits. Ultimately, the idea that stuttering results from a lack of will ignores its complexity.

Recommendations

There is an urgent need for clear taxonomic criteria to categorize models and theories, ensuring consistency in the review process. Utilizing various databases will help gather a comprehensive range of literature on stuttering from multiple disciplines. A historical overview of stuttering theories is essential for contextualizing current models. Assessing each model's strengths and weaknesses is necessary, while contributions from psychology, linguistics, and neuroscience will enhance understanding and identify research gaps. Interdisciplinary collaboration and peer feedback are crucial for accuracy and comprehensiveness.

References

1. ^*Constantino C, Campbell P, Simpson S (2022). Stuttering and the social model. Journal of Communicat ion Disorders. 96: 106200.*
2. ^*Banerjee S (2021). Understanding stuttering through the prism of the social model of disability. Disabil ities & Impairments. 35(1): 15-27.*

3. ^Gordon R, Beloussov L (2006). From observations to paradigms; the importance of theories and model s. International Journal of Developmental Biology. 50: 103-111.
4. ^Khan HA (2003). "On paradigms, theories, and models." Problemas del Desarrollo. 34(134): 149-155.
5. ^Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, Moher D (2021). "The PRISM A 2020 statement: an updated guideline for reporting systematic reviews." International Journal of Sur gery. 88: 105906.
6. ^Venkatesan S. Ethical guidelines for bio-behavioral research. Mysore: All India Institute of Speech and Hearing; 2009.
7. ^Booth A, Sutton A, Clowes M, Martyn-St James M. Systematic approaches to a successful literature revi ew. London/New Delhi/Los Angeles: Sage; 2021.
8. ^DeVito JA. Are theories of stuttering necessary? Commun Stud. 1969;20(3):170-7.
9. a, bCohen BD (1982). Schizophrenic speech as cognitive stuttering. Behavioral and Brain Sciences. 5(4): 596-596.
10. ^Landis JR, Koch GG. The measurement of observer agreement for categorical data. Biometrics. 1977;33 (1):159-74.
11. ^Van Riper C. The treatment of stuttering. New Jersey: Prentice-Hall; 1973.
12. ^Bloodstein O (1988). Verification of stuttering in a suspected malingerer. Journal of fluency disorders. 1 3(2): 83-88.
13. ^Bloodstein O (1960). The development of stuttering: I. Changes in nine basic features. Journal of Speec h and Hearing Disorders. 25(3): 219-237.
14. ^Klaniczay S (2000). "On childhood stuttering and the theory of clinging." Journal of Child Psychothera py. 26(1): 97-115.
15. ^Boyle MP (2016). The impact of causal attribution on stigmatizing attitudes toward a person who stutt ers. Journal of communication disorders. 60: 14-26.
16. ^Boyle MP (2014). Understanding perceptions of stuttering among school-based speech-language path ologists: An application of attribution theory. Journal of Communication Disorders. 52: 143-155.
17. ^Boyle MP, Blood GW, Blood IM (2009). Effects of perceived causality on perceptions of persons who stu tter. Journal of fluency disorders. 34(3): 201-218.
18. ^Mamidi P, Gupta K (2019). "Varna swareeyam of Charaka Indriya sthana–An explorative study." Inter national Journal of Ayurveda and Alternate Medicines. 7(5): 152-175.

19. ^ *Bidwai V, Rao M, Rathod R (2021). Use of Kalyanleha in Speech Impairment.. International Journal of Science and Research, 10, 6, 1352-1356.*
20. ^ *Singh AK, Singh M, Bamane P, Shailaja U (2020). "The role of Vakshuddhikar Choorna in the manage ment of stuttering." Journal of Pharmacognosy and Phytochemistry. 9(5): 3319-3320.*
21. ^ *Ayu VSSGM (2017). Ayurvedic management with Sookshma Aushadi Chikithse: a case report. Internati onal Journal of Case Reports (IJCR). 1: 1.*
22. ^ *Kauffman H (2016). "Yoga: Potential benefits for persons who stutter." Perceptual and motor skills. 12 2(1): 193-199.*
23. ^ *Craig AR, Kearns M (1995). Results of a traditional acupuncture intervention for stuttering. Journal of S peech, Language, and Hearing Research. 38(3): 572-578.*
24. ^ *Lanyon RI (1978). "Behavioral approaches to stuttering." In Progress in behavior modification (Vol. 6, pp. 47-83). Amsterdam, The Netherlands; Elsevier.*
25. ^ *Lanyon RI, Barrington CC, Newman AC (1976). "Modification of stuttering through EMG biofeedback: A preliminary study." Behavior Therapy. 7(1): 96-103.*
26. ^ *Wertheim ES. (1974). "Key Features of the Bio-Adaptive Theory of Stuttering and its Conical Implicatio ns." Australian Journal of Human Communication Disorders. 2(2): 86-94.*
27. ^ *Werthem ES. (1973). "Ego dysfunction in stuttering and its relationship to the subculture of the nuclear family: a predictive study based on the bio-adaptive theory of stuttering. II." British Journal of Medical P sychology. 46(2): 155-180.*
28. ^ *Wertheim ES. (1972). "A new approach to the classification and measurement of stuttering." Journal of Speech and Hearing Disorders. 37(2): 242-251.*
29. ^ *Adams MR (1990). The demands and capacities model I: Theoretical elaborations. Journal of Fluency D isorders. 15(3): 135-141.*
30. ^ *Siegel GM (2000). "Demands and capacities or demands and performance?." Journal of Fluency Disord ers. 25(4): 321-327.*
31. ^ *Yaruss JS. (2000). "The role of performance in the demands and capacities model." Journal of Fluency Disorders. 25(4): 347-358.*
32. ^ *Starkweather CW, Gottwald SR. (1990). "The demands and capacities model II: Clinical applications." J ournal of Fluency Disorders. 15(3): 143-157.*
33. ^ *Manning WH (2000). "The demands and capacities model." Journal of Fluency Disorders. 25(4): 317-3 19.*

34. ^ *Mohammadi H, Papadatou-Pastou M (2020). "Cerebral laterality as assessed by hand preference measures and developmental stuttering." Laterality. 25(2): 127–149.*
35. ^ *Kushner HI (2012). "Retraining left-handers and the etiology of stuttering: the rise and fall of an intriguing theory." Laterality: Asymmetries of Body, Brain and Cognition. 17(6): 673–693.*
36. ^ *Kushner HI (2011). "Retraining left-handers and the etiology of stuttering: The rise and fall of an intriguing theory." Laterality. 17(6): 673–693.*
37. ^ *Quinn PT (1976). "Cortical localization of speech in normals and stutterers." Australian Journal of Human Communication Disorders. 4(2): 118–121.*
38. ^ *Dorman MF, Porter Jr RJ (1975). Hemispheric lateralization for speech perception in stutterers. Cortex. 11(2): 181–185.*
39. ^ *Daniels EM (1940). An analysis of the relation between handedness and stuttering with special reference to the Orton-Travis theory of cerebral dominance. Journal of Speech Disorders. 5(4): 309–326.*
40. ^ *Heltman HJ (1940). Contradictory evidence in handedness and stuttering. Journal of Speech Disorders. 5(4): 327–331.*
41. ^ *Travis LE, Johnson W. (1934). "Stuttering and the concept of handedness." Psychological Review. 41 (6): 534.*
42. ^ *Travis LE, Lindsley DB. (1933). "An action current study of handedness about stuttering." Journal of Experimental Psychology. 16(2): 258.*
43. ^ *Ma Y (2021). Life Experience of People who Stutter: The Chinese Context. University of Louisiana at Lafayette.*
44. ^ *Huang WL (2019). What is the Cause of Language Impairment in Traditional Chinese Medicine and how can we treat it? J Clin Case Rep Trials. 2(2).*
45. ^ *Półrola P, Góral-Półrola J (2013). "In search of new methods. Qigong in stuttering therapy." Medical Studies/Studia Medyczne. 29(3): 242–250.*
46. ^ *MacPherson MK (2019). "Cognitive load affects speech-motor performance differently in older and younger adults." Journal of Speech, Language, and Hearing Research. 62(5): 1258–1277.*
47. ^ *Bosshardt HG (2006). Cognitive processing load as a determinant of stuttering: Summary of a research program. Clinical Linguistics & Phonetics. 20(5): 371–385.*
48. ^ a, b *Sheehan JG, Martyn MM. Stuttering and its disappearance. J Speech Hear Res. 1970;13(2):279–89.*
49. ^ *Watson P, Guitar B. Respiratory stuttering?: A case history. J Fluency Disord. 1986;11(2):165–73.*

50. ^Sheehan JG (1958). "Conflict theory of stuttering." In J. Eisensen. (Ed.). Stuttering: A symposium. New York: Harper. (pp. 121-166).
51. ^Sheehan JG (1954). "An integration of psychotherapy and speech therapy through a conflict theory of stuttering." Journal of Speech and Hearing Disorders. 19(4): 474-482.
52. a, bNeilson MD, Neilson PD, Quinn PT (1976). "A Cybernetic Approach to Control of Speech." Australian Journal of Human Communication Disorders. 4(1): 79-84.
53. ^Smith KU, Henry JP. (1967). "Cybernetic foundations for rehabilitation." American Journal of Physical Medicine & Rehabilitation. 46(1): 379-467.
54. ^Brosch S, Pirsigb W (2001). Stuttering in history and culture. International Journal of Pediatric Otorhinolaryngology. 59(2): 81–87.
55. ^Robinson Jr TL, Crowe TA (1998). "Culture-based considerations in programming for stuttering intervention with African American clients and their families." Language, speech, and hearing services in schools. 29(3): 172-179.
56. ^Wyatt GL. (1958). "A developmental crisis theory of stuttering." Language and Speech. 1(4): 250-264.
57. ^Gateley G (2003). Johnson's diagnosogenic theory of stuttering: An update. ETC: A Review of General Semantics. 60(1): 22-28.
58. ^Johnson W (1959). Toward understanding stuttering. Chicago: National Society for Crippled Children and Adults /Easterseals.
59. ^MacNeilage PF (1998). "The frame/content theory of evolution of speech production." Behavioral and brain sciences. 21(4): 499-511.
60. a, bBluemel CS (1933). The dominant gradient in stammering. Quarterly Journal of Speech. 19(2): 233-242.
61. ^Howell P (2011). Recovery from stuttering. Psychology Press.
62. ^Howell P, Dworzynski K (2005). Planning and execution processes in speech control by fluent speakers and speakers who stutter. Journal of Fluency Disorders. 30(4): 343-354.
63. ^Howell P, Au-Yeung J (2002a). The EXPLAN theory of fluency control applied to the diagnosis of stuttering. Amsterdam Studies in the Theory and History of Linguistic Science Series 4. 75-94.
64. ^Howell P (2002b). The EXPLAN theory of fluency control is applied to the treatment of stuttering. Amsterdam Studies in the Theory and History of Linguistic Science Series, 4. 95-118.

65. ^ Gottwald SR (1999). Family communication patterns and stuttering development: An analysis of the re search literature. In Stuttering Research and Practice (pp. 175-192). Psychology Press.

66. ^ Cox NJ, Seider RA, Kidd KK (1984). Some environmental factors and hypotheses for stuttering in famili es with several stutterers. Journal of Speech, Language, and Hearing Research. 27(4): 543-548.

67. ^ Allan FE, Williams CL (1974). Interaction patterns of families containing a stuttering sibling. Australia n Journal of Human Communication Disorders. 2(1): 32-40.

68. ^ Gray M (1940). The X family: a clinical and laboratory study of a “stuttering” family. Journal of Speech Disorders. 5(4): 343-348.

69. ^ Neumann K, Euler HA, Zens R, Piskernik B, Packman A, Louis KO, et al. "Spontaneous" late recovery fr om stuttering: dimensions of reported techniques and causal attributions. J Commun Disord. 2019;81:10 5915.

70. ^ Fransella F (1971). A personal construct theory and treatment of stuttering. Journal of Psychosomatic R esearch. 15(4): 433-438.

71. ^ Fransella F (1968). Self-concepts and the stutterer. The British Journal of Psychiatry. 114(517): 1531-15 35.

72. ^ Iqbal A, Hassan S, Kurd SA (2023). "Evaluating Effects of Gender, Education and Age on the Identity of People Who Stutter." Journal of Development and Social Sciences. 4(2): 158-166.

73. ^ Polikowsky HG, Shaw DM, Petty LE, Chen HH, Pruett DG, Linklater JP, Kraft SJ (2022). "Population-ba sed genetic effects for developmental stuttering." Human Genetics and Genomics Advances. 3(1).

74. ^ Frigerio-Domingues CE, Gkalitsiou Z, Zezinka A, Sainz E, Gutierrez J, Byrd C, Drayna D (2019). Genetic factors and therapy outcomes in persistent developmental stuttering. Journal of Communication Disord ers. 80: 11-17.

75. ^ Drayna D, Kang C (2011). Genetic approaches to understanding the causes of stuttering. Journal of Neu rodevelopmental Disorders. 3: 374-380.

76. ^ Kraft SJ, Yairi E (2011). "Genetic bases of stuttering: The state of the art, 2011." Folia Phoniatrica et Log opaedica. 64(1): 34-47.

77. ^ Wittke-Thompson JK, Ambrose N, Yairi E, Roe C, Cook EH, Ober C, Cox NJ. (2007). "Genetic studies of st uttering in a founder population." Journal of fluency disorders. 32(1): 33-50.

78. ^ Suresh R, Ambrose N, Roe C, Pluzhnikov A, Wittke-Thompson JK, Ng MCY, Cox NJ. (2006). "New compl exities in the genetics of stuttering: significant sex-specific linkage signals." The American Journal of Hu man Genetics. 78(4): 554-563.

79. ^ *Ambrose NG, Cox NJ, Yairi E (1997). The genetic basis of persistence and recovery in stuttering. Journal of Speech, Language, and Hearing Research. 40(3): 567-580.*

80. ^ *Yairi E, Ambrose N, Cox N. (1996). "Genetics of stuttering: A critical review." Journal of Speech, Langua ge, and Hearing Research. 39(4): 771-784.*

81. ^ *Kidd KK (1977). "A genetic perspective on stuttering." Journal of Fluency Disorders. 2(4): 259-269.*

82. ^ *Sheehan JG, Costley MS (1977). "A reexamination of the role of heredity in stuttering." Journal of Speec h and Hearing Disorders. 42(1): 47-59.*

83. ^ *Burke C (2020). "Repeat after me": Gestalt, fluency, and biographical research. In Social Research and Disability (pp. 153-163). Routledge.*

84. ^ *Kaplan NR, Kaplan ML (1978). "The Gestalt approach to stuttering." Journal of Communication Disord ers. 11(1): 1-9.*

85. ^ *Peters HF, Starkweather CW (1989). "Development of stuttering throughout life." Journal of Fluency Di sorders. 14(5): 303-321.*

86. ^ *Preus A (1994). "Stuttering Therapy in 1837 and a Young Boy's Dramatic Experience." Folia phoniatric a et logopaedica. 46(5): 254-259.*

87. ^ *Honig P (1947). The stutterer acts it out. Journal of Speech Disorders. 12(1): 105-109.*

88. ^ *Yekta HS, Fakoori F, Mohammadi H, Vaziri S. (2020). "The Association between Sex Hormones and De velopmental Stuttering Disorder: A Systematic Review." Journal of Molecular Biology Research. 10(1): 18 5-185.*

89. ^ *Glaser EM (1936). Possible relationship between stuttering and endocrine malfunctioning. Journal of S peech Disorders. 1(3): 81-89.*

90. ^ *Selçuk EB, Erbay LG, Özcan ÖÖ, Kartalci Ş, Batcioğlu K (2015). "Testosterone levels of children with a d iagnosis of developmental stuttering." Therapeutics and Clinical Risk Management. 11: 793-798.*

91. ^ *Montag C, Bleek B, Breuer S, Prüss H, Richardt K, Cook S, Reuter M (2015). "Prenatal testosterone and s tuttering." Early Human Development. 91(1): 43-46.*

92. ^ *Mohammadi H, Joghataei MT, Rahimi Z, Faghihi F, Khazaie H, Farhangdoost H, Mehrpour M (2017). "Sex steroid hormones and sex hormone binding globulin levels, CYP17 MSP AI (- 34 T: C) and CYP19 co don 39 (Trp: Arg) variants in children with developmental stuttering." Brain and language. 175: 47-56.*

93. ^ *Wingate ME. (1962). "Evaluation and stuttering: III. Identification of stuttering and the use of a label." Journal of Speech and Hearing Disorders. 27(4): 368-377.*

94. ^ *Daniels DE, Gabel RM (2004). The impact of stuttering on identity construction. Topics in Language Disorders. 24(3): 200-215.*

95. ^ *O'Brian S, Iverach L, Jones M, Onslow M, Packman A, Menzies R (2013). "Effectiveness of the Lidcombe Program for early stuttering in Australian community clinics." International Journal of Speech-Language Pathology. 15(6): 593-603.*

96. ^ *Miller B, Guitar B (2009). "Long-term outcome of the Lidcombe Program for early stuttering intervention." American Journal of Speech-Language Pathology. 18(1): 42-49.*

97. ^ *Jones M, Onslow M, Packman A, Williams S, Ormond T, Schwarz I, Gebski V (2005). "Randomized controlled trial of the Lidcombe programme of early stuttering intervention." bmj. 331(7518): 659.*

98. ^ *Kingston M, Huber A, Onslow M, Jones M, Packman A (2003). "Predicting treatment time with the Lidcombe Program: Replication and meta-analysis." International Journal of Language & Communication Disorders. 38(2): 165-177.*

99. ^ *Harris V, Onslow M, Packman A, Harrison E, Menzies R (2002). An experimental investigation of the impact of the Lidcombe Program on early stuttering. Journal of Fluency Disorders. 27(3): 203-214.*

100. ^ *Soderberg GA. (1967). "Linguistic factors in stuttering." Journal of Speech and Hearing Research. 10(4): 801-810.*

101. ^ *Snyder G, Jones MR, Snyder G, Jones MR. (2017). "The role of mirror neurons relative to the core stuttering pathology and compensatory stuttering behaviors." Clinical Archives of Communication Disorders. 2 (1): 1-6.*

102. ^ *Snyder GJ, Waddell DE, Blanchet P. (2016). "Mirror neurons as a model for the science and treatment of stuttering." NeuroReport. 27(1): 56-60.*

103. ^ *Einstein A (2005). Stuttering Inhibition via Mirror Neurons and the Perception-Production Link. Stuttering, Chapter 5. 171-220. San Diego: Plural Publishing.*

104. ^ *Kalinowski J, Saltuklaroglu T (2003). "Speaking with a mirror: engagement of mirror neurons via choral speech and its derivatives induces stuttering inhibition." Medical Hypotheses. 60(4): 538-543.*

105. ^ *Smith A, Weber C (2017). "How stuttering develops: The multifactorial dynamic pathways theory." Journal of Speech, Language, and Hearing Research. 60(9): 2483-2505.*

106. ^ *Luc F (1999). "Stuttering: A neurophysiological perspective." In Stuttering Research and Practice (pp. 85-102). Psychology Press.*

107. ^ *Packman A, Code C, Onslow M. On the cause of stuttering: integrating theory with brain and behavioral research. J Neurolinguistics. 2007;20(5):353-62.*

108. ^Willemse N, Viljoen M, Govender C. Neurological aspects of stuttering: summary overview of scientific findings. Health SA Gesondheid. 2006;11(1):58-66.

109. ^Alm PA. Stuttering, emotions, and heart rate during anticipatory anxiety: a critical review. J Fluency Disord. 2004;29(2):123-33.

110. a, bYeudall LT. (1985). "A neuropsychological theory of stuttering." Seminars in Speech and Language. 6 (3): 225-231.

111. ^Rieber RW, Wollock J (1977). "The historical roots of the theory and therapy of stuttering." Journal of Communication Disorders. 10(1-2): 3-24.

112. ^Venkatesan S. (2020). "Uninvolved parenting in children with academic delays and specific learning disabilities." The International Journal of Indian Psychology. 8(2): 961-966.

113. ^Venkatesan S. (2019a). Parenting: A caselet-based narrative. India/Singapore/Malaysia: Notion Press.com

114. ^Venkatesan S. (2019b). "Hyper-parenting in children with intellectual and developmental disabilities." Journal of Psychology. 10(1-2): 22-34.

115. a, bEisenson J (1937). A note on the perseverating tendency in stutterers. The Pedagogical Seminary and Journal of Genetic Psychology. 50(1): 195-198.

116. ^Martin R (1962). "Stuttering and perseveration in children." Journal of Speech and Hearing Research. 5(4): 332-339.

117. ^King PT (1961). "Perseveration in stutterers and nonstutterers." Journal of Speech and Hearing Research. 4(4): 346-357.

118. ^King PT (1953). Perseverative Factors in a Stuttering and a Non-Stuttering Population. The Pennsylvania State University.

119. ^Sayles DG (1971). "Cortical excitability, perseveration, and stuttering." Journal of Speech and Hearing Research. 14(3): 462-475.

120. ^Eisenson J, Winslow CN (1938). The perseverating tendency in stutterers in a perceptual function. Journal of Speech Disorders. 3(4): 195-198.

121. ^Alm PA (2014). Stuttering in relation to anxiety, temperament, and personality: Review and analysis with focus on causality. Journal of fluency disorders. 40: 5-21.

122. ^Banerjee S, Casenhiser D, Hedinger T, Kittilstved T, Saltuklaroglu T (2017). The perceived impact of stuttering on personality as measured by the NEO-FFI-3. Logopedics Phoniatrics Vocology. 42(1): 22-28.

123. ^ *Bender JF (1942). The stuttering personality. American Journal of Orthopsychiatry. 12(1): 140.*

124. ^ *Iverach L, O'Brien S, Jones M, Block S, Lincoln M, Harrison E, Onslow M (2010). "The five factor model of personality applied to adults who stutter." Journal of Communication Disorders. 43(2): 120-132.*

125. ^ *Manning W, Beck JG (2013). "Personality dysfunction in adults who stutter: Another look." Journal of F luency Disorders. 38(2): 184-192.*

126. ^ *Nippold MA (2002). "Stuttering and phonology: Is there an interaction?" American Journal of Speech-Language Pathology. 11(2): 99-110.*

127. ^ *Hill H (1944). Stuttering: II. A review and integration of physiological data. Journal of Speech Disorder s. 9(4): 289-324.*

128. ^ *Fibiger S (1971). Stuttering explained as a physiological tremor. Speech Transmission Lab Quarterly Pr ogress and Status Report. 2(3): 1-24.*

129. ^ *Harris KS (2006). Some physiological studies on stuttering. Ethics: A Case Study from Fluency. 97.*

130. ^ *McGuire A (2023). "Mental Health Issues." A Cultural History of Disability in the Modern Age, 133.*

131. ^ *Ludlow CL (1999). "A conceptual framework for investigating the neurobiology of stuttering." In Stutt ering Research and Practice (pp. 63-84). Psychology Press.*

132. ^ *Bluemel CS. Stuttering: a psychiatric viewpoint. J Speech Hear Disord. 1958;23(3):263-7.*

133. ^ *Glauber IP (1958). Freud's contributions on stuttering: their relation to some current insights. Journal o f the American Psychoanalytic Association. 6(2): 326-347.*

134. ^ *Coriat IH (1915). Stammering as a psychoneurosis. The Journal of Abnormal Psychology. 9(6): 417.*

135. ^ *Plänkers T (1999). "Speaking in the claustrum: The psychodynamics of stuttering." The International J ournal of Psycho-Analysis. 80(2): 239.*

136. ^ *Snyder MA. (1977). "A psychodynamic approach to the theory and therapy of stuttering." Journal of co mmunication disorders. 10(1-2): 85-88.*

137. ^ *Freund H (1953). Psychopathological aspects of stuttering. American Journal of Psychotherapy. 7(4): 6 89-705.*

138. ^ *Despert JL (1943). Psychopathology of stuttering. American Journal of Psychiatry. 99(6): 881-885.*

139. ^ *Abasi CH (2022). The Science Behind Stuttering: Reducing Public Stigma and Misconceptions. The Mac ksey Journal. 3(1): 1-15.*

140. ^ *Roberts P (2010). Myths and Mysteries of Bilingual Stuttering.*

141. ^ Cardell E (2003). Demystifying Stuttering Lore. International Journal of Disability, Development, and Education. 50(2): 221-224.

142. ^ Mysak ED (1960). "Servo theory and stuttering." Journal of Speech and Hearing Disorders. 25(2): 188-195.

143. ^ Van Riper C. (1947). Speech correction: principles and methods. New York: Prentice Hall. Pp. 316.

144. ^ Venkatesan S. (2022). "Changing Socio-Cultural Models and Policy Programs in Rehabilitation of Pers ons With Communication Disorders." In Research Anthology on Physical and Intellectual Disabilities in an Inclusive Society (pp. 660-681). IGI Global.

145. ^ Venkatesan S. (2019c). "Analysis of themes and issues in neurodevelopmental disorders." In Emerging Trends in the Diagnosis and Intervention of Neurodevelopmental Disorders (pp. 1-31). IGI Global.

146. ^ Wallin JE. (1917). "Theories of stuttering." Journal of Applied Psychology. 1(4): 349.

147. ^ Duong PH, Zulian GB (2007). Disappearance of a Stutter Shortly Before Death. American Journal of Ho spice and Palliative Medicine®. 24(2): 141-143.

148. ^ Rai A, Fazil M, Rasheed A, Ahmad B, Parveen S, Nikhat S (2020). "Role of Unani medicines in oro-dent al diseases: A comprehensive review and scientific evidence." Fortune Journal of Health Sciences. 3(1): 3 0-54.

149. ^ Bradford D (1962). An investigation of certain theories of stuttering and their relation to therapy for st uttering. New York University.

150. a, b Douglass E (1960). Stuttering—A Symposium. American Journal of Psychiatry. 116(9): 862-862.

151. ^ Lebrun Y (1991). "Stuttering and epilepsy." Journal of neurolinguistics. 6(4): 433-444.

152. ^ Michel V, Burbaud P, Taillard J, Gaida T, Joseph PA, Duché B, Bioulac B (2004). "Stuttering or reflex sei zure? A case report." Epileptic disorders. 6(3): 181-185.

153. ^ Turk AZ, Farhan M, Lama Al-Khoury MD, Maguire GA, SheikhBahaei S. (2023). "A link between seizur e and stuttering disorders?" Annals of Clinical Psychiatry. 35(1): 61-62.

154. ^ Valenti MP, Rudolf G, Carré S, Vrielynck P, Thibault A, Szepetowski P, Hirsch E. (2006). "Language-ind uced epilepsy, acquired stuttering, and idiopathic generalized epilepsy: phenotypic study of one family." Epilepsia. 47(4): 766-772.

155. ^ Vossler DG, Haltiner AM, Schepp SK, Friel PA, Caylor LM, Morgan JD, Doherty MJ. (2004). "Ictal stutteri ng: a sign suggestive of psychogenic nonepileptic seizures." Neurology. 63(3): 516-519.

156. ^ Packman A, Attanasio JS (2017). Theoretical issues in stuttering. Routledge.

157. ^ *Turnbull J. (2000). "The transtheoretical model of change: Examples from stammering." Counselling Psychology Quarterly. 13(1): 13-21.*

158. ^ *Goldfarb R (2006). Ethics: A case study from fluency. San Diego: Plural Publishing.*

Declarations

Funding: No specific funding was received for this work.

Potential competing interests: No potential competing interests to declare.