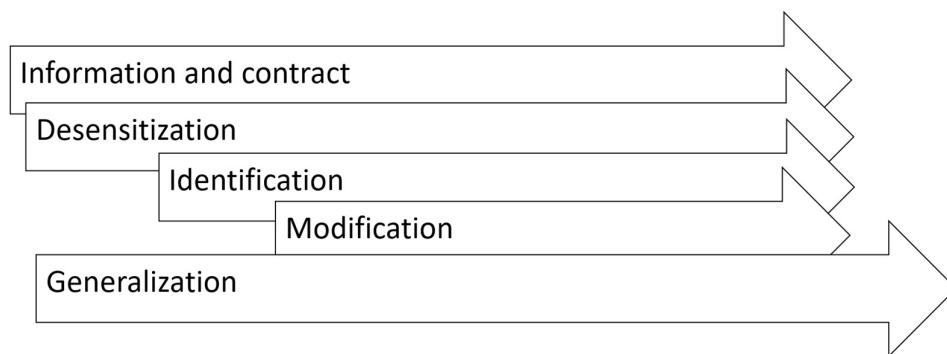


Supplemental Material S5. Description of the therapy program *KIDS*.

The therapy program School-*KIDS* (Kinder Dürfen Stottern, "Children are allowed to stutter") targets school-age children between 7-12 years who stutter. It was developed for outpatient individual therapy with 1-2 therapy sessions per week. In Germany, up to 50 sessions of 45 minutes are covered by the health insurance. The authors Sandrieser and Schneider recommend 1-2 treatment sessions per week. The therapy consists of 5 treatment phases which may, but need not, be applied in chronological order (see also Therapy Principles):



Phase	Prerequisites	Goals	Components and Interventions
Information and Contract	<ul style="list-style-type: none"> - stuttering treatment is warranted - caregivers have agreed to participate in treatment 	<ol style="list-style-type: none"> 1. To inform parents about the findings of the assessment, the therapy concept and the goals of <i>KIDS</i>. 2. To inform the child has been informed about stuttering, the therapy concept and the general goals of <i>KIDS</i>. 3. To clarify the therapy mandate from parents and child to the clinician 4. To identify all parental concerns. 5. To complet a triangular contract with individualized, realistic goals, concrete procedures and distribution of responsibilities. 	<ol style="list-style-type: none"> 1. Education of parents and contract <ul style="list-style-type: none"> - information about the consequences of not starting therapy as well as trustworthy, available therapy methods - information about the structural conditions (e.g., insurance coverage, waiting times) - Contracting: clarification of the roles of all parties involved and reflection on their own behavior → agreements on <ol style="list-style-type: none"> 1) structure (e.g., place, frequency, scheduling, costs of the therapy) 2) process (e.g., methods, type of cooperation, exchange of information during therapy).

			<p>3) responsibilities of the parties involved (mostly child, parents, and clinician)</p> <p>2. Education of the child and contract</p> <ul style="list-style-type: none"> - basic education on stuttering - clarification of the child's goals for treatment - parent(s), child and clinician conclude a written and/or visualized therapy contract
			<p>The contract is continuously re-evaluated and adapted (if necessary) during the course of treatment.</p>
Desensitization	<ul style="list-style-type: none"> - triangular contract has been completed - parents have been informed that core symptoms may increase during desensitization 	<ol style="list-style-type: none"> 1. The child and parents react neutrally toward stuttering symptoms. 2. The child can name, imitate, and explain own stuttering core behaviors. 3. Avoidance behavior is notably reduced. 4. In most situations, the child is able to pseudo-stutter calmly. 5. The child is ready to speak out and inform others about stuttering. 6. The child can appropriately reflect upon annoying or derogatory listener reactions and usually responds adequately. 7. The child largely controls stuttering-related feelings of fear and expects to be able to cope with communication situations. 8. The child largely gains a feeling of control over stuttering and speaking. 	<ol style="list-style-type: none"> 1. Taboo eradication <ul style="list-style-type: none"> - detailed information about the symptomatology, causation and neurophysiology of stuttering and existing prejudices - applying this knowledge to the analysis of others' stuttering, imitated stuttering, and if interested, one's own stuttering - in-depth analysis of the school situation with the child 2. Desensitization toward the symptoms <ul style="list-style-type: none"> - the child learns pseudo-stuttering (purposeful tension-free part-word repetitions) → beginning with sentence-level up to in vivo desensitization (linguistic and situational complexity is gradually increased) - principle of systematic desensitization is taught → child develops a personal desensitization hierarchy and undertakes "courage tests" with pseudo-stuttering in and outside the therapy room - the entire family is invited and informed about stuttering and the therapy

		<ul style="list-style-type: none"> - school event on stuttering is planned and carried out in the later course of therapy 	
		3. Desensitization toward listeners' reactions	<ul style="list-style-type: none"> - use of open stuttering (core symptoms without secondary behavior) - hierarchical in vivo desensitization to listener reactions
Identification	- the child appears ready to deal with real symptoms	<ol style="list-style-type: none"> 1. The child can perceive, imitate, vary and describe own stuttering symptoms with regard to type, duration, affected word/sound, articulatory properties, accompanying behavior, avoidance behavior and emotional responses. 2. The child is able to monitor own symptoms during running speech. 3. The child is able to stop speaking during symptoms. 4. The child is able to identify and talk about own emotions related to speaking and stuttering. 5. The child shows predominantly open stuttering and can tolerate negative emotions. 6. The child is aware of own avoidance behavior and can reduce it. 	<ol style="list-style-type: none"> 1. Articulatory phonetics <ul style="list-style-type: none"> - the child is taught the basics of perception, conscious control and description of (fluent and stuttered) speech production 2. Analysis of symptoms <ul style="list-style-type: none"> - articulatory phonetics is used to analyze stuttering symptoms (real and imitated stuttering events) <ul style="list-style-type: none"> → attention is paid to the quality of symptoms → individual core symptoms are investigated with regard to affected word/syllable, length, secondary behaviors, and possible accompanying feelings and thoughts → identification of avoidance behavior, thoughts and feelings related to speaking and stuttering 3. Symptom registration ('monitoring') <ul style="list-style-type: none"> - the child is trained to direct attention and register stuttering moments immediately → prerequisite for successful use of modification techniques - the child registers as many stuttering moments as possible in situations with linguistically increasing demands → a) in running speech of others, b) in the child's own speech

Modification	<ul style="list-style-type: none"> - the child can describe the type and quality of own stuttering symptoms - the child can (mostly) calmly analyze own symptoms 	<ol style="list-style-type: none"> 1. The child applies the modification techniques with confidence, without having to pay much attention to the process and its correct realization. 2. The child can judge the quality of applying the modification techniques without any help, and is able to find out the sources of mistakes and correct them in daily life. 3. The child can apply the modification techniques confidently in stressful situations. 4. The child stands by the fact that the modification techniques are effective. 5. The child can decide against the use of modification techniques in situations where it seems to be more comfortable to stutter openly. 6. The child accepts that the techniques may fail in stressful situations. 	<ol style="list-style-type: none"> 1. prolongation (preparatory set, Van Riper, 2006) for the prevention of a symptom <ul style="list-style-type: none"> - initial practice by imitation of meaningless syllables in slow motion - practice of prolongations in words, sentences, etc. (linguistic hierarchy) - analysis of own prolongations and learning to correct them - desensitization towards use of prolongations in everyday situations 2. pullout (Van Riper, 2006), to resolve a symptom <ul style="list-style-type: none"> - initial practice of stopping and freezing within a core symptom - practice of pullouts in pseudo symptoms with increasing linguistic demands - practice of pullouts in real symptoms with increasing situational demands - desensitization toward use of pullout in everyday situations
Generalization	<ul style="list-style-type: none"> - the child masters speech techniques and other skills within the therapy setting 	<ol style="list-style-type: none"> 1. The child transfers acquired skills (e.g., speech techniques, pseudo-stuttering) to many areas of life. 2. The child is prepared for the end of therapy. 3. At the end of therapy, the child feels competent to manage stuttering symptoms and speech-related anxiety. 	<ol style="list-style-type: none"> 1. Generalization outside the therapy setting <ul style="list-style-type: none"> - practice of acquired skills in everyday communication situations (outside the therapy setting) 2. Generalization at the final stage of therapy <ul style="list-style-type: none"> - strengthening the child's own initiative and responsibility to continue training skills - problem-solving for individual challenges 3. End of therapy and follow-up <ul style="list-style-type: none"> - intervals between therapy sessions are stretched out - maintenance of skills - making a video of one's own skills in case of a relapse

If necessary, a framework therapy can supplement the phases of *KIDS* in individual cases. Framework therapy refers to all strategies that go beyond the core elements described here. In cases, where a child who stutters lacks relevant skills or competencies, these may be trained as a prerequisite for another intervention (e.g., divided attention to be able to use modification techniques efficiently or social competency to be able to stutter openly in conversation with others).

Therapy Principles	Description
Tailored therapy	<ul style="list-style-type: none"> - adaption of the treatment to the individual's needs and the treatment progress →shortening, postponing or intensifying phases - obligatory phases: information and contract, identification, desensitization, generalization, and follow-up care - modification phase may be omitted if symptoms occur rarely in everyday life, are short and without associated struggle behaviors - clinicians apply clinical reasoning and monitor effects - generally, the level (linguistic and situational) demands of the communication tasks is carefully varied in relation to the child's current abilities and learning goals.
Strengthening child's resilience	<ul style="list-style-type: none"> - <i>KIDS</i> targets the child's self-efficacy and communicative competence in a supportive social network - the clinician must demonstrate <ol style="list-style-type: none"> 1) antithetical behavior → beliefs (antitheses) of the clinician differ from those of the client (theses), e.g. a positive, curious attitude toward stuttering is antithetical to negative evaluation and avoidance of the child (thesis) 2) and allow stuttering → clinician shows understanding of all motives of the child, including fear of embarrassment or shame, and dysfunctional behaviors such as avoidance
Child reference	<ul style="list-style-type: none"> - establishment of a trusting relationship by listening carefully, observing closely, and consulting continuously (contracting) - child-friendly metaphors and exercises - small-step practice structure - individual reinforcement
Everyday life reference	<ul style="list-style-type: none"> - early preparation of transfer to everyday life and independence from the clinicians through in vivo work and homework - as often as possible, practice takes place outside the therapy room - supportive environmental conditions are established by involving family and friends in the therapy - child and parents are interviewed about the school situation; school visit with the child to establish the support of teachers and classmates

References

- Sandrieser, P., & Schneider, P. (2015). *Stottern im Kindesalter* (4. Aufl.). Thieme.
- Schneider, P., & Sandrieser, P. (2018). *Therapiemanual Schul-KIDS*. Münster.
- Schneider, P., & Kohmäscher, A. (2022). *Schul-KIDS: Manual zur Therapie stotternder Schulkinder*. Natke.
- Schneider, P., Kohmaescher, A., & Sandrieser, P. (2023). KIDS: A Modification Approach in Stuttering Therapy for School Children. In H. Sønsterud & K. Wesierska (Eds.), *Dialogue without barriers: Comprehensive intervention in stuttering* (pp. 195–229). Agere Aude. <https://www.logolab.edu.pl/wp-content/uploads/2023/06/Chapter-7-.pdf>