## An alternative approach to stuttering: the Hausdörfer method

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#### Abstract

About 1% of the world population is currently affected by stuttering. In adults who stutter, this speech disorder is often accompanied with (social) anxiety and an overall decrease in quality of life. The cause of stuttering is widely unknown, making it difficult to provide adequate treatment. There is conflicting evidence whether conventional treatment methods are able to improve recovery rates in people who stutter.

In this paper we will investigate an alternative treatment method, the Hausdörfer method, which focuses on the psychological aspects of stuttering, rather than the speech itself. This research was done through a literature review and a survey amongst ex-Hausdorfer participants. Our findings suggest that Hausdörfer seems to be a promising treatment option for people who stutter, as it improved multiple aspects that are involved with stuttering. In addition, we believe that the Hausdörfer theory gives a persuasive view on the cause and development of stuttering. More research is needed to explore this theory on stuttering.

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# 1. Introduction

Stuttering, or childhood-onset fluency disorder, is a common speech disorder characterized by disfluencies in normal speech. These disfluencies can consist of the repetition of letters, syllables or words, prolongation of sounds, or so-called blocks in which the person who stutters is not able to produce any sound for a certain period of time. (Sander & Osborne, 2019) Furthermore, secondary physical behaviors can be developed such as excessive eye blinking, jaw clenching, tension in the body, and other involuntary movements. (Prasse & Kikano, 2008) Lastly, people who stutter (PWS) may avoid speaking situations and develop negative emotions towards their own speech. (Neumann et al., 2019) About 5 to 10 percent of people are affected by stuttering at some point in their childhood (Yairi & Ambrose, 2013). The prevalence of stuttering in adults is around 1% (Qiao et al., 2017; Sander & Osborne, 2019), meaning that it is a fairly common disability.

Persistence of stuttering can cause serious harm. PWS are often viewed as insecure and may have difficulty finding a job (Sander & Osborne, 2019). A study in the USA found that PWS were less likely to get a college degree and excel in their career (Gerlach, Totty, Subramanian, & Zebrowski, 2018) In addition, adults who stutter (AWS) have reported that their stuttering has led to anxiety and a decreased quality of life (Boyle, Milewski, & Beita-Ell, 2018; Iverach & Rapee, 2014). It is therefore important that PWS are treated properly.

Despite the fairly high prevalence and increasing research interest, much about stuttering and its cause remains unknown (Neumann et al., 2019). A lot of research on stuttering is written with the assumption that the neurological abnormalities seen in PWS are possible causes of stuttering (Smith & Weber, 2017). This has led people to hypothesize that stuttering is caused by an overactivation of the speech muscles (Starkweather, 1995), or that stuttering is caused by faulty auditory feedback loops. (Civier, Tasko, & Guenther, 2010) In 2019, Sander and Osborne (2019) published a paper, suggesting that "family physicians can offer reassurance that stuttering is primarily the result of brain abnormalities and is not the fault

offer reassurance that stuttering is primarily the result of brain abnormalities and is not the fault of the patient or family." Because of this often assumed neurological cause of stuttering, general speech therapy has for example focussed on slowing down speech 'to make speaking easier for the brain and speech muscles' (Cheadle, n.d.). However, as Smith and Weber (2017) argue, these speech related neurologic abnormalities can not explain all symptoms related to stuttering. Stuttering is actually a much more complex disorder and emotional and environmental factors need to be taken into account as well.

As there is no clear universally accepted theory about how stuttering develops, it is challenging to treat. Although many therapies claim they can help children overcome stuttering, several authors have suggested that there is no evidence that the recovery rates of children who received treatment exceed those of natural recovery. (Bergþórsdóttir & Ingham, 2017; Bothe, Davidow, Bramlett, & Ingham, 2006; Kalinowski, Saltuklaroglu, Dayalu, & Guntupalli, 2005) When a person is still stuttering after the age of seven, chances of recovery are very low. (Smith & Weber, 2017) Some treatments for adults show promising results when it comes to increasing fluency. However, these results are often short lived, as relapse is frequent. (Kell, Neumann, Behrens, von Gudenberg, & Giraud, 2018)

Interestingly, there is one therapy in the Netherlands that is very different from the conventional treatments, but also has some evidence (mainly preliminary and anecdotal) to support great effectiveness. This therapy is called the Hausdörfer method, which treats stuttering as mostly a psychological problem that manifests itself in speech. In the past, this relatively unknown therapy has scored remarkably high on two small surveys. The first survey was conducted in 1991 by the Dutch patient association, Demosthenes. (Van Alphen & Van Eekelen, 1991) When participants had to rate different therapies, the authors made the following note about the results: "What is striking, is the undivided positive score of the Hausdörfer therapy." The second survey was conducted by the NCRV in 2014. (NCRV, 2010) In this small study, nine Dutch stuttering therapies were compared, including regular speech therapy. Participants who had done more therapies than one therapy, were asked to indicate which therapy they were most satisfied with. Again, Hausdörfer was rated considerably higher than all other therapies.

In this paper, the Hausdörfer method will be explored as a possible treatment for stuttering, both through a literature study, and a survey which was aimed at ex-Hausdörfer participants. The aim of the literature review is to find out how well the Hausdörfer method fits within current scientific insights. Through the survey we hope to find out how effective ex-participants thought the Hausdörfer therapy was and how satisfied they were with the received treatment. The outcomes of both parts of this paper will help answer the following research question: to what extent is the Hausdörfer method appropriate for and effective in the treatment of stuttering?

# 2. The Hausdörfer method

The Hausdörfer method was founded in 1894 by the German apothecary, Oscar Hausdörfer. He was a severe stutterer himself and decided that he wanted to get to the bottom of his disfluencies, after multiple speech therapies had worsened his stuttering. He conducted self-research in which he mainly questioned why he could speak fluently in certain situations but was stuttering in others. He concluded that there is nothing wrong with his ability to speak, but that he was heavily influenced by his surroundings and his own self-doubt and misconceptions of normal speech. After he freed himself from stuttering, he devoted his life to helping others do the same. About this journey he wrote a book: Durch Nacht, Zum Licht ("through the night, towards the light"), which is the basis of the current Hausdörfer therapy. It is important to note that Hausdörfer wrote this book (and other books) to help PWS and not for scientific purposes. Because of this some terms are not clearly defined and can be interpreted in multiple ways.

The Hausdörfer method supposedly helped a lot of people but was largely forgotten after Hausdörfer and his daughter died. In 1984, Jan Heuvel heard about this method at a convention in Germany for PWS. After this convention, he set his first steps towards a stutter-free life. He was so impressed by the impact and accuracy of this method that he decided to get to the bottom of what the Hausdörfer method actually implies. He read the books by Oscar Hausdörfer and designed a therapy to teach other PWS how stuttering develops and how you can turn this process around. In 1993, Jan Heuvel started his own speech institute: the Hausdörfer-instituut voor Natuurlijk Spreken ("Hausdörfer institute for natural speech").

In the following sections we will discuss all aspects of the Hausdörfer method, as described in the Hausdörfer booklet that Jan Heuvel wrote to support his therapy (Heuvel, 2020). In addition, we will try to put these findings in the perspective of (recent) scientific insights.

# 2.1 Possible cause and development of stuttering

According to Hausdörfer, the core of stuttering is not a speech problem per se, but rather the psychological or emotional factors and unhelpful and/or irrational beliefs that grow over time and ultimately manifest themselves in disfluent speech. Any small stressor can trigger mild speech difficulties to appear in young children, such as being over-enthusiastic or being scared of an unpleasant teacher. This is a normal process to happen during the language development of a child. As they grow older, most children will automatically recover from stuttering. (Sander & Osborne, 2019; Smith & Weber, 2017)

However, some children who start to stutter will actively try to control their speech to prevent and repair stuttering. A study from Boey and colleagues (2009) concluded that more than 50% of very young children (two or three years old), were aware of their stuttering. This increased to almost 90% in seven year old children. Most children who stuttered also had a negative attitude towards their speech. In Hausdörfer's view, this awareness can cause children to start over-analysing their own speech difficulties and start to believe that they cannot speak properly. By actively trying to speak 'normally', Hausdörfer says, the natural, automatic speech is disrupted, worsening the stuttering. The child will get in a vicious circle constantly trying and failing to speak fluently. They will receive a lot of advice, such as 'calm down', 'think before you speak', and 'focus on your breath'. This advice, though well meant, will possibly exacerbate stuttering, as attention is being drawn to the disrupted speech of the child. The child may feel ashamed of their stuttering and get even more stressed while speaking.

In image 1, a scheme is presented to summarise the cognitions and emotions PWS can have regarding their speech, which can result in chronic stuttering.

Hausdörfer was to our knowledge the first, but not the only one who hypothesized that awareness and actively trying not to stutter is the key to persistent stuttering. Wendell Johnson (1906-1995) was an important speech pathologist and psychologist who might be best known for his 'diagnosogenic theory of stuttering.' This theory states that stuttering was mainly caused by the reactions of the environment and that of the child with regards to mild speech disfluencies. When the parents think their child has a speech disorder (stuttering) and start correcting the child, this can contribute to a fear of stuttering in the child, which interferes with normal speech. (Gateley, 2003) It is when the child actively interferes with their speech, disfluent speech is produced. A student of Johnson formulated a very interesting definition of stuttering: ''stuttering is not something that erupts out of his mouth, but instead, consists of things he does to interfere with talking all along the vocal pathway.'' (Williams, 1979)

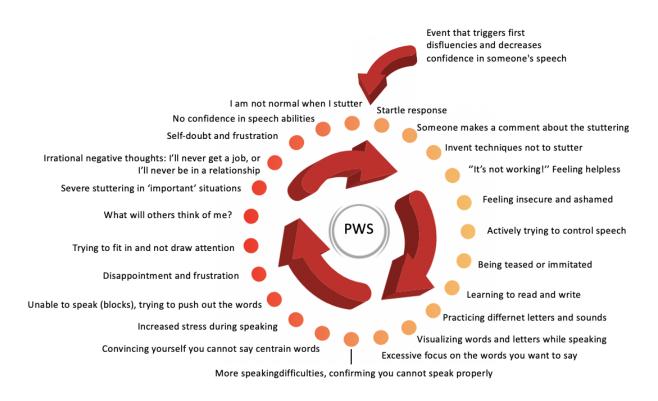


Image 1: a vicious cycle of cognitions and emotions leading to persistent stuttering.

PWS often report that they can sense that they will stutter on a certain word or in a certain situation, before the stuttering actually occurs. (Garcia-Barrera & Davidow, 2015) This anticipation is often coupled with feelings of anxiety. Jackson and colleagues (2015) studied how PWS react to the anticipation of stuttering. All of the participants in this study reported that they used a strategy to alter their speech production if they were feeling like they were about to stutter. For example, most PWS would use a synonym, if they think they cannot say a certain word, or would restructure their sentence. Other coping mechanisms mentioned were: soft onset (or prolonged speech), changing the speech rate and relaxing the speech muscles.

These results indicate that the reaction to stuttering might indeed only worsen the speech difficulty, possibly leading to persistent stuttering.

## 2.2 Natural way of speaking

When a child learns to speak, it does this by listening to and repeating the sounds other people around them make. To do this, it has to actively listen to it's own voice, produce sound, and then

shape that sound to form actual words and sentences. Hausdörfer suggests that in PWS, this natural way of speaking is disturbed by irrational fears and the pressure to speak fluently. When PWS are actively trying to speak fluently, they will not listen to their own voice, but are too focused on the words they are trying to push out and on the reactions of others when speech is not fluent. This active interference with speech is unnatural and actually causes the stuttering.

Interestingly, recent neuroimaging studies seem to support this view that people who stutter are not properly listening to their voice while speaking. Multiple studies have labeled a decreased activation of the auditory cortex during disfluent speech as one of the neurological characteristics of stuttering. (Budde, Barron, & Fox, 2014; Connally et al., 2018) In addition, Budde et al. (2014) not only found that there was decreased activation in the (left) auditory cortex of PWS, compared to fluent controls, but also that greater bilateral activation of the auditory cortex was related to increased fluency in PWS.

Furthermore, studies suggest that altered auditory feedback (delayed, masked or amplified) also has a positive effect on speech fluency in PWS. (Fiorin et al., 2021; Hudock & Kalinowski, 2014) In these studies, auditory feedback is altered using something similar to a hearing aid, which electronically alters the sounds. This way the person perceives their voice differently, drawing attention to their own voice. These results could also mean that PWS should better listen to their own voice while speaking. However, the positive impact of altered auditory feedback on speech fluency, could also partially be caused by the distraction the altered feedback provides for PWS. When you hear your voice differently, this could mean that you are solely focussed on that, not allowing anticipatory thoughts of stuttering enter the mind. This could lower stress or anxiety while speaking, resulting in smoother speech.

Lastly, to speak naturally, PWS should not actively try to control their speech, as a result of fear of stuttering, but the speaking process itself should happen automatically instead. A study conducted by Eichorn, Pirutinsky and Marton (2019), looked at the effect of distraction on speech fluency in PWS. They found that PWS spoke significantly more fluently when they had to perform a secondary task while speaking, compared to the speech-only condition. They found that this was both the case for sustained attention tasks, as for working memory tasks. The sustained attention task did not reduce speaking rate or linguistic outcome, suggesting that diverting the attention from the speech is sufficient to increase fluency. It seems reasonable to assume that paying more attention to a task would optimize performance. However, according to the OPTIMAL theory by Wulf and Lewthwaite (2016) "deliberate attempts to control learned motor skills interfere with efficient performance and

cause performance breakdown." (from: Eichorn, Pirutinsky, & Marton, 2019) This supports Hausdörfer's theory that stuttering is mainly caused by the interference of the natural, automatic speaking process.

# 2.3 Risk factor for persistent stuttering: sensitive nature

According to the Hausdorfer method, persistence of stuttering can only be the case when the child has negative cognitions and emotions towards their disfluent speech. For this to happen, most persistent stutterers need to have a sensitive nature and possibly perfectionistic traits. The sensitive nature will allow the child to recognize and process the (subtle) negative reactions they get about their disfluent speech. The perfectionistic tendencies will make the child criticize their own speech and aim to improve it. When the child will try its best to speak normally, this can actually worsen the stuttering.

It is commonly accepted that stuttering is usually accompanied with feelings of stress and anxiety. However, the relation between the two remains unclear. Anxiety and stress could both be a cause or a side-effect. Unfortunately, evidence regarding this matter is conflicting. (Onslow & Kelly, 2020)

Multiple studies that were looking at the personality traits of PWS, have found a link between stuttering and perfectionism. (e.g Brocklehurst, Drake, & Corley, 2015). A study of Gorshkova & Volikova, (2017) found significantly higher levels of perfectionism in young children who stutter (n=71), than in their fluent peers (n=52). During the study the PWS were more focused on failure, mistakes and the negative information, instead of the achievements and more positive information.

If PWS are indeed more perfectionistic by nature and are therefore more afraid to fail, this could contribute to the persistence of stuttering. When PWS are afraid to make mistakes, they will likely try to interfere with their speech to sound as normal and good as possible.

# 2.4 How to treat stuttering?

The goal of the Hausdörfer therapy is to get the speaker indifferent about their own speech and the reactions/opinions from others. In addition, PWS should work on their belief that they are actually able to speak, and that there is nothing wrong with their speech, other than their own (irrational) fears and interference.

The basis of this therapy is that PWS should know what speech is and what it is not. For this purpose, Hausdörfer proposed a 'law of natural speech,' which goes as follows: 'Randomly and consciously producing speech sounds in the throat and form it involuntarily and unconsciously." In other words, the only thing a person has to do to speak is produce sound and listen to it, the rest has to be an automatic process. This process does not take any effort, and all PWS are able to speak naturally. However, some PWS have learned some maladaptive speaking behavior, which they will need to let go of. To treat stuttering, there are three things PWS need to do: changing their goals, working on rational self suggestion and increasing their phlegm (or indifference towards their own speech).

### Changing goals:

According to Hausdörfer, two unhelpful objectives PWS often have are:

- 1. Wanting to speak fluently
- 2. Wanting to speak scriptures.

With the latter, Hausdörfer meant that PWS often excessively focus on the words and letters they want to produce, even to the point that PWS will visualise the word they want to say, and actively think how to produce that sound. This is of course not necessary to produce speech, and can lead to unnecessary interference.

The two objectives have supposedly contributed to a sensitive emotional state in PWS. Because of this, Hausdörfer suggests that PWS should change these goals: Instead of wanting to speak fluently, PWS should focus completely on achieving a phlegmatic state of feeling. And, instead of visualizing characters, PWS need to focus solely on the speech sound produced in the throat, because that is a more natural way of talking.

### **Rational self-suggestion**

PWS need to believe they can speak naturally, just like their fluent peers. To do this, they can use self-suggestion, and try to prove to themselves that they are actually able to speak naturally. This can be done by simply producing sound and trying to let it shape automatically in words and sentences. This should especially be done when speaking situations are easy. Here PWS can practice and notice they are actually able to produce all sounds. They can gradually expand their practice to other situations, which were considered to be harder.

### Phlegm

To speed up the process of becoming free of stuttering, Hausdörfer suggests to overcompensate the sensitivity PWS have regarding their speech. Therefore, PWS are advised to use prolonged speech and make it noticeable for other people. PWS are encouraged to take control of their voice and experience that they can actually do whatever they want with it. The idea behind this is: as long as PWS do not dare to stand out, they will still maintain their sensitive emotional state, which maintains stuttering.

## 2.5 Set-up of the Hausdörfer therapy

For adolescents and adults, there are three therapies to choose from: group therapy (most popular), individual therapy, or online therapy. The group therapy consists of two sessions of two days each, with one week in between, and three follow-up sessions: after one month, six months and one year. The individual therapy consists of only two therapy sessions and three online follow-up consultations. The online therapy only has two online sessions of one and a half hours each. In the table below, the general schedule of the therapy is summarized.

Session	Day	Activities
1	1	Video recordings of participants' speech (reading + conversational speech) Theoretical instruction of Hausdörfer approach Individual and group practice
	2	Theoretical instruction of Hausdörfer approach (cont.) Individual and group practice
2	1	Exchanging experiences + practice Session on Rational Emotive Therapy (RET) Video recordings + evaluation
	2	Street interviews Presentation for family and friends Evaluation
3	(x3)	Refresher days: Evaluation of past month(s) experiences Recap of theory and practice + video recordings + evaluation

# 3. Methods

# 3.1 Participants

To get more insight into the Hausdörfer method, a questionnaire was made for ex-Hausdörferparticipants, who followed at least one of the three therapies for adolescents and adults. All participants needed to be 18 years or older. When making the questionnaire, Qualtric was used so participants could either respond using their phone or a computer. The questionnaire consisted of six sections, four of which were used for gathering data. It took the respondents 10-15 minutes to complete. The complete questionnaire (in Dutch) can be found in the appendix.

To recruit participants, an email was sent to 993 ex-participants of the Hausdörfer therapy, of which 587 had opened the email. Out of the participants we contacted, 229 fully completed the questionnaire. Another 29 participants only answered the first set of questions containing the more general information such as age and gender (section 2 of the questionnaire). These were excluded from analysis. All participants stated that they understood what the study was about and agreed to participate.

# 3.2 Questionnaire

The first section was used to inform the participants about the purpose of this study and to get informed consent. It was explained that the researcher will use the results to write their bachelor thesis. The purpose of the study was described as: 'to get a picture of how satisfied ex-participants were with the Hausdörfer therapy and to what extent it contributed to improving speech'. No deception was used. Lastly, participants could indicate whether they would like to win a gift card for bol.com.

In the second section, participants had to fill in some general information about themselves, such as their gender, age (current, onset of stuttering, start Hausdörfer, and start first therapy), and if they have family members who stutter. Furthermore, they were asked about what therapies they followed prior to Hausdörfer and which of the three Hausdörfer therapies they attended. This data was used to compare possible male/female differences and explore other factors that could be of interest during the comparison of different results.

The third section was used to look at how effective the Hausdörfer therapy is. The participants were asked to rate different aspects related to stuttering on a scale from one to ten ('one' always being the least favorable outcome and 'ten' being the favourable outcome). The six aspects were: speech fluency, fear of stuttering, quality of life (how much do they suffer due to stuttering), to what extent stuttering influences their choices, confidence/trust in their own speech, and how satisfied they were with their speech. The participants had to make an estimation about the situation before the Hausdörfer therapy, right after the Hausdörfer therapy

and their current situation. By comparing these three situations, we hoped to find out if the therapy is also effective in the long run.

In addition, we asked if they had done or wanted to do any other form of therapy after Hausdörfer. If a lot of participants did or wanted to do another therapy after Hausdörfer, this would indicate that they are not satisfied with the therapy or are not agreeing with the stuttering theory of Hausdörfer. If little to no participants did or wanted to do another therapy, this would indicate that they were satisfied with the treatment they received. Lastly, we asked the participants to rate the impact of different aspects of the Hausdörfer therapy on stuttering. They could indicate if that specific aspect worsened their stuttering(-2, -1), had no impact (0) or improved their speech (1-6).

In section four the participants were asked if they are currently 'free' of stuttering. We first asked them what it would mean for them to be free of stuttering. We then asked them if they have reached this goal. Depending on what the answer is (yes, or no), the participants got different questions, about what was most important for them to become free of stuttering or why they think they have not reached their goal. We also asked the participants if they think it is still possible for them to become free of stuttering. For those who are free of stuttering, we asked whether the Hausdörfer therapy was sufficient for them to free themselves, or if there was something else more important.

The purpose of this section was to measure the effectiveness of the Hausdörfer therapy, as well as what a PWS considers being freed from stuttering.

In the fifth section, we asked some more general questions about the satisfaction of the Hausdörfer therapy. The participants had to indicate whether they agreed or disagreed with the following statements: 'I find the Hausdörfer theory easy to understand;' 'The Hausdörfer theory provides a correct vision on stuttering;' 'Stuttering should be treated as anxiety/stress disorder and not as a speech-motor disorder;' 'I found it easy to use the exercises during the therapy;' 'I found it easy to use the exercises during the therapy;' 'I

We then asked the participants whether they would recommend the Hausdörfer therapy to fellow PWS, and why. Lastly, we asked if there is anything that could improve the Hausdörfer therapy.

In the final, sixth, section the participants could indicate if they want to receive the outcome of this research, if they are available for follow-up questions, and if they would like to win a gift card for bol.com.

## 3.3 Analysis

The results from the questionnaire were used for both quantitative and qualitative analysis. For the statistical analysis, SPSS was used. The tests conducted were: 'test of within-subjects effect' and 'Pairwise comparison', and a significance level of .05 was used. To minimize response bias, we tried to use non-leading questions, make the survey anonymous and use neutrally worded questions. We did not account for bias in the analysis.

# 4. Results

# 4.1 General information about participants (section 2)

Of the 229 participants, 182 were male (79.5%) and 47 were female (20.5%). The participants had a mean age of 43.1, and they started the Hausdörfer therapy when they were 31.2 years old. The average age of stuttering onset was 6.2 years and the mean age of when they started their first stuttering therapy was 14.0. (see extended data table 1.2). Almost half of the participants (45%) had no relatives who stutter. Before the Hausdörfer therapy, most participants have gone to a regular speech therapist for their stuttering (66.4%) and/or to a speech therapist specialized in stuttering (41.5%). Furthermore, 32.3% had done 'Del Ferro' and 10.9% had followed the 'Doetinchemse Methode'. Only 6.55% of the participants stated that they had not participated in any therapy prior to Hausdörfer.

In this sample, most people had done the Hausdörfer group therapy: 211 out of 229. Eight participants followed the individual therapy, and five participants did the online therapy. The remaining few did a combination of either online and group therapy, or individual and group therapy.

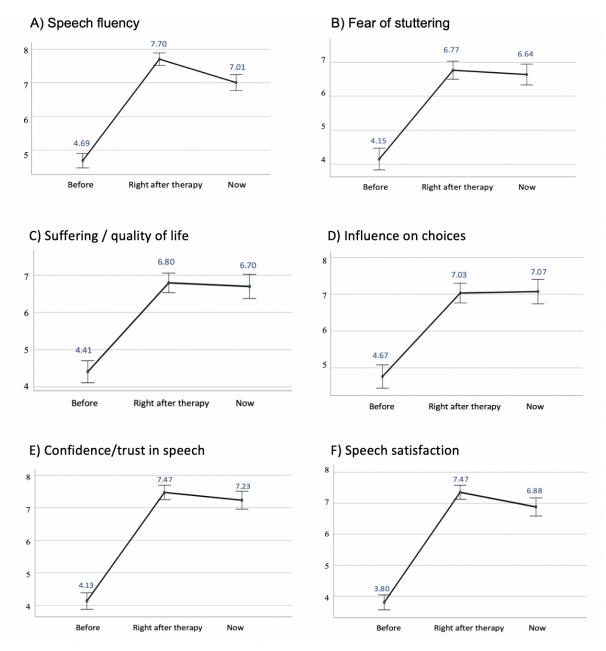
# 4.2 Hausdörfer effectiveness (section 3)

In section 3, questions 2-7 were used to determine long and short-term effects of the Hausdörfer therapy on different aspects related to speech and stuttering. Participants were asked to rate each aspect on a scale from 1-10, giving an estimation of their situation before the Hausdörfer therapy, right after the Hausdörfer therapy and their current situation.

First of all, the results indicate that the Hausdörfer therapy had a positive effect on speech fluency (fig. 1a). Participants had to rate their speech from 1 (severly stuttering) to 10 (fluent speech). Prior to the Hausdörfer therapy, participants rated their level of fluency as 4.69 on average. Right after the Hausdörfer therapy, the fluency increased to 7.70 (p=.000). There is a slight relapse, as the current level of fluency has decreased to 7.01 (p=.000), however this is still significantly higher than before treatment (p=.000).

Second, on average ex-Hausdörfer participants show a lasting decrease in fear of stuttering (fig. 1b). Participants had to rate their fear of stuttering from 1 (intense fear) to 10 (no fear at all). Before the Hausdörfer therapy, fear of stuttering was rated as 4.15 on average. Right after the therapy, the average rating was 6.77, which indicates a significant decrease in fear (p=.000). In the long run, the average level of stuttering fear is 6.64, which is not significantly different from the rating right after treatment (p=.414).

Third, Hausdörfer seems to decrease the level of suffering in PWS (fig. 1c). When exparticipants were asked to indicate how much they suffer from stuttering (1= heavily, 10= not at all), the average rating before therapy was 4.41, whereas suffering was rated as 6.80 right after therapy (p=.000), meaning that they suffered significantly less after treatment. There is no significant increase or decrease in the current level of suffering, compared to right after therapy (p=.518).



#### Figure 1: effect of the Hausdörfer therapy on different aspects of stuttering (Q3.2-Q3.7):

Participants were asked to rate different aspects related to stuttering on a scale from 1 to 10, comparing their situation before Hausdörfer, right after Hausdörfer and their current situation. **A)** How do you rate the fluency of your speech? (1= severe stuttering, 10= fluent speech **B)** How do you rate your fear of stuttering? (1= intense fear, 10= no fear at all) **C)** To what extent do you think you are suffering due to stuttering? (1= heavily, 10= not at all) **D)** To what extent do you let your choices be influenced by stuttering? (1= stuttering determines all my choices, 10= stuttering determines none of my choices) **E)** To what extent are you confident in your speech? (1= I never have faith in my speaking abilities, 10= I know I can always say whatever I want) **F)** How satisfied are you with your own speech? (1= very dissatisfied, 10= completely satisfied). n=229,

Fourth, ex-Hausdörfer participants indicate that stuttering influences their choices to a lesser extent (fig. 1d). On a scale from 1 (stuttering determines all of my choices) to 10 (stuttering determines none of my choices), the average rating before treatment was 4.67, which increased to 7.03 right after treatment (p=.000). The current 'freedom of choice'-level is rated as 7.07 on average, which is not significantly different from the ranking right after treatment (p=.786). Fift, the Hausörfer therapy may also increase the confidence or trust PWS have in their own speaking abilities (fig1. e). On a scale from 1 (I never have faith in my speaking abilities) to 10 (I know, I can always say whatever I want), the average ranking prior to treatment was 4.13. Right after treatment this number increased to 7.47 (p=.000). The estimation of the current situation is 7.23 on average, which is not significantly different from right after treatment (p=.108). Lastly, Hausdörfer may have a positive effect on how satisfied a PWS is with their speech (fig. 1f). Participants ranked their speech satisfaction as 3.80, on a scale from 1 (very dissatisfied) to 10 (completely satisfied), before treatment. This satisfaction level rose to an average of 7.47 (p=.000) right after treatment. The current average level of satisfaction has decreased to 6.88 (p=.005), however this is still higher than before treatment (p=.000).

In the following part of the questionnaire, the participants had to indicate whether they had done or wanted to do any other therapy for stuttering after the Hausdörfer therapy. Two hundred out of 229 participants stated that they are not interested in participating in another stuttering therapy. A few participants (13) are probably going to do another therapy and 16 participants indicated that they already participated in another stuttering therapy.

A greater number of participants indicated that they had sought out other support for overcoming their stuttering, or that they wanted to. When answering this question, 'only' 136 participants said they have not and will not seek out other support for their stuttering. Relatively many participants went to do mindfulness/meditation (25) or went to a psychologist (16). Lastly, some participants (5) stated that they were thinking about doing a Hausdörfer follow-up session.

# 4.3 Free of stuttering (section 4)

In section four of the questionnaire, participants were asked to reflect on what it would mean for them to be 'free' of stuttering and whether they have accomplished that goal. Most participants mentioned that they are free of stuttering when they are not constantly thinking about whether they are able to say something or not, in addition the absence of stress while speaking was often mentioned. Interestingly, almost none of the participants said that they are only free of stuttering if they are able to speak fluently all the time.

Participants were then asked if they had accomplished this goal: 71 participants (31%) indicated they were completely free of stuttering, 158 participants (69%) said they had not reached this goal (yet). Depending on what they answered, the participants got a different set of questions. Participants who were not free of stuttering, were asked whether they think they still can. Of the 158 participants, 66 were (fairly) certain they could still become free of stuttering, 55 were not sure and 33 said it was unlikely. The remaining 4 participants were certain that they would never be free of stuttering.

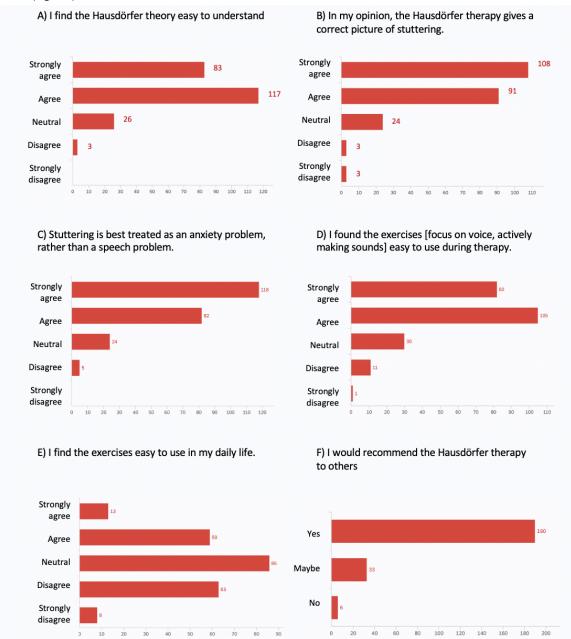
The participants then had to indicate why they think they have not reached this goal yet. This was a multiple choice question (multiple answers possible), so participants were limited in their 'response freedom.' They did have the option to select 'other' and type a short answer. Two of the most commonly selected reasons why the participants are not free of stuttering, were: "In general, speaking goes quite well, therefore I feel less of a need to practice" (71) and "I don't practice when speaking goes well" (76). Additionally, 60 participants selected "I do not feel comfortable using the exercises in every situation," and 52 participants selected "I cannot let go of wanting to speak fluently."

Participants who had indicated that they are free of stuttering were asked whether they think everyone can become free of stuttering. Forty six of the 71 participants were (fairly) certain that everyone can become free of stuttering, 15 said maybe. Only 10 participants said that this will likely not be possible for all PWS. When asked what was most important for them to become free of stuttering, multiple different answers were given. It was often mentioned that building up confidence (or phlegm), practicing, knowing that there is nothing wrong with their ability to speak, and personal growth. Lastly, participants were asked if they were 'free', because of the Hausdörfer therapy, or if they had to do or learn something themselves. Forty four out of 70 participants indicated that Hausdörfer was sufficient for them to become 'free' of stuttering. Another 14 participants said that their recovery is largely because of Hausdörfer. Six participants stated that the Hausdörfer was useful, but that they were not recovered because of it. Five of those six participants mentioned that an increase in self-confidence or personal growth allowed them to overcome stuttering. Six participants said they overcame stuttering regardless of the Hausdörfer therapy.

# 4.4 General satisfaction with the Hausdörfer therapy (section 5)

Section five of the questionnaire contained more general questions about the Hausdörfer therapy, and were used to get an idea of how satisfied ex-Hausdörfer participants were. The results of question 2-7 of this section are summarized in figure 2. Most participants find the Hausdörfer method easy to understand (200 out of 229), 26 participants found it neither easy nor difficult to understand. The remaining three participants found the Hausdörfer theory (somewhat) difficult to understand (fig. 2a). Most participants (108) strongly agree that the Hausdörfer therapy gives a correct picture of stuttering, and 91 participants agree. Twenty four were neutral, and six participants disagreed, or disagreed strongly, meaning that they did not think that the Hausdörfer provides a correct view on stuttering (fig. 2b). A good majority agrees that stuttering is best treated as an anxiety or stress disorder instead of a speech disorder. In response to this statement, 118 participants indicated that they strongly agree and 82 stated that they agree. Twenty four participants were neutral and only five participants disagreed (fig. 2c). Most participants (187) thought that the exercises were easy to use during therapy, whereas only 72 thought they were easy to use in daily life (fig. 2d.e). A lot of participants (86) found it neither easy nor difficult to use the exercises in daily life and 71 found it difficult to use the exercises in daily life (fig. 2e). During the therapy, only 12 participants found it difficult to do the exercises, and 30 were neutral (fig. 2d).

When asked whether the participants would recommend the Hausdörfer therapy to other PWs, 190 responded 'yes', 33 said 'maybe', and six said they would not recommend the therapy to others (fig. 2f).



**Figure 2: Results of general questions about the Hausdörfer therapy (Q5.2-Q5.7):** Bar graphs of answers to Q2-7 of section 5 of the questionnaire. A-E) Participants had to indicate if they agreed or disagreed with the statement. F) Participants had to indicate if they would recommend the Hausdörfer therapy to other PWS (yes, no maybe). n=229

# 5. Discussion

In this paper, we tried to get more insight into the effectiveness of the Hausdörfer method and to see if it is an appropriate method for the treatment of stuttering. This method is particularly of interest because it is very different from conventional methods, but preliminary results have shown Hausdörfer to be effective in reducing stuttering in AWS. In addition, the Hausdörfer therapy may prove to be one of the most cost-effective approaches for the treatment of stuttering, as the number of therapy hours is significantly less than average for a group therapy for stuttering (Blomgren, 2010).

# 5.1 Survey

The results of this study give a first indication that the Hausdörfer therapy could be a promising method of treating stuttering in adolescents and adults. Next to the increased fluency of the ex-participants, other aspects of stuttering were improved as well. On average, participants had a decreased fear of stuttering, they felt like they were suffering less because of their stuttering, and indicated that they let their choices be influenced less by their stuttering. Lastly participants indicated they were more confident in their ability to speak and that they were also more satisfied with their speech. While some of these improvements can be expected as people get older, these results are still rather positive. When people get older, it might be that they become more confident about themselves and have found a way to accept their stuttering more, which might positively impact their speech. However, the great improvement of different aspects of stuttering, right after the Hausdörfer therapy, indicates that this is largely due to treatment.

It is also important to note that there seems to be a long term effect, which is not often seen in treatments for AWS (Kell, Neumann, Behrens, von Gudenberg, & Giraud, 2018). A lot of treatments focus on restructuring the speech of AWS, this means that they will have to learn a new speech pattern such as elongating sounds, slowing down the speech rate, or controlled exhalation to prevent stuttering (Brignell et al., 2020). However, this does often not feel natural to PWS and is therefore difficult to implement in daily life, (Brignell et al., 2020; Tasko, McClean, & Runyan, 2007) which may contribute to the common relapse of stuttering. The Hausdörfer method focuses on returning to natural speech. This is done through desensitization of the PWS to their fear of stuttering and the opinion of others, and by building confidence in their ability to speak. This seems to be much more sustainable, because PWS learn to speak effortlessly and naturally in (almost) every situation.

As can be seen from our results, the participants from the Hausdörfer method also found it more difficult to use the learned techniques in daily life than during therapy sessions. However, these learned techniques are meant to be temporary, in order to regain confidence and trust in speaking abilities. Once this has been established, participants are encouraged to speak normally, without thinking about any techniques or ways of speaking.

After the Hausdörfer method, most participants (200/229) indicated they were not interested in doing another therapy for stuttering. However, 88 out of 229 participants said they wanted other

help after Hausdörfer, of which most went to a psychologist (16) or practiced mindfulness and meditation (25). This could mean that most participants were satisfied with the received treatment and perspective on stuttering, and did not feel the need to find another treatment option. Furthermore, going to a psychologist and practicing mindfulness or meditation are in line with the Hausdörfer method, because both focus on strengthening the mind, which is important in the recovery of stuttering.

In this sample, 31% of the participants were completely free of stuttering after the Hausdörfer method. For most people, being free of stuttering did not necessarily mean that they had to speak fluently all the time, but rather they wanted to be free of stress, and wanted to be able to say whatever they wanted to say without having to push the words out. Data on (natural) recovery rates in adults is limited. A recent study from Tichenor & Yaruss (2020) investigated the recovery rates in a sample of 228 AWS. 17.3% consider themselves to be recovered from stuttering. Out of the 228 participants had 50% a history of stuttering therapy, 34.2% did not have a history of treatment and for the remaining 15.8% the data was missing. When comparing these results, the Hausdörfer method seems to exceed the natural recovery rate for AWS, however based on this comparison, no real conclusion can be drawn. We do think a full recovery rate of 31% is not a bad result, especially because we are considering full recovery. Most participants did significantly improve after treatment.

## 5.2 Literature review

Even though this method was invented in the late 1890's, we can conclude from the literature review that the Hausdörfer therapy matches the current scientific insights quite well. There is certainly evidence to support the Hausdörfer method and it seems to fit within the current trend that stuttering cannot simply be viewed as a motor problem, but emotional and environmental factors should be taken into account as well. (e.g. (Smith & Weber, 2017)

Together with the survey we conclude that Hausdörfer provides a persuasive theory on the development and cause of stuttering. We think that Hausdörfer provides PWS with a view of stuttering that can actually help them understand their speech difficulties and gives them the means to deal with them. It is also very sustainable as it focuses on allowing PWS to speak naturally without any new learned speech patterns.

Even though the theory might be easy, a full recovery of stuttering can still be difficult. For the Hausdörfer method to work, people need to let go of their fears and need to learn that they have full control over their speech. Moreover, as per Hebb's law (Hebb, 1949), the maladaptive speaking behavior is something that may have become an automatism in the brain. To break this automatism, time and discipline is needed. However, because PWS are often able to speak fluently under certain circumstances, this rewiring might be easier than expected.

# 5.3 Implications and further research

Stuttering is a relatively common disorder in society, with no clear theory on its cause and how best to treat it. Because our results show that the Hausdörfer method might be effective in treating stuttering, it is important to have more researchers investigate his theory.

The idea that stuttering is caused by the interference of normal speech, as a result of fear of stuttering and loss of trust in someone's speech abilities, is an interesting view on stuttering. This would mean that current speech therapies that focus on training the speech itself, might only worsen the problem. If treatment does not work, PWS can get more stressed and discouraged, because they get confirmation that they are not able to speak properly. More research should be done to investigate this possible link.

Furthermore, it is important to understand how cognitions, emotions and environmental factors can influence stuttering. Therefore, Hausdörfer's approach to not investigate the differences between PWS and fluent controls, but rather look into the difference of when PWS speak fluently compared to when they stutter, could be interesting for further research.

One of the main findings from the literature review was that there have been some researchers who have looked at how emotional and cognitive factors could influence motor processes such as speech. We would like to highlight that recent study of (Eichorn, Pirutinsky, & Marton, 2019) which is one of the first studies that clearly describes the effect cognition can have on motor processes. We think that this is an important, yet underexplored aspect of stuttering. Lastly, we would like to point out that if stuttering is a disorder that is caused by stress, anxiety and perfectionism which manifests itself in faulty motor processes, there might be more disorders like it. For example, the yips in golf and darts is a disorder that is characterized by losing the control over your muscles movements when performing under pressure. It is defined as "*a psycho-neuromuscular impediment affecting the execution of fine motor skills during sporting performance*" (*Clarke, Sheffield, & Akehurst, 2015*) We believe that there might be similarities between this disorder and stuttering.

# 5.4 Strengths and limitations

The relatively large sample size (n=229), allowed for a pretty good assessment of the effectiveness of, and satisfaction with the Hausdörfer therapy. However, since we did not randomly select people to take part in this study, it could be the case that participants who were more positive about the Hausdörfer therapy, are more inclined to fill in the survey. In our statistical analysis, we did not account for this possible bias. Furthermore, for the questions about the effectiveness of Hausdörfer on different aspects of stuttering (Q3.2-3.7), the participants had to make an estimation about their situation before, right after and currently. These results might also be biased, as most people probably expect to have improved after therapy, possibly resulting in slightly different answers as well.

To assess how effective a certain therapy for stuttering is, stuttered syllables per minute are often used, to compare the stutter severity before and after therapy. The problem with this is that stuttering severity can vary from day to day. So if the participant coincidentally has more difficulty speaking during the intake conversation, and has a good day during the exit conversation, results can be misinterpreted (Tichenor & Yaruss, 2021) Moreover, stuttering is a disorder that affects more than only speech, so the other (mental) aspects should be taken into account as well. Because of this, Guntupalli, Kalinowski, & Saltuklaroglu, (2006) suggest that to measure treatment efficacy, the primary tool should be self-report. In this study we also used self assessment, however this makes it difficult to compare our results with that of other studies. In the future it would be interesting to conduct a similar study, comparing multiple stuttering therapies.

# 6. Conclusion

Based on both our survey and the literature review, our research suggests that the Hausdörfer method is a promising approach to treating stuttering. This method focuses on stuttering as a psychological problem, rather than a speech problem. The goal of the treatment is to get PWS to go back to the natural way of speaking, through desensitizing them to their own fears and assuring them that they are actually able to speak naturally. Through our research, we found that the Hausdörfer therapy might be able to improve several aspects of stuttering and even help some PWS completely recover. In addition, the Hausdörfer method seems to be supported by current scientific insights. Our research question was: "to what extent is the Hausdörfer method appropriate for and effective in the treatment of stuttering?" We think that the Hausdörfer method shows promising results and might therefore be a very adequate treatment for stuttering. However, more research should be done to investigate exactly how effective the Hausdörfer therapy is.

# Conflict of interest

The author of this paper has participated in the Hausdörfer-method. The author declares that this has not influenced the research. No funding was received.

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# Appendix

## Questionnaire

### SECTION 1: INFORMED CONSENT

Q1.1 Hartelijk dank voor het meedoen aan dit onderzoek. Deze vragenlijst is bedoeld voor mensen die de Hausdörfer-methode hebben gevolgd. Als u jonger dan 18 jaar bent, dan moet u toestemming hebben van uw ouders om mee te doen.

Meedoen aan dit onderzoek is mogelijk tot en met **30 april**. Hierna zullen de resultaten geanalyseerd worden. Het invullen zal ongeveer **15 minuten** duren.

Ik zal nu eerst kort toelichten wie ik ben en waarom ik dit onderzoek doe. Mijn naam is Ilse Venema en ik studeer aan de Rijksuniversiteit Groningen. Voor het afronden van mijn bachelor moet ik een scriptie schrijven. Ik heb ervoor gekozen om onderzoek te doen naar stotteren en de effectiviteit van de Hausdörfer-methode.

Met behulp van deze enquête probeer ik een beeld te krijgen van hoe tevreden mensen zijn over de Hausdörfer-methode en in hoeverre deze heeft geholpen met het spreken.

De resultaten van dit onderzoek zal ik verwerken in mijn scriptie. Deze zal misschien gepubliceerd worden en/of als basis dienen van een groter vervolgonderzoek.

De antwoorden van deze enquête worden circa een jaar bewaard en daarna verwijderd. Er worden verder geen gegevens van u opgeslagen, zoals uw naam, e-mail of IP-adres. De enquête is dus volledig anoniem.

Deelname aan de vragenlijst is volkomen vrijwillig. U mag er dus voor kiezen om de vragenlijst op ieder moment af te breken.

Als u benieuwd bent naar de uitkomst van dit onderzoek, dan mag u aan het einde van deze enquête uw e-mailadres achterlaten.

Tot slot, er zullen 3 **bol.com bonnen** verloot worden onder de deelnemers van het onderzoek.  $1x \in 10,$ -

2x €5,-

Als u hier kans op wilt maken, kunt u dat ook aan het einde van de enquête aangeven.

Mocht u nog vragen hebben, dan kunt u mij mailen: ilsevenema.rug@gmail.com

Q1.2 Ik heb bovenstaande tekst gelezen en ga akkoord met het deelnemen aan dit onderzoek.

◯ Ja (1)

O Nee (2)

26

### SECTION 2: GENERAL INFORMATION

Q2.1 lk ben een:

- O Man (1)
- $\bigcirc$  Vrouw (2)
- $\bigcirc$  Anders (3)
- $\bigcirc$  Wil ik niet zeggen (4)

Q2.2 Vul alstublieft de gevraagde leeftijd in jaren in met behulp van onderstaande slider.

0	10	20	30	40	50	60	70
Huidige	leeftijd						70+
Leeftijd	waarop u beg	on met stottere	n				70+
Leeftijd	waarop u beg	on aan de Haus	sdörfer therapie	9			70+

### Q2.3 Heeft u familie die ook stottert of heeft gestotterd?

Andere familie, namelijk (3)
Ja, verdere familie (opa, oma, oom, tante, neef, nicht) (2)
Ja, dichtbije familie (vader, moeder, broer, zus, zoon dochter) (1)

Nee (4)

Q2.4 Welke therapieën heeft u voor Hausdörfer gevolgd? (meerdere opties mogelijk)

Logopedie, niet gespecialiseerd in stotteren (deze behandelt dus ook andere spraakproblemen) (1)

Logopedie, wel gespecialiseerd in stotteren (denk bijvoorbeeld aan een stottercentrum) (2)

Del Ferro (3)
McGuire (4)
Boma/Instituut De Pauw (5)
Anders, namelijk (6)
Geen (7)

Q2.5 Op welke leeftijd (in jaren) begon u aan uw eerste therapie voor het stotteren?

Q2.6 Welke Hausdörfer-cursus heeft u gevolgd?

O Groepscursus (1)
O Individuele cursus (2)
Online cursus (3)
O Combinatie van de online en groepscursus (4)
O Combinatie van de individuele en groepscursus (5)
O Anders, namelijk (6)

### SECTION 3: EFFECTIVENESS

Q3.1 De volgende vragen zijn bedoeld om de effectiviteit van Hausdörfer op verschillende aspecten van het stotteren te onderzoeken. Maak alstublieft een schatting op schaal van 1 tot 10 over de situatie voor Hausdörfer, direct na Hausdörfer en de huidige situatie. Als u echt geen inschatting kan maken, dan mag u het vakje (weet ik niet) aanklikken.

Q3.2 Hoe beoordeelt u de vloeiendheid van uw spraak? (1 = hevig haperend, 10 = vloeiende spraak)

1 2 3 4 5 6	7	8	9	10
Voor Hausdörfer			uweet il	k niet
Direct na Hausdörfer (basiscursus)			uweet il	k niet
Nu			uweet il	k niet

Q3.3 Hoe beoordeelt u uw angst voor het stotteren? (1 = veel angst, 10 = geen angst)

Voor Hausdörfer 🔷 weet ik niet	1	2	3	4	5	6	7	8	9	10
	Voor H	ausdörfer							u weet	ik niet
Nu weet ik niet	Direct I	na Hausdö	örfer (basisc	ursus)					u weet	ik niet
	Nu								u weet	ik niet

Q3.4 In hoeverre vindt u dat u lijdt onder het stotteren? (1 = zwaar, 10 = niet)

1	2	3	4	5	6	7	8	9	10
Voor Hau	ısdörfer							uweet ik	niet
Direct na	Hausdörfer	(basiscursi	(au					uweet ik	niet
Nu								uweet ik	niet
•									

Q3.5 In hoeverre laat u uw keuzes beïnvloeden door het stotteren? (1 = stotteren bepaalt al mijn keuzes, 10 = stotteren bepaalt geen van mijn keuzes)

1	2	3	4	5	6	7	8	9	10
Voor H	ausdörfer							u weet	ik niet
Direct	na Hausdö	örfer (basisci	ursus)					u weet	ik niet
Nu								u weet	ik niet

Q3.6 In hoeverre heeft u vertrouwen in uw spraak? (1 = ik heb in geen enkele situatie vertrouwen in mijn spraak, 10 = ik weet dat ik altijd alles kan zeggen wat ik wi

1	2	3	4	5	6	7	8	9	10
Voor H	Hausdörfer							u weet i	ik niet
Direct	na Hausdö	orfer (basisc	ursus)					u weet	ik niet
Nu								u weet i	ik niet

Q3.7 In hoeverre bent u tevreden over uw eigen spraak? (1 = zeer ontevreden, 10 = volledig tevreden)

1	2	3	4	5	6	7	8	9	10
Voor H	ausdörfer							u weet	ik niet
Direct ı	na Hausdö	orfer (basisc	ursus)					u weet	ik niet
Nu								u weet	ik niet

Q3.8 Bent u na Hausdörfer nog een andere stottertherapie gaan doen?

◯ Ja, namelijk .. (1)\_\_\_\_\_

O Nog niet, maar ben ik vrij zeker van plan (welke...?) (2)\_\_\_\_\_

Nee ik heb geen stottertherapie na Hausdörfer gedaan, en dit ga ik waarschijnlijk ook
 niet doen. (3)

Q3.9 Heeft u nog andere hulp gezocht na Hausdörfer? Welke?

O Psycholoog (1)

 $\bigcirc$  Public speaking group / spreken in het openbaar groep (2)

O Bijeenkomsten voor mensen die stotteren (3)

O Mindfulness / meditatie (4)

O Hypnose (5)

EMDR (Eye Movement Desensitization and Reprocessing) (6)

O Anders, namelijk (7)\_\_\_\_\_

 $\bigcirc$  Nee, ik heb niks anders geprobeerd na Hausdörfer en ga dit ook niet doen (8)

O Nee, maar ik ben het wel van	plan	(welke?	) (	(9)	

Q3.10 Heeft u baat gehad bij hetgeen dat u na Hausdörfer gedaan heeft? Licht kort toe. (Als u geen (vorm van) therapie gevolgd heeft na Hausdörfer, mag u deze overslaan)

Q3.11 In hoeverre denkt u dat volgende aspecten nuttig zijn met betrekking tot het stotteren?

- Negatief: dit heeft het stotteren verergerd (-2, -1)·
- Neutraal: dit heeft het stotteren noch positief noch negatief beïnvloed (0).
- Positief: dit heeft geholpen / is belangrijk met het "vrij" worden van stotteren (1-6)

Als u een aspect niet herkent, of u kunt er geen inschatting van maken, dan mag u het vakje (weet ik niet) aankruisen.

Verergerd		neutraal					(hee	el) nuttig
-2	-1	0	1	2	3	4	5	6
Flegma tra	linen						uee wee	t ik niet
De technie	ek: focus	op eigen ster	ngeluid				uee wee	t ik niet
De visie da	at iederee	en spreken ka	n				uee wee	t ik niet
Doelstellin	g 'vloeieı	nd spreken' lo	oslaten				uee wee	t ik niet
Stotteren I	behandel	en als angstp	robleem en r	niet als spraa	akprobleem		uee wee	t ik niet
De Hausdo	örfer-theo	orie in zijn geh	neel				uee wee	t ik niet

### SECTION 4: FREE OF STUTTERING

Q4.1 Wanneer iemand voor zijn/haar gevoel "vrij" van stotteren is, kan voor iedereen anders zijn. Voor sommigen is het enkel belangrijk dat ze alles kunnen zeggen wat ze willen, ongeacht of ze daarbij stotteren of niet. Anderen willen echt natuurlijk kunnen spreken, zonder daar nog enige moeite voor te hoeven doen. De volgende vragen hebben betrekking tot wat "vrij" zijn voor u is, en of u dit op zit moment bereikt heeft.

	Eens (1)	Oneens (2)	Weet ik niet (3)
Ik heb altijd alle vertrouwen in mijn spraak en ik ga geen spreeksituaties uit de weg (1)	0	0	0
lk ben doorgaans niet bewust met m'n spreken bezig (2)	$\bigcirc$	0	$\bigcirc$
Ik vraag me vrijwel nooit af of ik iets wel of niet kan zeggen (3)	$\bigcirc$	$\bigcirc$	$\bigcirc$
Ik laat me in geen enkel opzicht belemmeren door mijn spreken; (4)	$\bigcirc$	$\bigcirc$	0
lk spreek over het algemeen vloeiend en natuurlijk (zonder extra moeite/aandacht) (5)	$\bigcirc$	$\bigcirc$	$\bigcirc$
Ik heb er geen enkel probleem mee om met anderen over stotteren te praten (6)	$\bigcirc$	$\bigcirc$	$\bigcirc$

### Q4.2 Bent u het eens of oneens met de volgende stellingen?

Q4.3 Kunt u kort toelichten wat het voor u zou betekenen om "vrij" te zijn?

Q4.4 Heeft u dit bereikt? - If yes, go to blue questions, if no, pink purple questions.

○ Ja (1)

 $\bigcirc$  Nee (nog niet) (2)

Q4.5 Denkt u dat u het "vrij" zijn van stotteren nog kunt bereiken?

- O Ja, zeker (1)
- O Vrij zeker (2)
- O Misschien (3)
- O Waarschijnlijk niet (4)
- O Nee, dit gaat mij niet lukken (5)

### Q4.6 Waarom is het (nog) niet gelukt?

	Ik durf de oefeningen niet toe te passen in elke situatie. (1)
	Ik oefen niet met sturen wanneer het praten goed gaat. (2)
	Het sturen lukt niet in sommige situaties. (3)
	Ik kan de doelstelling vloeiend spreken niet loslaten. (4)
voel om te	Het praten gaat over het algemeen best goed, waardoor ik de noodzaak minder e oefenen. (5)
(6)	Ik heb geen vertrouwen (meer) in de Hausdörfer-methode, daarom oefen ik niet.
	Ik denk dat ik bepaalde onderdelen van de Hausdörfer-methode niet goed
begrijp. (7	()
	Anders, namelijk (8)

Q4.7 Weet u wat u concreet kunt doen om "vrij" te worden? Licht kort toe.

Q4.8 Is er nog iets waar u meer begeleiding in zou willen hebben?

Q4.9 Denkt u dat u over het stotteren heen komt als u een week lang de oefeningen (focus op het stemgeluid + hoorbaar sturen) uitvoert?

Ja, zeker (1)
Vrij zeker (2)
Misschien (3)
Waarschijnlijk niet (4)
Nee, dat gaat niet helpen (5)
Q4.10 Denkt u dat iedereen "vrij" van stotteren kan worden?
Ja, zeker (1)
Vrij zeker (2)
Misschien (3)
Waarschijnlijk niet (4)
Nee, niet iedereen kan "vrij" worden. (5)

Q4.11 Wat was voor u het belangrijkst om "vrij" te worden? Licht kort toe. Denk aan: flegma trainen, weten dat iedereen spreken kan, discipline (uitvoeren van de oefeningen) etc.

Q4.12 Heeft u zelf nog iets ander gedaan om "vrij" te worden of is het 100% te danken aan de Hausdörfer-methode?

O De Hausdörfer-methode was voldoende om "vrij" te worden van stotteren (1)

O Ik heb het "vrij" worden grotendeels aan Hausdörfer te danken, maar heb nog iets anders moeten doen, namelijk... (2)

O Er zaten nuttige aspecten in de Hausdörfer-methode, maar ik werd door iets anders

"vrij", namelijk ... (3) \_\_\_\_\_

O Ik ben los van de Hausdörfer-methode "vrij" geworden (licht kort toe) (4)

SECTION 5: THERAPY SATISFACTION

Q5.1 Deze laatste paar vragen zullen gaan over hoe tevreden u bent met de Hausdörfer therapie.

Q5.2 lk vind de theorie makkelijk te begrijpen.

O Sterk mee eens (1)

Eens (2)

O Neutraal (3)

Oneens (4)

O Sterk mee oneens (5)

Q5.3 De theorie van Hausdörfer geeft naar mijn idee een kloppend beeld van het stotteren.

O Sterk mee eens (1)

Eens (2)

O Neutraal (3)

Oneens (4)

O Sterk mee oneens (5)

Q5.4 Stotteren kan het best behandeld worden als een angstprobleem, in plaats van een spraakprobleem.

Sterk mee eens (1)
Eens (2)
Neutraal (3)
Oneens (4)

```
\bigcirc Sterk mee oneens (5)
```

Q5.5 lk vond de oefeningen [focus op eigen stem, klanken (overdreven) sturen] makkelijk om tijdens de therapie te gebruiken.

Sterk mee eens (1)
Eens (2)
Neutraal (3)
Oneens (4)
Sterk mee oneens (5)

Q5.6 lk vind de oefeningen makkelijk om in mijn dagelijks leven te gebruiken.

 $\bigcirc$  Sterk mee eens (1)

 $\bigcirc$  Eens (2)

O Neutraal (3)

Oneens (4)

 $\bigcirc$  Sterk mee oneens (5)

Q5.7 lk zou de Hausdörfer-methode aanraden aan andere stotteraars.

◯ Ja (1)

 $\bigcirc$  Misschien (2)

O Nee (3)

Q5.8 Licht kort toe waarom u Hausdörfer wel of niet zou aanraden.

Q5.9 Wat zou de Hausdörfer-methode kunnen verbeteren?

Meer individuele aandacht (1)
Meer oefenen in de praktijk (2)
Kleinere groepen (3)
Grotere groepen (4)
Duidelijkere afspraken over het contact met groepsgenoten (5)
Meer mogelijkheden om tussendoor om hulp te vragen (6)

Anders, namelijk (7)
Niks (8)

### **SECTION 6**

Q66 Hartelijk dank voor het invullen van deze enquête. Als u de resultaten van het onderzoek wilt ontvangen, vul dan hier uw e-mailadres in.

Q6.2 Kunnen we u eventueel benaderen voor een aantal vervolgvragen?

O Ja, (vul uw e-mailadres in	) ('	1)
	7 (	• /

 $\bigcirc$  Liever niet (2)

Q55 lk wil kans maken op een bol.com bon!

 $\bigcirc$  Ja (vul uw e-mailadres in) (1)

O Nee (2)

# Statistical analysis Q3.2-3.7

### A)Speech Fluency:

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power <sup>a</sup>
time	Sphericity Assumed	1140.236	2	570.118	286.810	.000	.557	573.621	1.000
	Greenhouse-Geisser	1140.236	2.000	570.147	286.810	.000	.557	573.592	1.000
	Huynh-Feldt	1140.236	2.000	570.118	286.810	.000	.557	573.621	1.000
	Lower-bound	1140.236	1.000	1140.236	286.810	.000	.557	286.810	1.000
Error(time)	Sphericity Assumed	906.431	456	1.988					
	Greenhouse-Geisser	906.431	455.977	1.988					
	Huynh-Feldt	906.431	456.000	1.988					
	Lower-bound	906.431	228.000	3.976					

#### **Tests of Within-Subjects Effects**

a. Computed using alpha = .05

#### **Pairwise Comparisons**

#### Measure: MEASURE\_1

		Mean Difference (I-			95% Confiden Differ	
(I) time	(J) time	J)	Std. Error	Sig. <sup>b</sup>	Lower Bound	Upper Bound
1	2	-3.013	.132	.000	-3.273	-2.753
	3	-2.319	.132	.000	-2.579	-2.058
2	1	3.013	.132	.000	2.753	3.273
	3	.694	.131	.000	.436	.953
3	1	2.319	.132	.000	2.058	2.579
	2	694	.131	.000	953	436

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

	Mean	Std. Deviation	Ν
vloeienheid_spraak_voor af	4.6900	1.66094	229
vloeienheid_spraak_dire ct_na	7.7031	1.43852	229
vloeienheid_spraak_nu	7.0087	1.81125	229

#### B) Fear of stuttering

#### Tests of Within-Subjects Effects

#### Measure: MEASURE\_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power <sup>a</sup>
time	Sphericity Assumed	1002.281	2	501.141	104.373	.000	.313	208.747	1.000
	Greenhouse-Geisser	1002.281	1.680	596.719	104.373	.000	.313	175.311	1.000
	Huynh-Feldt	1002.281	1.691	592.836	104.373	.000	.313	176.459	1.000
	Lower-bound	1002.281	1.000	1002.281	104.373	.000	.313	104.373	1.000
Error(time)	Sphericity Assumed	2199.052	458	4.801					
	Greenhouse-Geisser	2199.052	384.641	5.717					
	Huynh-Feldt	2199.052	387.160	5.680					
	Lower-bound	2199.052	229.000	9.603					

a. Computed using alpha = .05

Measure: MEASURE\_1

### Pairwise Comparisons

		Mean Difference (I-			95% Confiden Differ	
(I) time	(J) time	J)	Std. Error	Sig. <sup>b</sup>	Lower Bound	Upper Bound
1	2	-2.617	.220	.000	-3.050	-2.185
	3	-2.491	.231	.000	-2.946	-2.036
2	1	2.617	.220	.000	2.185	3.050
	3	.126	.154	.414	178	.430
3	1	2.491	.231	.000	2.036	2.946
	2	126	.154	.414	430	.178

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

 Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

	Mean	Std. Deviation	Ν
angst_stotteren_vooraf	4.1478	2.45392	230
angst_stotteren_direct_n a	6.7652	2.05526	230
angst_stotteren_nu	6.6391	2.35779	230

### C) Suffering because of stuttering (Quality of life)

#### Tests of Within-Subjects Effects

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power <sup>a</sup>
time	Sphericity Assumed	840.020	2	420.010	101.281	.000	.307	202.562	1.000
	Greenhouse-Geisser	840.020	1.710	491.381	101.281	.000	.307	173.141	1.000
	Huynh-Feldt	840.020	1.721	488.075	101.281	.000	.307	174.314	1.000
	Lower-bound	840.020	1.000	840.020	101.281	.000	.307	101.281	1.000
Error(time)	Sphericity Assumed	1899.313	458	4.147					
	Greenhouse-Geisser	1899.313	391.477	4.852					
	Huynh-Feldt	1899.313	394.129	4.819					
	Lower-bound	1899.313	229.000	8.294					

a. Computed using alpha = .05

#### Pairwise Comparisons

Measure: MEASURE\_1

		Mean Difference (l-			95% Confiden Differe	L.
(I) time	(J) time	J)	Std. Error	Sig. <sup>b</sup>	Lower Bound	Upper Bound
1	2	-2.387	.199	.000	-2.779	-1.995
	3	-2.291	.216	.000	-2.718	-1.865
2	1	2.387	.199	.000	1.995	2.779
	3	.096	.148	.518	195	.387
3	1	2.291	.216	.000	1.865	2.718
	2	096	.148	.518	387	.195

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

	Mean	Std. Deviation	N
lijden_stotteren_vooraf	4.4087	2.26958	230
lijden_stotteren_direct_n a	6.7957	2.01890	230
lijden_stotteren_nu	6.7000	2.49042	230

### D) Influence of choice

#### Tests of Within-Subjects Effects

#### Measure: MEASURE\_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power <sup>a</sup>
time	Sphericity Assumed	801.051	2	400.525	104.908	.000	.315	209.816	1.000
	Greenhouse-Geisser	801.051	1.688	474.550	104.908	.000	.315	177.087	1.000
	Huynh-Feldt	801.051	1.699	471.419	104.908	.000	.315	178.263	1.000
	Lower-bound	801.051	1.000	801.051	104.908	.000	.315	104.908	1.000
Error(time)	Sphericity Assumed	1740.949	456	3.818					
	Greenhouse-Geisser	1740.949	384.869	4.523					
	Huynh-Feldt	1740.949	387.426	4.494					
	Lower-bound	1740.949	228.000	7.636					

a. Computed using alpha = .05

#### Pairwise Comparisons

Measure: MEASURE_1										
		Mean Difference (I-			95% Confiden Differe					
(I) time	(J) time	J)	Std. Error	Sig. <sup>b</sup>	Lower Bound	Upper Bound				
1	2	-2.271	.183	.000	-2.631	-1.911				
	3	-2.310	.214	.000	-2.732	-1.889				
2	1	2.271	.183	.000	1.911	2.631				
	3	039	.145	.786	324	.246				
3	1	2.310	.214	.000	1.889	2.732				
	2	.039	.145	.786	246	.324				

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

	Mean	Std. Deviation	N
keuze_beinvloeden_door _stotteren_vooraf	4.7642	2.43446	229
keuze_beinvloeden_door _stotteren_direct_na	7.0349	2.05379	229
keuze_beinvloeden_door _stotteren_nu	7.0742	2.55272	229

#### E) Trust/confidence in speech

#### Tests of Within-Subjects Effects

#### Measure: MEASURE\_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power <sup>a</sup>
time	Sphericity Assumed	1601.908	2	800.954	305.144	.000	.570	610.288	1.000
	Greenhouse-Geisser	1601.908	1.992	804.113	305.144	.000	.570	607.890	1.000
	Huynh-Feldt	1601.908	2.000	800.954	305.144	.000	.570	610.288	1.000
	Lower-bound	1601.908	1.000	1601.908	305.144	.000	.570	305.144	1.000
Error(time)	Sphericity Assumed	1207.426	460	2.625					
	Greenhouse-Geisser	1207.426	458.193	2.635					
	Huynh-Feldt	1207.426	460.000	2.625					
	Lower-bound	1207.426	230.000	5.250					

a. Computed using alpha = .05

Measure: MEASURE\_1

### Pairwise Comparisons

		Mean Difference (I-			95% Confiden Differe	
(I) time	(J) time	J)	Std. Error	Sig. <sup>b</sup>	Lower Bound	Upper Bound
1	2	-3.338	.150	.000	-3.632	-3.043
	3	-3.100	.155	.000	-3.405	-2.794
2	1	3.338	.150	.000	3.043	3.632
	3	.238	.147	.108	052	.528
3	1	3.100*	.155	.000	2.794	3.405
	2	238	.147	.108	528	.052

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

 Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

	Mean	Std. Deviation	N
vertrouwen_in_spraak_vo oraf	4.1342	1.96363	231
vertrouwen_in_spraak_di rect_na	7.4719	1.70621	231
vertrouwen_in_spraak_n u	7.2338	2.11966	231

#### E) Satisfaction: speech

#### Tests of Within-Subjects Effects

#### Measure: MEASURE\_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power <sup>a</sup>
time	Sphericity Assumed	1702.559	2	851.279	280.053	.000	.551	560.106	1.000
	Greenhouse-Geisser	1702.559	1.991	854.984	280.053	.000	.551	557.679	1.000
	Huynh-Feldt	1702.559	2.000	851.279	280.053	.000	.551	560.106	1.000
	Lower-bound	1702.559	1.000	1702.559	280.053	.000	.551	280.053	1.000
Error(time)	Sphericity Assumed	1386.108	456	3.040					
	Greenhouse-Geisser	1386.108	454.024	3.053					
	Huynh-Feldt	1386.108	456.000	3.040					
	Lower-bound	1386.108	228.000	6.079					

a. Computed using alpha = .05

### Pairwise Comparisons

		Mean Difference (I-			95% Confiden Differe	
(I) time	(J) time	J)	Std. Error	Sig. <sup>b</sup>	Lower Bound	Upper Bound
1	2	-3.550	.157	.000	-3.860	-3.240
	3	-3.079	.166	.000	-3.405	-2.752
2	1	3.550	.157	.000	3.240	3.860
	3	.472	.166	.005	.145	.798
3	1	3.079	.166	.000	2.752	3.405
	2	472	.166	.005	798	145

#### Measure: MEASURE\_1

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

	Mean	Std. Deviation	Ν
tevreden_over_spraak_vo oraf	3.8035	1.86397	229
tevreden_over_spraak_di rect_na	7.3537	1.74007	229
tevreden_over_spraak_n u	6.8821	2.24958	229