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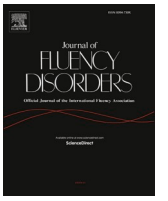

Norwegian speech-language pathologists treatment practices for preschool children who stutter: An explorative study

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ABSTRACT

Purpose: This study investigated the treatment practices of speech-language pathologists (SLPs) with preschool children who stutter to explore variations in service delivery and, consequently to better inform and support evidence-based practice.
Method: 121 Norwegian SLPs completed an online survey about stuttering treatment for preschool children aged up to six years. They reported on treatment training, choices, setting, dosage, and outcomes. Data was analysed descriptively. Correlation analyses between years of clinical experience and clinician perceived outcomes were conducted.
Result: Sixty-eight percent of SLPs were trained in one or more stuttering treatment programs. The majority of SLPs (83 %) provided treatment in person in preschool centers; 59 % reported providing treatment once a week. Thirty-four percent of SLPs reported that they *often* or *always* delivered the whole treatment program. Treatment practice addressed various elements, including advising parents about language and communication strategies, supporting the child's self-image, and perceived outcomes. The SLPs reported their clinician perceived outcomes as 'always' or 'often' reduction of audible stuttering (70 %), reduced cognitive and emotional reactions (55 %), and improved communication skills (58 %). Factors influencing treatment choices were identified at the systemic level (e.g., work place regulations) and individual level (e.g., SLPs competency, child's best).
Conclusion: Stuttering treatment services in Norway differ from those reported in existing literature as treatment is given in preschool settings, only 34 % of SLPs deliver programs as intended whilst the majority use treatment elements only, and still experience positive changes. Provision is variable, and seems influenced by SLP training and competence.

1. Introduction

Children as young as three years of age can demonstrate negative emotional and behavioral reactions to their stuttering (Langevin et al., 2010). Even though many children experience spontaneous recovery from stuttering (Kefalianos et al., 2017; Mansson, 2000),

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commencing treatment as close as possible to stuttering onset is essential to minimize the likelihood of these adverse effects developing (Langevin et al., 2010; Onslow & Lowe, 2019). Early treatment is also recommended as we cannot predict which children will persist with stuttering (Kefalianos et al., 2017) nor the potential negative outcomes of postponing early intervention. Promisingly, preschool children who receive stuttering treatment have a better chance to reduce stuttering frequency and increase speech efficiency compared to children who do not receive treatment (Sjøstrand et al., 2021).

Delivery of stuttering treatment to preschool children requires speech-language pathologist (SLPs) to make decisions concerning the type of treatment, timing and dosage. Within evidence-based practice, the quality of evidence is based on the triangulation of research studies, clinical experience, and the clients/child's perspectives (ASHA, 2023). Over the last couple of decades, a range of stuttering programs have been developed for preschool children including Mini-KIDS (Waelkens, 2018), the Lidcombe Program (Onslow et al., 2021), Palin Parent Child Interaction Therapy (Kelman & Nicholas, 2020), Rotterdam Evaluation study of Stuttering Therapy in preschool children – a Randomized Trial Demands and Capacities Model (RESTART DCM; (Franken & Laroes, 2021), and the Westmead Program (Andrews et al., 2020). So far, only the effect of the Lidcombe Program, RESTART DCM and the Westmead Program have been investigated with randomized controlled trials (de Sonneville-Koedoot et al., 2015; Lattermann et al., 2008; Sjøstrand et al., 2021; Trajkovski et al., 2019). Other existing programs may also be effective, but evidence about the effect of these programs compared to no treatment is lacking (Sjøstrand et al., 2021). Stuttering is a multifactorial disorder. It is not well documented which programs are most effective for whom and what the active components of each treatment program are when treating preschool children (Nippold, 2018; Ratner, 2018). The optimal intensity of SLP and parent delivered programs is also yet to be established (Byrd & Donaher, 2018; de Sonneville-Koedoot et al., 2015; Ratner, 2018). Given these unknown elements, SLPs may make treatment choices that are not founded on research evidence, but rather rely on clinical expertize (Byrd & Donaher, 2018).

1.1. SLP practice

Chmela and Johnson (2018) summarizes three areas that influence clinical practice for SLPs working with children who stutter: content, process and integration.

1.1.1. Content

Following Chmela and Johnson (2018), content covers knowledge, experiences, skills and personal competencies, such as SLPs self-esteem. Botterill (2011) noted that despite many students receiving a Master's degree in speech-language pathology in the USA and UK, it is common for some students to graduate with very limited clinical stuttering experience. It is understandable then why some SLPs report not feeling comfortable working with children who stutter and being uncertain about the main aspects of treatment including details of treatment programs and treatment dosage (Tellis et al., 2008). An Australian study found that Australian SLPs see self-perceived self-efficacy as a critical factor in the management of stuttering (Erickson et al., 2023). Studies addressing the clinical skills, self-esteem and attitudes of SLPs working with children and adults who stutter revealed large variations between treatment practices of SLPs who work across a range of communication disorders and SLPs who specialize in the management of stuttering (Botterill, 2011). Stuttering specialist SLPs reported a more positive attitude regarding the effects of treatment programs (Crichton-Smith et al., 2003; Kelly et al., 2020).

1.1.2. Process

Process addresses organizational structures, recommendations and guidelines that may influence the options an SLP faces in their clinical practice. The benefits of clinical guidelines are recognized internationally. Recently, a team of international stuttering experts was configured to develop consensus guidelines for the assessment of people who stutter (Brundage et al., 2021). Countries such as Australia (Speech pathology Australia, 2017), Germany (Neumann et al., 2017), and Sweden (Grundström et al., 2015) have developed national guidelines that provide up-to-date research knowledge to inform speech-language pathology management of preschool children who stutter (Nordeide & Sjøstrand, 2023). Other countries have no recommendations or guidelines, including Norway (Fibiger et al., 2008; Guttormsen et al., 2019; Węsierska et al., 2018). Consequently, in many countries management of preschool children who stutter is contingent on the individual SLPs knowledge and experiences. This can result in significant variations between individual SLPs treatment practices. Ideally, stuttering management should be informed by a combination of objective and holistic assessment of the person who stutters and recommendations outlined in clinical guidelines devised from integrated empirical knowledge (Guerra-Farfan et al., 2022).

1.1.3. Integration

Integration in the Chmela and Johnson (2018) model refers to challenges occurring in every day practice and implementation of programs, including busy schedules and treatment adherence. In an older survey study by Tellis et al. (2008), almost half of the SLPs who completed the survey (41%) reported that they would not treat stuttering immediately because the child may spontaneously recover. Based on the reliable impact that stuttering may have from an early age, more recent research encourages early intervention (Onslow & Lowe, 2019).

Compared to generalist SLPs, stuttering specialist SLPs are reported to deliver treatment that aligns more closely with the protocol outlined in relevant treatment programs (Botterill, 2011). However, there are several reasons a stuttering treatment protocol may not be followed strictly. For example, O'Brian et al. (2013) investigated the use of the Lidcombe Program by Australian SLPs and found that half of the SLPs reported that they did not adhere to the program manual in its entirety. The most common deviations from the program were reduced duration and frequency of clinical visits. Both parent schedules and SLPs workplace restrictions were reported as reasons

for less frequent clinical visits (O'Brian et al., 2013). Whereas individual tailoring of stuttering programs may be preferable to have a best fit with the child's needs and wishes, the effect of a treatment program is usually only evaluated for the implementation of the complete protocol (Hofslundsengen et al., 2022).

1.2. The aim of the current study

Given the paucity of information about SLPs treatment practices with preschool children who stutter, and the importance of high-quality early intervention, there is a need to ascertain what SLPs are doing in their clinical practice with young children who stutter. Therefore, a brief Norwegian survey explored which stuttering treatments SLPs provided to preschool children. Findings revealed that the majority of respondents treated preschool children who stutter using a self-selected combination of indirect strategies (Guttormsen et al., 2019). However, this survey only consisted of four questions, and hence, the level of detail collected was limited and did not include any questions concerning the reasons for treatment preferences and choices. Therefore, the aim of the current study is to investigate factors which influence Norwegian SLPs treatment choices, implementation of stuttering treatment and general management of pre-school stuttering. To explore this main purpose, the current paper t addressed and reported on the following research questions:

1) What stuttering treatment programs and/or treatment strategies are SLPs trained to deliver and what do they offer to preschool children and their families?
2) What are the treatment settings and dosage used by SLPs?
3) What factors influence SLPs' treatment choices?
4) What are the reported barriers for delivering stuttering treatments?
5) What clinician perceived outcomes are reported by SLPs?

2. Methods

The study was approved by the Norwegian Center for Research Data (registration number 144522). Participants provided informed consent through the web-based survey platform. Data collection was conducted in Norway between October 2019 and January 2020, i.e., prior to the Covid-19 pandemic.

2.1. Norwegian SLP context

Preschool children who stutter can access SLP treatment in Norway free of charge; treatment is regulated by both the Education Act (Ministry of Education and Research, 1998) and within health legislation (The Norwegian Health Economics Administration Helfo, 2018).

Most SLPs work as generalists across a range of communication disorders (Norwegian Association for Logopedics (Norsk Logopedlag), N.D.). There is no national mandatory register for SLPs. They are either employed in public services within a municipality (e.g., schools, the Educational-Psychological Service),within the national special needs education service called Statped (N.D.), or they work in private practice. Private practice SLPs are funded by the Norwegian Health Directorate (Ministry of Health and Care Services, 2021). They are required to obtain approval to assess and treat a child that stutters from either (1) the Educational–Psychological Service which assesses and determines each child's need for stuttering treatment (Ministry of Education and Research, 2006) or (2) a general practitioner writing a referral recommending treatment (The Norwegian Health Economics Administration Helfo, 2018).

All public speech-language pathology services are influenced by their respective municipalities' regulations. Only 15 % of Norwegian speech–language pathologists report having work place or municipal recommendations for stuttering management (Kefalianos et al., 2022). Hence, there exists a great variation in the structure of the organization of SLP services in the municipalities in Norway, including the number of public SLPs and private SLPs employed in each municipality and the SLPs level of competency (i.e., general SLP versus specialized SLPs). There is so far no specific data concerning municipal services for people who stutter, but previous surveys for services for persons with aphasia in Norway revealed important challenges (Afasiforbundet i Norge, 2019). Of the 65 municipalities who participated, only 37% of the municipalities employed SLPs offering services for adults; 60 % cooperated with private SLPs, but 37 % did not have any overview of private SLP practices in their municipalities at all. Further, the report revealed a significant difference in self-evaluation of SLP services for aphasia, where 84% of the municipalities reported offering sufficient services compared to only 29 % of the SLPs (Afasiforbundet i Norge, 2019). Even though this report is based on SLP services for aphasia, there is no doubt that similar challenges also apply for the stuttering field.

2.2. Participants

2.2.1. Recruitment and final sample size

As there is no national register of SLPs who work with children who stutter, we invited all SLPs registered within the Norwegian Speech-Language Association to participate in the current study. Being a member of the Norwegian Speech-Language Association is optional and the organization has approximately 1300 members including student SLPs, SLPs working in non-logopedic settings (e.g., in schools as general teachers) and retired SLPs. Within the Norwegian Speech-Language Association, the leader of each regional group ($n = 12$) was contacted by our research team and asked to distribute a survey via email to all their members. Regional leaders sent an

additional two reminder emails over two months to prompt SLPs to complete the survey. From this population, 110 SLPs (8.5 %) completed and returned the survey.

Because of the low response rate, an open Facebook group for SLPs in Norway called "Logopedic forum" was also used to recruit participants. At the time of the survey, the group consisted of 872 members, including non-Norwegian SLPs and other professions interested in speech-language pathology. Twenty SLPs completed the survey from the Facebook group, differentiated by a separate login code from the email recruitment. It is important to acknowledge that the two groups we recruited from overlap significantly, however, they are not identical. It was therefore not possible to calculate the exact number of SLPs invited to participate in this study and subsequently the exact response rate for the survey.

A review of the email addresses registered by all respondents in the data collection platform identified three double responders. In these instances, we included the participant's initial responses to the survey only. In addition, we excluded five participants who did not fulfill inclusion requirements, i.e., providing an email address and one participant that was not educated as a SLP. In total, 121 SLPs were included in the survey.

2.2.2. Description of the sample

The survey consisted of two sections: the first part (questions I –V) collected participant background information including number of years respondents had practiced as SLPs and access to existing stuttering guidelines at their work places or municipalities. Seventy-three percent (n = 88/121) of the participants reported working in public services, with the remaining 27% (n = 33/121) working in private practices. The mean number of years of experience working as a SLP was 9.9 (SD 8.4, range 0–33). Seventy-four percent (n = 89/121) of the SLPs had a master's degree and 26 % (n = 32/121) reported having a postgraduate degree in speech-language pathology.

Participants who indicated in question IV that they had provided treatment to preschool children who stutter during the last three years were also asked to complete the second part (questions VI –XX). The second part contained questions concerning the type of treatment provided, frequency of treatment, factors influencing treatment choices and clinician perceived outcomes achieved. Within the survey, treatment was defined as "a structured approach (direct or indirect) that is delivered weekly or at least once a fortnight". Sixty-eight percent (n = 82/121) of the SLPs reported that they had met preschool children who stutters over the last three years. On average, these 82 SLPs reported providing treatment to 6.2 children (SD 7.8; range 0–50) and meeting another 2.5 children (SD 5.4; range 0–30) whom they did not provide treatment to within the last three years. The following results are solely based on the sample of 82 (68 %) SLPs who reported meeting preschool children who stutter during the last three years.

2.3. Survey design

An online survey was developed to examine SLPs' management practices with young children who stutter using the University of Oslo`s approved web application Nettskjema as part of a larger research project. Survey questions were developed by the authors who are all SLPs, including stuttering specialist speech-language pathologists in Norway. The content of the survey is grounded in literature reviews of recommendations for stuttering treatment and assessment for preschool children (Baxter et al., 2015; Hofslundsengen et al.,

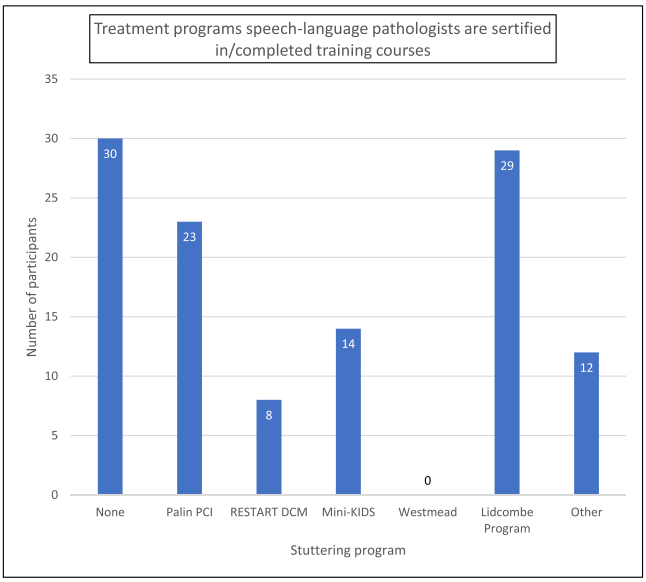

Fig. 1. Reported Number of SLPs Who had Completed Training for Each Stuttering Treatment Program (n = 82). Note. Respondents could select more than one program in their response (n = 82). 'Other' includes treatment knowledge gained from participating in professional development courses or cognitive therapy.

2022; Sjøstrand et al., 2021; Brignell et al., 2021.); a content analysis of stuttering treatment programs (Sjøstrand et al., in preparation); and a pilot study of the Norwegian SLP practice (Guttormsen et al., 2019). The author`s experiences from working with children who stutter and insight into SLPs practice in Norway from the national special needs education service (Statped) also informed the development of the survey. An English translation of the survey is included in attachment A (Suppllementary). A draft version of the survey was piloted by three experienced SLPs. Feedback was used to revise the content, structure, response options and terminology in the survey. The final survey included questions with pre-determined answers that respondents needed to choose from as well as four open-ended answer boxes to extend and specify the category "Others".

2.4. Data analysis

The survey contained mainly ordinal data, and was therefore analysed with frequencies and Spearman's rho correlations using SPSS 26 (IBM). The results were reported as significant when $p \leq 0.05$.

3. Results

3.1. Program training and type of treatment offered

Fig. 1 summarizes the treatment programs SLPs had been trained in. Sixty-two percent (n = 51/82) of the SLPs reported that they had received training in one or more treatment programs including Palin Parent Child Interaction Therapy (PCI), RESTART DCM, Mini-KIDS and the Lidcombe Program. The Lidcombe Program and Palin Parent Child Interaction Therapy were the most common treatment programs with 35 % (n = 29/82) percent and 28 % (n = 23/82) of SLPs being trained in these programs respectively. More than one third (38 %) of SLPs reported that they had not completed any stuttering treatment training programs. In the open-ended category of other treatment programs, SLPs reported participating in courses offered by national SLP organizations and/or regional specialist centers (Statped), as well as referring to their educational curriculum at different universities. Cognitive therapy was mentioned by one person.

Among the 51 SLPs who had completed training in these treatment programs 31 % reported that they *never or seldom* deliver these programs in their entirety (Table 1) and only 34 % reported that they *often* or *always* deliver the whole treatment program.

SLPs were also asked to report on their use of individual treatment elements or strategies with children who stutter. Six SLPs did not complete this section as they reported using treatment programs only. As summarized in Table 2, indirect treatment strategies (i.e., modifications of the child's communication environment) were used by most SLPs. Strategies designed to enhance self-image and the child's communication attitudes as well as general communication strategies were the next most common elements used. Almost half of the respondents reported using fluency shaping techniques. Around one-third of the SLPs in the current study reported using stuttering modification strategies.

3.2. Treatment setting and dosage

All SLPs reported delivering stuttering treatment in person. Treatment was delivered most frequently at the child's preschool (83%, n = 68/82) or at a speech-language pathology clinic (45 %, n = 37/82). Only three of the 82 SLPs (4 %) reported providing treatment at the child's home.

More than half of the SLPs reported that they delivered stuttering treatment once per week. A further fourth part reported that they typically deliver treatment on a monthly basis. Table 3 describes the distribution of treatment delivery frequency.

Forty percent (n = 33/82) of the SLPs reported that they were not able to offer treatment as frequently as they would like to. Workplace restrictions were a common reason for this finding. For example, 24 % (n = 22/82) of the SLPs' only conduct assessments and provide supervision within their roles. Other SLPs reported restrictions such as their working hours (n = 20/82, 24 %) and restricted economical resources (n = 11/82, 14 %). In seven of the 82 cases (9 %), the SLPs' competency to provide stuttering treatment to preschool children also influenced the frequency of treatment delivered. No barriers associated with the parents or child's wishes or physical limitations (e.g., available rooms) were identified by any respondents. However, one SLP reported in the open-ended "other" answer of challenges for parents to meet the SLP at daytime.

Table 1
Reported Application of the Whole Program the SLP Was Trained In (n = 51).

Program	Never or seldom	Sometimes	Often or always
Palin PCI (*n* = 23)	7 (30 %)	7 (30%)	9 (40 %)
Restart DCM (*n* = 8)	4 (50 %)	4 (50 %)	-
Mini-KIDS (*n* = 14)	2 (14 %)	6 (43 %)	6 (43 %)
Lidcombe program (*n* = 29)	10 (35 %)	8 (28 %)	11 (38 %)

Note. 23 (45%, n = 51) respondents reported on two or more programs. The percentages indicated in the table were calculated on the basis of the n's in each line.

Table 2
Reported use of individual treatment elements.

Treatment elements	Proportion of SLPs who use this element % (*n of 82*)
Advise parents how to adapt the child's language environment (indirect treatment)	93 % (76)
Support self-image and thoughts about communication	73 % (60)
General communication strategies	72 % (59)
Fluency shaping techniques	46 % (38)
Stuttering modification techniques	35 % (29)
Language supporting strategies	27 % (22)
Singing	13 % (11)
Breathing techniques	12 % (10)
Advice for behavioral restructuring	7 % (6)
Advice for sleep routines	7 % (6)
Phonation in a tube	1 % (1)

Note. Six SLPs did not complete this section as they reported using programs only. Respondents could select more than one program in their response.

Table 3
Commonly delivered treatment frequency.

Treatment frequency	SLPs who deliver treatment at this frequency % (*n of 82*)
More than once a week	3 % (2)
Once a week	59 % (47)
Monthly	28 % (22)
Less than monthly	5 % (4)
Never*	6 % (5)

Note. *The option "never" was selected by SLPs who only conduct assessments due to workplace restrictions. Two answers were missing of the n = 82 sample.

3.3. Reasons for choosing treatment approaches

As summarized in Fig. 2, the most common reasons for choosing a particular treatment approach were resources (n = 48/82, 59 %), SLPs' preferences for a particular treatment (n = 36/82, 44 %) and evidence-based practice (n = 25/82, 31 %).

3.4. Reasons for not offering treatment to all children who stutter

Thirty-five percent (25/82) of the SLPs reported that they were not able to provide treatment to all children they met who stutter. Reasons for not offering treatment are listed in Fig. 3.

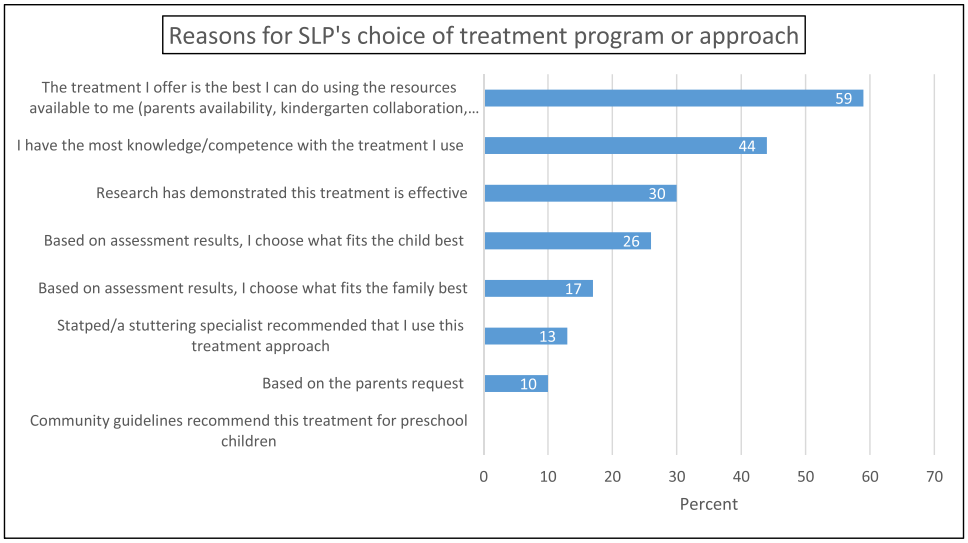

Fig. 2. SLP Reasons for Choosing Treatment Approaches (n = 82). Note. Respondents could select up to three possible answers.

3.5. SLPs perceived outcomes

Seventy percent (n = 75/82) SLPs reported that a reduction of audible stuttering was either *always* or *often* achieved with their clients. Fifty-five percent (n = 45/84) of the respondents reported reduced cognitive and emotional reactions to dysfluency and 57 % (n = 47/82) of respondents reported improving communication skills. SLPs with more clinical experience were significantly more likely to report achieving a reduction in audible stuttering (rho = 0.22, $p = 0.043$), a reduction of cognitive and emotional reactions (rho = 0.30, $p = 0.007$) or an improvement in communication skills (rho = 0.33, $p = 0.003$).

4. Discussion

Our study investigated the treatment practices of Norwegian SLPs with preschool children who stutter to explore variations in service delivery and thereby to better inform and support evidence-based practice. Many of the SLPs were trained in one or more stuttering treatment programs and reported great variation in use and implementation of programs and elements, indicating a lack of similarity in the services given to preschool children. One third of the SLPs had not received any program training in stuttering intervention. Further, among the SLPs with program training, 31 % reported they 'never' or 'seldom' deliver the interventions as they are intended to be delivered, which may compromise the effectiveness of these interventions. The lack of standard criteria for stuttering services in Norway and hugely variable practice indicate that preschool children will be getting variable input. This seems to be determined by variability in local resources and SLP competencies. Despite the variation in use of treatment elements, many of the SLPs reported positive effects of their treatment on children's fluency, cognitive and emotional reactions, and communication skills.

In general, our findings of Norwegian SLP practice for stuttering treatment reflects the proposed key elements (content, process and integration) within the SLP practice model by Chmela and Johnson (2018). Further, these elements are interdependent and all three should be addressed for establishing an optimal treatment service and thereby best outcome for the child who stutters.

4.1. Type and rationale behind treatment choices

The most common treatment program that SLPs reported using in the current study was the Lidcombe Program (Onslow et al., 2017), which is the only program that has been evaluated in randomized control trials (RCT) compared to no intervention (Sjøstrand et al., 2021). However, another RCT demonstrated the RESTART DCM program produced similar outcomes to the Lidcombe program (de Sonneville-Koedoot et al., 2015). However, very few SLPs in this study reported using the RESTART DCM program in their practices. The Palin Parent Child Interaction Therapy (Kelman & Nicholas, 2008) was the second most commonly used program by SLPs in the current study, even though the research evidence for this intervention comes primarily from single case studies (Millard et al., 2018). This finding may reflect the SLPs individual training and experience with each program, which can be related to the current variation in curriculums of tertiary institutions in Norway when they qualified as SLPs. For some participants, this was decades ago. However, since there is no standardized curriculum for training in any specific stuttering treatment program or national guidelines for stuttering management, these findings also illustrate that SLPs interested in the area of stuttering participate in stuttering programs courses either for personal reasons or encouraged by their workplaces.

Our results showed that many SLPs do not apply the program protocols as intended, or as they were implemented when evaluated.

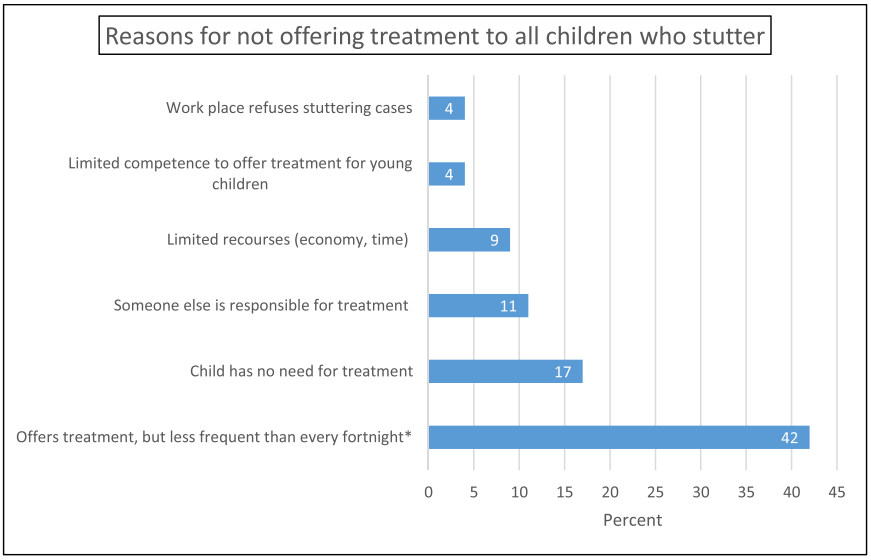

Fig. 3. Reasons for not offering treatment to all children who stutter (n = 82). Note. In the survey, treatment was defined as an offer occurring at least weekly or every fortnight.

This finding aligns with O'Brian and colleagues (2013) results in that some SLPs do not deliver the Lidcombe Program in accordance with the program manual consistently. Further, many SLPs in the current study reported that they do not use a specific treatment program to manage stuttering. Instead, they reported using a combination of individual treatment elements. This reflects management approaches which are tailored to an individual child, as discussed by Botterill (2011) and Ratner (2018).

Among the identified treatment elements, modifying the child's language environment, using general communication strategies (e.g., turn taking), and enhancing the child's self-image were most commonly used. Many of the intervention programs currently available to manage childhood stuttering include some of these elements (Franken & Laroes, 2021; Kelman & Nicholas, 2020; Yaruss & Readon-Reeves, 2017). However, there are few studies exploring the efficacy of individual treatment elements, or the 'essential ingredients' (Baxter et al., 2015). Use of individual elements from these treatment programs may therefore reflect SLPs' individual preferences or beliefs about the effectiveness of specific elements. However, it is unsure how this experienced outcome is measured compared to complete treatment programs.

Within the Norwegian education system (Ministry of Education and Research, 2006), supporting the child's self-image and providing the child with communication and language strategies are standard developmental factors. Norwegian SLPs' preferences for these strategies may reflect the intervention context, which for most stuttering therapy is in preschools.

Approximately one-third of the SLPs in the current study reported using stuttering modification strategies (e.g., changing the stuttering moment by prolonged speech) to treat preschool children who stutter. Stuttering modification strategies are commonly used in the treatment of school-aged children, adolescents and adults who stutter (Brignell et al., 2021; Brignell et al., 2020). Fluency shaping techniques may also be introduced in some preschool interventions if the indirect strategies being employed are not sufficient to reduce stuttering (Franken & Laroes, 2021; Kelman & Nicholas, 2020). However, so far there is limited systematic evaluation of the effect of modification strategies for preschool children who stutter.

4.2. Treatment settings

In the current study the majority of SLPs reported that in person intervention was delivered at the child's preschool. Delivering treatment at the child's preschool may result in fewer parents being able to attend their child's treatment sessions with the SLP. Current evidence-based stuttering treatments for preschool children are usually parent delivered, and therefore it is essential to the success of these programs that parents are able to attend sessions with the SLP so that they can be trained appropriately (e.g., Kelman & Nicholas, 2020; Onslow et al., 2021). Ratner (2018) also argues that home-based treatments have higher generalization potential as they are conducted in the child's everyday environment. However, in Norway 93 % of all children between 1 and 5 years of age attend preschool every day (Statistics Norway, 2023). Hence, we argue that the preschool setting is an everyday environment for Norwegian children. However, future research is needed in the preschool setting, and investigate how to best include families in preschool interventions.

All SLPs in the current study reported delivering intervention in person only. Many Norwegians live in remote or rural settings where access to speech-language pathology services is limited, where telehealth service delivery would arguably be a useful option. To date, only the Lidcombe Program has compared the efficacy of telehealth and in person service delivery modes and showed positive effects, but may take a longer time (Lewis et al., 2008).

4.3. Treatment dosage

The frequency of clinical sessions varies among Norwegian SLPs. Most SLPs reported that they typically deliver stuttering treatment once per week, which is in line with most evidence based stuttering treatments stipulating weekly clinical sessions with a SLP (Hofslundsengen et al., 2022). However, many of the SLPs reported offering clinical sessions less frequently. Reasons for this were mostly related to the role of the SLP within the different organizational models (e.g., not having a treatment responsibilities) as well as working hours. This finding is in line with the implementation study for the Lidcombe program (O'Brian et al. (2013), which reported reduced duration and frequency of clinical visits among SLPs in community clinics. Workplace restrictions were again identified as one of the most common reasons for these deviations. While this finding requires replication in more countries, these results indicate that workplace structures are a key determinant of adherence to treatment dosage.

4.4. SLP perceived outcomes

The SLPs in our study reported a clinician perceived reduction of audible stuttering behaviors, cognitive and emotional reactions to dysfluency, and improved communication skills for their clients based on three general questions. The described clinician perceived changes are in line with the aims of most preschool stuttering treatments in reducing stuttering and enhancing communication skills (Franken & Laroes, 2021; Kelman & Nicholas, 2020; Onslow et al., 2021). However, these clinician perceived outcomes may also be the result of natural recovery rather than a treatment response. They may also be interpreted as a self-stabilizing effect of the development of the SLPs self-confidence over time. Importantly, our survey data reporting these perceived outcome results are SLPs opinions about experienced effectiveness, and we do not know which assessment or measures they have used to build their answers on. In addition, it is unknown what aspects of stuttering (e.g., severity, impact) underlies their answers. While clinical experience is a significant part of the evidence-based practice, these perceived positive reports need to be more thoroughly investigated.

4.5. Study limitations

There are several limitations in our study and results should be interpreted cautiously for several reasons. Our survey was developed with experts and clinicians in cooperation, but may still leave room for individual interpretation of both questions and response alternatives. As discussed in the method section, the sample size and response rate is rather low due to limitations in recruitment and the challenge of not having access to a defined population of SLP working with preschool children who stutter. This has consequences for the external validity. While this sample size reflects a low response rate, respondents represented most geographical areas in Norway which enhanced the representativeness of the sample. Further, a sample size of 100–150 participants seems to be consistent with previous Norwegian surveys of SLPs (e.g., Kirmess et al., 2021). The criterion of three-year experience working with preschool children who stutter was applied to ensure that respondents had recent experience with children who stutter. In retrospect, we acknowledge that this may have excluded some experienced SLPs from participating in the study.

5. Conclusion

Our findings revealed that the practices of SLPs in Norway to manage early stuttering varies and does not fulfill the ideal of evidence-based practice for stuttering managements as proposed in several international guidelines. The majority of respondents reported using various combinations of individual treatment elements suggesting possible inequality in stuttering services. As stuttering is considered to be a multifactorial disorder (Anderson & Ofoe, 2019; Smith & Weber, 2017), using different elements and approaches could also reflect tailoring of stuttering treatment to the individual child. It may therefore be the case that some of the reported treatment approaches in the current study whilst not currently evidence-based are still effective for reducing stuttering or improving communication for preschool children. Our results stress a need for more research on this matter, in addition to treatment given in the preschool setting.

The results concerning lacking training in stuttering treatment programs and delivery of interventions in alignment with treatment programs may compromise the effectiveness of the interventions given by Norwegian SLPs. Therefore, findings from this study highlight a need for Norwegian SLPs` education and training to focus more on evidence-based stuttering treatments and for the development of national evidence-based guidelines to manage early stuttering effectively in Norway. These actions may also enhance equality in treatment for preschool children in Norway.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.jfludis.2023.105999.

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