Early childhood professionals’ management of young children who stutter: a cross-sectional study

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Disclosure: The authors declare that they do not have any conflicts of interest.
Abstract

Purpose: Early childhood professionals must accurately identify, refer and treat children who stutter (CWS) within the scope of their respective roles to ensure each child receives the best possible care. This study aimed to investigate similarities and differences between the practices of speech language pathologists (SLPs), preschool teachers and public health nurses when they initially meet a young child reported as stuttering.

Methods: This cross-sectional study was conducted in Norway. A sample of 342 early childhood professionals (126 preschool teachers, 95 public health nurses and 121 SLPs) completed an online survey about their management practices with young children reported as stuttering. Descriptive statistics, ordinal regression and chi square analyses were used to analyse data.

Results: Initial management practices reflected the different roles and competencies of each profession. Less than 15% of SLPs reported they have access to guidelines for working with CWS. This figure was even lower for public health nurses (6.5%) and preschool teachers (12%). The most common recommendations provided to parents by all professions was giving the child time to talk and maintaining eye contact. Each professions referral for further SLP management was most commonly influenced by stuttering severity. All professions reported collaborating about management of CWS; the most common reported collaboration was with preschool teachers.

Conclusions: Initial management practices varied between professions however differences largely reflected the roles and competencies of each profession. The development of guidelines and interdisciplinary seminars is recommended to develop a more complementary approach across professions to improve management practices and ensure young CWS receive the best possible care.
Introduction

Stuttering is common in young children, affecting up to 11% by 4 years of age (Andrews, 1985; Månsson, 2000; Reilly et al., 2013). While the majority of these children will recover from stuttering by school entry, up to 35% will develop persistent stuttering (Kefalianos et al., 2017; Månsson, 2000). Some children and adults are not affected by the experience of stuttering. Many children who develop persistent stuttering however are affected adversely socially. They are less likely to be viewed as leaders by their peers and are more likely to be socially rejected because they stutter (Davis et al., 2002). School-aged children who self-report higher stuttering severity are also less likely to complete higher levels of education (O’Brien et al., 2011). By adulthood, job prospects are more limited (Klein & Hood, 2004), quality of life is impaired (Craig et al., 2009) and the risk of developing a range of mental health problems, particularly social anxiety disorder, is heightened (Iverach et al., 2009). Early intervention increases a child’s chance of recovering from stuttering (Onslow et al, 2012). For those children who do not recover, early intervention can foster the development of positive communication attitudes and build resilience in CWS against potential negative reactions they may experience from listeners (Byrd & Donaher, 2018; de Sonneville-Koedoot et al., 2015). The promising effectiveness of early intervention coupled with the knowledge that children as young as 3 years of age can be socially and emotionally affected by stuttering (McAllister, 2016) therefore reinforces the critical need for all children to receive effective care as close as possible to stuttering onset (Onslow & Lowe, 2019).

Similar to the United States of America, early intervention in Norway typically refers to children up to 6 years of age. Internationally, the early childhood professionals responsible for monitoring children’s development to identify children who require early intervention differs. In the U.S.A, pediatricians conduct routine screenings for children up to 5 years of age.
to identify children with a range of developmental disorders including stuttering (American Academy of Pediatrics et al., 2006; Lipkin et al., 2020). In other countries, including Norway, Australia and Germany, preschool teachers and public health nurses are responsible for conducting these observations and screenings (Bundesministerium für Familien, Senioren, Frauen und Jugend, 2021; Department of Health, 2019; Helsedirektoratet, 2019; Ministry of Education and Research, 2017). Regardless of the early childhood professional that conducts these routine developmental screenings, they all have the same objective; to identify children who exhibit developmental concerns and require early intervention.

In Norway, preschool is voluntary, however 92% of children aged 1 to 5 years attend. Norwegian children begin preschool at one year of age; most of these children (95%) attend for 41 hours each week (Statistics Norway, 2020). Preschool education includes play-based learning and outdoor activity, with little focus on formal learning. Preschool teachers also promote children’s communication development within their role by providing a rich learning environment and identifying and supporting children who have communication difficulties (Ministry of Education and Research, 2017). Similarly, 95% of families access public health services in Norway (Statistics Norway, 2019). Public health nurses offer each parent(s) 14 consultations at their local health centre from the child’s birth to their fifth birthday as well as one home visit 7-10 days after birth (The Norwegian Directorate of Health, 2021). At these routine consultations, public health nurses monitor children’s communication development and identify children who have communication difficulties so they can be provided with the necessary supports (The Norwegian Directorate of Health, 2019). In 2018, these screenings were attended by 96% of two-year-old children and 94% of four-year-old children (The Norwegian Directorate of Health, 2020). Taken together, this means that preschool teachers and public health nurses have a key role to play in the initial identification of CWS. They
interact regularly with preschool children which affords them the ability to monitor their fluency.

Additionally, parents may directly express concerns or seek advice about their child’s fluency from preschool teachers and public health nurses. McAllister et al. (2011) reported that Australian parents were most likely to approach their child’s teacher when seeking information about their preschool child’s communication difficulties. Other professionals that parents reported consulting were general practitioners and SLPs. When parents contact these early childhood professionals, it is imperative they are able to provide up to date and relevant information to parents and determine when a child has begun stuttering so that they can refer them to a SLP for stuttering management. Winters and Byrd (2020) evaluated American pediatricians’ referral practices for CWS using a survey. They found that stuttering is more likely to be underdiagnosed by pediatricians if CWS do not exhibit any stuttering behaviors during a consult with a pediatrician or if a parent does not report that their child exhibits any adverse reactions to stuttering. Consequently, these children may not access the care they need in a timely manner. Ensuring our early childhood professionals have current and accurate knowledge is therefore critical so that they do not create any barriers to CWS accessing timely intervention.

Collaboration between early childhood professionals and SLPs is needed so that new knowledge about management of CWS can be shared between professions and a complementary approach to caring for these children can be established. This would ensure that CWS are provided with the support to manage their stuttering as effectively as possible. However, we were unable to identify any research examining collaboration between early childhood professionals and SLPs. Glover et al. (2015) reported that collaboration between SLPs and schoolteachers regarding children with communication difficulties is minimal. One
of the possible barriers to establishing inter-professional collaboration may be a limited understanding of communication difficulties. This would limit early childhood professionals’ ability to identify and therefore refer children to appropriate services for assessment and management (Glover et al., 2015). Further, the use of different terminology across professions may also affect inter-professional collaboration. This would plausibly create confusion and miscommunication between professions and consequently impede children’s access to relevant services (Bishop, 2014).

Research has demonstrated that early childhood professionals including schoolteachers, pediatricians and generalist SLPs have insufficient or incorrect knowledge about stuttering, its causes and appropriate management options (Abdalla & Louis, 2012; Maviş et al., 2013; Yairi & Carrico, 1992). The ramifications of these findings are serious. Possessing limited and/or incorrect knowledge about stuttering may result in children receiving suboptimal care, increasing their risk of stuttering becoming chronic and resulting in increased risk of adverse impact to their communication and psychosocial health.

There is a paucity of research examining early childhood professional’s management practices of preschool CWS, including inter-professional collaboration. An understanding of current practices of early childhood professionals when they meet a child reported to be stuttering is therefore needed to identify limitations and/or discrepancies within and between professions. Subsequently, findings could be used to inform future education of early childhood professionals about stuttering management to improve their practices. Ultimately this would create consistency and cohesion between professions, maximizing the effectiveness of care provided to minimize the likelihood of chronic stuttering and to minimize potential adverse impacts of stuttering. This study therefore aimed to investigate the practices of early childhood professionals working with preschool children reported to be
stuttering by addressing five research questions. As this study was conducted in Norway, we
focused on SLPs, preschool teachers and public health nurses as they are the main early
care childhood professionals involved in the care of young children up to the age of six years.

1. What percentage of these early childhood professional’s workplaces have
guidelines available for working with young CWS?

2. What approaches do these early childhood professionals use when they are initially
contacted by a parent with concerns that their child may be stuttering?

3. What are the three most frequent pieces of advice these early childhood
professionals give to parents who report that their preschool child may be
stuttering?

4. What information do early childhood professionals use when deciding whether a
child needs further speech language pathology management for stuttering?

5. Who do early childhood professionals collaborate with during management of
children reported to be stuttering?

Within research questions 2 to 4, we also performed statistical analyses to compare responses
provided by preschool teachers and public health nurses on the basis that they have similar
roles in the management of CWS.

Method

Study aim and design

This study (project number 144522) was approved by the Norwegian Centre for
Research Data (NSD). We developed a survey to examine how early childhood professionals
(SLPs, preschool teachers and public health nurses) initially manage children reported to be
stuttering by their parents. The survey was a web-based self-administered questionnaire using the "Nettskjema" platform developed and administered by the University of Oslo (Gulbrandsen, 2017).

**Measures**

A two sectioned survey was developed for each early childhood professional group. The aim of the first section was to compare each profession’s initial practices with young CWS therefore all professional groups were presented with an identical set of questions. The second section contained discipline specific questions. These questions will be detailed in subsequent discipline specific publications. Only data collected from the first section of the survey will be presented in this paper. Early childhood professionals were asked to answer the following questions within the first section of the survey: (1) How many years have you practiced in your profession? (2) Have you met any CWS during the past three years?; and (3) How many CWS have you met annually? Participants who reported that they had met CWS during the last three years were also asked the following questions: (a) what are your typical responses when parents initially contact you with concerns that their child is stuttering; (b) what are the three most common pieces of advice you would give to parents at an initial consult about their child’s stuttering?; (c) list the factors you consider when evaluating a child’s need for further speech language pathology management for stuttering?; d) does your workplace have guidelines for managing young CWS?; e) do you collaborate with any other professionals regarding children’s stuttering? These questions were only completed by respondents who had met CWS in the past three years as we wanted findings to be based on participants with current clinical experience with this age group.

The survey was written in Norwegian. The survey questions have however been translated into English for transparency and replication (see Appendix A). The survey
consisted of closed questions whereby participants had to select from a series of possible answers. Possible answers were established through discussions between researchers with direct experience working in the field of practice for SLPs, public health nurses, preschool teachers and stuttering experts. The main aim of these discussions was to identify possible responses that may be provided by each professional group. Initially, all possible recommendations were listed. All recommendations were then reviewed to identify duplicates or areas of overlap as well as how to formulate the recommendations to be clear for all professionals.

For these questions within the survey, participants could also select “other” if they wanted to provide alternative responses not included in the other available options. In these instances, participants could provide open-ended responses in a text box. Other closed questions were presented on likert scales. A “not applicable” response was also provided as an option for these questions. A small portion of the questions were open-ended questions. Participants were required to provide interval data such as years of clinical experience for these questions.

The survey was continuously reviewed by two SLPs experienced in stuttering to ensure that the survey questions captured key facets of the initial identification and management process (e.g. information provided to parents, factors determining need for further SLP management) when working with CWS. The survey was then pilot tested on three occasions by two SLPs, five public health nurses, three preschool teachers and one parent of a child who stutters to ensure that the survey questions answered the aims of the study. A copy of the final survey has been provided in Appendix A.

**Study setting & recruitment**
The study was conducted in Norway from 22nd October 2019 to 1st February 2020.

Three groups of early childhood professionals were recruited for the study: SLPs, public health nurses and preschool teachers. The recruitment approach varied for each participant group to reflect differences in the number of people and structure of each work force (see Figure 1).

Insert Figure 1 here

**Speech language pathologists**

There are 12 regional groups within the national speech language pathology organisation in Norway. The leader of each group was contacted by our research team and asked to email an invitation to participate in the study to all their group members; the invitation included a link to the survey. In total 1,373 SLPs were invited to participate using this method. Leaders also sent two reminder emails to members within 6 weeks prompting them to complete and return the questionnaire. In total, 110 SLPs completed and returned the survey. A Facebook group for SLPs in Norway “Logopedisk forum” which has 872 members was used to recruit an additional 20 participants. Reviewing the email addresses used to submit completed questionnaires, we identified three double responders within this participant group. In these instances, we used participants’ initial responses to the questionnaire. A further 5 participants were excluded because they did not provide their email address which was a requirement of the study in case the research team needed to conduct further follow-up. One participant was excluded because he/she was not a SLP.

**Preschool teachers**

Six of the 18 counties in Norway were randomly selected for inclusion in this study. Email addresses provided by The Norwegian Directorate for Education and Training were used to invite 100 preschool teachers in each included county to participate in the study. In
total, 600 preschool teachers were invited to participate. Two reminder emails were also sent within 6 weeks to maximise response rates. In total 115 participants completed and returned the survey. A link to participate in the study was also shared on a Facebook page for preschool teachers in Norway which has 6,266 members to increase recruitment. An additional 16 participants were recruited this way. Reviewing the email addresses used to submit complete questionnaires, two double responders were identified. These participants’ initial responses to the questionnaire were included in the study. An additional three participants were excluded from analyses as they were not trained preschool teachers (i.e., they were preschool teacher assistants).

**Public Health Nurses**

Each municipality in Norway has at least one public health clinic where public health nurses are based. The same six counties used for recruitment of preschool teachers were also used to recruit public health nurses. In total, there were 156 municipalities in the six included counties. The head public health nurse of each clinic was sent an invitation for their clinic to participate in the study. In instances where an email address for the head public health nurse was not available on the internet, the request was sent to the health administrator of a municipality asking for them to forward the study invitation (including a link for the survey) to the head nurse of each clinic within their municipality. Head public health nurses were then asked to forward the invitation email to each of the public health nurses at their clinic. Head public health nurses were also asked to confirm the number of public health nurses invited to participate in the study within their respective clinics. In total 399 public health nurses were invited to participate in the study. Our research team sent two reminder emails over 4 months to head public health nurses who did not reply to our initial e-mail. If a response was still not received after this time, we attempted to contact them by phone once. Due to a low response
rate of 80 public health nurses, we expanded recruitment to include an additional county which had 18 municipalities (see Figure 1) and invited a further 71 public health nurses to participate. An additional 20 public health nurses were recruited. Using the recruitment strategies outlined above and in Figure 1, the mean response rate to the survey across the three professional groups was 14%. Responses to web-based surveys are low (see for instance Jin, 2011). In the present study, it is likely that one reason for the low response rate is accounted for by some of the recruitment methods used. We adopted a broad recruitment approach of inviting every preschool teacher and public health nurses in a municipality to participate in our study as there are currently no registries in Norway to identify what age groups individuals work with. Consequently, many public health nurses who only work in schools would have been sent an invitation to participate and therefore contributed to our low response rate. Similarly, we sent invitations to participate to all SLPs in Norway as there is currently no registry listing SLPs who work with CWS. This meant that many SLPs who do not work with CWS would have been invited to participate in our study. One of our recruitment methods was advertising via Facebook communities. The reported number of professionals invited to participate in the study is therefore an overestimation of the true number. A proportion of eligible participants invited to participate in the study through Facebook undoubtedly included some individuals who no longer access their Facebook account. We were therefore unable to confirm the exact number of active Facebook users who received the invitation to participate in the study. Additionally, some eligible participants may have been sent the invitation to participate twice, once through each of our recruitment channels. This would have further inflated the reported number of eligible participants invited to participate.

**Potential Bias**
To minimise potential bias, we randomly selected the counties used to recruit public health nurses and preschool teachers. Given that we asked SLP, preschool teachers and public health nurse leaders to forward the invitation to participate in the current study to members of their team this may have introduced a bias to the sample of participants who responded. For example, leaders may have only forwarded the email to SLPs, public health nurses or preschool teachers who they knew had strong knowledge about childhood stuttering so that it would reflect well on their clinic. To minimise this potential bias, we explicitly asked all leaders to a) confirm that that they had received the email; b) forward the email invitation to all public health nurses/SLPs in their region or preschool teachers in their workplace, and c) to confirm the total number of public health nurses/preschool teachers/SLPs that the email was forwarded to. In some cases, our research team also phoned clinics to confirm that the email invitation had been received and to reiterate that the email was to be forwarded to all public health nurses/preschool teachers/SLPs in their municipality.

**Participants**

In total, 121 SLPs, 95 public health nurses and 126 preschool teachers consented to participate in the study and responded to the survey. Response rates to some survey questions varied based on participant responses to preceding questions. Participants’ characteristics are summarised in Table 1.

As a group, SLPs reported working in their profession for the shortest time (mean: 9.9 years) compared to public health nurses (mean: 12.4 years) and preschool teachers (mean: 16.4 years) however all groups reported many years of experience in their respective professions. Most respondents in each group reported working in public settings. Approximately half of the public health nurses (48%) and preschool teachers (52%) reported
meeting at least one CWS in the past three years compared to more than two thirds of SLPs (67.8%). SLPs reported meeting the most CWS annually (mean 4.5 children).

**Statistical analyses**

Descriptive and frequency statistics and t-tests were used to summarise participant characteristics and answers to survey questions. Responses to survey questions were analysed using either ordinal regression analyses (for variables with responses in ordinal scale) or chi square analyses (for categorical variables) to enable comparisons between two of the professional groups only, preschool teachers and public health nurses, as they have similar roles in identifying and supporting CWS. Public health nurses were the reference group. For ordinal regression analyses we tested that the assumption of proportional odds (or assumption of parallel lines) was fulfilled. The results are reported as significant when the p ≤ 0.05.

Spearman’s rank-order correlations were also conducted to examine the relationship between a) years of experience and b) number of CWS met during the last three years and participants initial management approaches when they meet a CWS for the first time.

**Results**

**Correlation analyses**

Within each professional group, a spearman's rank-order correlation was conducted to determine the relationship between respondents’ years of professional experience and their initial management approaches when they meet a CWS for the first time. As summarized in Table 2, there was evidence of small positive correlations between SLPs with more experience being more likely to make a new appointment for the CWS and their parent (rs (81) = .260, p = .019); public health nurses with more experience being more likely to provide information about stuttering (rs (79) = .236, p = .036) and provide counselling for parents (rs (78) = .250, p = .027), and preschool teachers with more experience being more likely to recommend further stuttering management from a SLP (rs (65) = .271, p =.029).
Within each professional group, a spearman’s rank-order correlation was conducted to determine the relationship between the number of CWS each respondent met annually and their initial management approaches when they meet a CWS for the first time. There was only evidence of significant associations for public health nurses. That is, public health nurses who met more CWS annually were more likely to providing information about stuttering ($rs (58) = .319, p = .015$) and providing counselling for parents ($rs (56) = .390, p = .003$).

**Guidelines for working with CWS**

Guidelines for working with CWS were rare. Of those SLPs and preschool teachers who reported meeting CWS within the last three years, only 15% of SLPs and 12% of preschool teachers reported that their workplace had guidelines for working with this population. Similarly, only 9% of all public health nurses reported that their workplace had guidelines.

**Initial approaches to managing stuttering**

Figure 2 illustrates how frequently different approaches were used by early childhood professionals when they are initially contacted by parents reporting that their child is stuttering. Most of the public health nurses (87%) and preschool teachers (77%) reported that they would “wait and see” when a parent first contacted them with a suspicion of their child had started to stutter. In contrast, two thirds of SLPs (62%) reported that they never recommend a “wait and see” approach when they are initially contacted by a parent reporting that their child is stuttering. Almost all (99%) SLPs reported always providing parents with information about stuttering during their initial meeting with them. Similarly, 72% of public health nurses and 89% of preschool teachers reported that they provide information about stuttering “often” or “always” to parents who report that their child is stuttering. Assessment of a child’s stuttering was reported “often/always” by 88% of SLPs during the initial
discussion with parents. A large proportion of public health nurses and preschool teachers (59% and 77% respectively) also reported often or always assessing the child’s stuttering. Most SLPs (95%) reported that they always provide some counselling during their initial discussion with parents while fewer public health nurses and preschool teachers (31% and 29% respectively) reported that they always provide counselling. Preschool teachers most frequently (94%) reported that they would often or always discuss management of CWS with their colleagues. This approach was used less frequently by SLPs and public health nurses. Approximately two thirds of public health nurses (62%) and preschool teachers (60%) reported that they would ‘often’ or ‘always’ refer CWS to a SLP for further management. Only 4% of SLPs reported that they would use this approach ‘often’ or ‘always’; 19% of SLPs reported that they would never refer the CWS to another SLP.

Table 3 describes the results of ordinal regression analyses that were used to examine preschool teachers’ initial management approaches during their first meeting with a parent who reports that their child is stuttering compared to public health nurses. Preschool teachers were significantly less likely to adopt a “wait and see” approach during the first meeting compared to public health nurses (-0.78; \( p = 0.03 \)). Preschool teachers were significantly more likely to discuss individual cases with colleagues compared to public health nurses (3.95; \( p = 0.001 \)).

Advice given to parents who report that their child is stuttering

Respondents were asked to select the three pieces of advice they gave most frequently from a list of different options. Only three pieces of advice were requested to gain some insight into each professional groups’ main priorities. Table 4 summarizes all these options as well as the percentage of respondents in each early childhood professional group who
indicated that the advice listed was one of their three most frequently used with parents who report that their child is stuttering during their initial meeting.

Across all three professions, the most common recommendations provided to parents of children reported to be stuttering was to give their child time to talk and to maintain eye contact. Differences however emerged for the third most common recommendation provided by each group of professionals. SLPs identified talking about stuttering in an accepting manner as one of their three most commonly utilized recommendations. Public health nurses reported that their third most common recommendation was to refer parents to contact another professional for further management. Preschool teachers reported advising parents to increase their use of pauses during conversations with their child.

Chi square tests examining the advice provided by preschool teachers and public health nurses revealed some significant differences between these groups. There was evidence of a significant association between the advice given by preschool teachers and public health nurses regarding use of parent communication strategies (increase pauses and reduce their speech rate) when talking to their child and whether parents should discuss stuttering with their child.

Factors that influence referral to a SLP for further stuttering management

Table 5 summarises the factors that influence each profession’s decision to recommend further speech language pathology management for stuttering. Respondents were able to select as many factors as they wished. For SLPs, the three factors most commonly reported to influence them to refer to another SLP were the child reacting to stuttering (86.6%), a positive family history of stuttering (68.3%) and stuttering severity (68.3%). For public health nurses, the child’s age (59.1%), stuttering severity (52.3%) and parent concern (50.0%) were the three most influential factors determining if the family were referred to a SLP. Preschool teachers
reported that the child reacting to stuttering (62.1%), parent concern (57.6%), age (54.5%) and stuttering severity (54.5%) most commonly influenced their decision to refer to a SLP.

Notably, stuttering severity was one of the most common factors identified by all three professions as influencing their decision to refer to a SLP for further management. Preschool teachers and SLPs commonly reported a child’s reactions to stuttering as a factor that influences their decision to refer for speech language pathology management. Public health nurses and preschool teachers also had some similarities in their findings with both groups commonly identifying the child’s age and parental concern as reasons for referring to a SLP for management.

Chi square analyses indicated that there was no evidence of a significant association between the factors that influence preschool teachers and public health nurses’ decisions to recommend further speech language pathology management for stuttering.

Collaboration regarding management of children reported to be stuttering

Figure 3 summarizes the interdisciplinary collaborations reported by each early childhood professional group regarding management of children reported to be stuttering. As seen in Figure 3, the most common reported collaboration for each professional group was with preschool teachers. Almost all SLPs (97.6%) also reported collaborating with the child’s parents. The second most common collaboration reported by preschool teachers was with SLPs (74.2%) while public health nurses reported specifically collaborating with SLPs who specialise in the management of CWS such as those who work in pedagogical-psychological services or ‘Statped’, the national Norwegian support system (63.6%). Only 13.6% of preschool teachers reported collaborating with public health nurses. None of the public health nurse respondents or SLPs reported collaborating with another public health nurse.
Discussion

This study investigated the practices of early childhood professionals when they meet a young child reported to be stuttering in Norway. Specifically, we examined early childhood professionals initial responses when they are contacted by a parent with concerns that their child is stuttering; the advice they most commonly share with these parents; and what information early childhood professionals use when deciding whether to refer a child who stutters to another SLP for further management. These areas were investigated to determine the support available to young CWS and to compare the responses and advice provided across disciplines. This allowed us to identify gaps in knowledge for individual professions that can be used to inform future education of early childhood professionals about stuttering management to improve their practices. Establishing a complementary approach between early childhood professionals involved in the care of young CWS would enhance the quality of care provided to these children, aiding the process of recovery for many children, and reducing the potential impact of stuttering for others. To our knowledge, this is the first study to examine early childhood professional’s management practices of young CWS.

Responses to parents during initial meeting

Common responses reported by early childhood professionals during their initial contact with parents who report that their child is stuttering varied between groups. A “wait and see” approach was reported by many public health nurses and preschool teachers while, as expected, very few SLPs reported that they use this approach as current management recommendations advocate for intervention to be delivered as close as possible to stuttering onset (see Onslow & Lowe, 2019). Based on data collected it is unknown what professional’s motives for recommending a “wait and see” approach were or how long they recommended this approach for. It is plausible that this approach may be used by professionals whilst further
assessments are conducted. Alternatively, it could reflect an outdated practice amongst many professionals due to a lack of current knowledge of best practice recommendations. Further analysis of data indicated that preschool teachers were significantly less likely to recommend a wait and see approach compared to public health nurses. Preschool teachers see children daily and in social settings with other children. This stands in contrast to public health nurses who only see preschool children once a year individually. Given this, preschool teachers have much greater opportunity to observe the potential impact stuttering may be having on CWS. Observing these negative consequences of stuttering may therefore make preschool teachers more likely to recommend immediate intervention. Stuttering can have a wide range of negative effects on young children’s behavioural, emotional and social development (Langevin et al., 2009; McAllister, 2016; Vanryckeghem et al., 2005). Future initiatives therefore need to focus on developing complementary approaches to management of CWS across early childhood professional groups so that all CWS are treated as close as possible to stuttering onset to minimise the likelihood of these adverse effects developing.

Positively, across all three professions, most respondents reported that they would arrange another appointment with the parent and CWS. This finding may be motivated differently across professional groups. SLPs’ reports of follow-up appointments likely reflect the fact that treatment would be advocated for and offered to CWS. Follow-up appointments arranged by public health nurses and preschool teachers more likely reflect their approach of monitoring changes in a child’s stuttering during a “wait and see” period so that referral for intervention can be made as needed. Alternatively, follow-up appointments may be used to provide support to parents. All three professions also reported providing parents with information about stuttering during their initial meeting with them. The finding that preschool teachers were significantly more likely to discuss individual cases with colleagues compared to public health nurses likely reflects their different work practices as preschool teachers work
in teams with colleagues all day taking care of the same group of children. Consequently, consulting their colleagues regarding a child they have concerns about may assist them to obtain a more holistic picture of that child’s performance in the preschool setting. A large proportion of public health nurses and preschool teachers reported assessing children’s stuttering. This finding was not surprising however as preschool teachers are required to conduct an assessment of a child prior to referring them to a SLP for further management. This finding may alternatively reflect the fact that ‘assessment’ was not defined clearly in the survey to differentiate between the detailed stuttering assessment that SLPs conduct and the general communication screening that preschool teachers and public health nurses administer to identify children with a suspected communication disorder. Depending on how this question was interpreted by individual respondents, some preschool teachers and public health nurses may have described the general communication screening they conduct as an assessment of a child’s stuttering inflating this result.

**Common advice given to parents**

All three professions identified the same two most common pieces of advice during initial meetings with parents. That is, to give CWS time to talk and to maintain eye contact with the CWS when they are speaking. These were pleasing findings as these strategies promote positive communication interactions (Faber & Mazlish, 2012). These strategies are also theorized to reduce communication demands on the motor speech system of CWS to enhance their ability to speak fluently (Smith & Kelly, 1997; Starkweather & Gottwald, 1990). The third most common advice provided however differed between professional groups. SLPs identified talking about stuttering. As stuttering is acknowledged across several treatment programs (Sjøstrand et al., 2021) this finding may reflect SLP’s treatment practices. Public health nurses reported referring families to SLPs for further management which likely reflects the fact that their role is to identify stuttering and refer rather than deliver stuttering
intervention which falls beyond their scope of practice. Interestingly, preschool teachers reported advising parents to increase their use of pauses during conversations with their child. While this strategy is arguably beyond their scope of practice, the recommendation may be made based on their observation of the effectiveness of this strategy reducing stuttering. Importantly, while this strategy is included in some stuttering treatment programs (de Sonneville-Koedoot et al., 2015; Millard et al., 2018) there is no empirical data to support the effectiveness of this strategy specifically. Given this, advising parents to use this strategy should be reevaluated.

Factors that influence decision regarding whether a child needs further speech language pathology management for stuttering. Preschool teachers and public health nurses reported using the same information (child age, parent concern and stuttering severity) to decide whether a child needs further speech language pathology management for stuttering. Parent concern about their child’s stuttering would intuitively increase the likelihood that they request their child receives intervention. Similarly, higher stuttering severity is more likely to affect intelligibility and would therefore be more likely to prompt an earlier recommendation for treatment. This finding complements previous research which has found that physicians use stuttering frequency to inform their decision to refer a child to an SLP for further management (Costa & Kroll, 2000). Similarly, Winters and Byrd (2020) reported that pediatricians are more likely to refer CWS to SLPs if the child presents with more overt speech behaviors and/or negative communication attitudes. Finally, stuttering tractability declines once children reach school age which highlights the need for early intervention (Ingham & Cordes, 1999). Ultimately however given the potential adverse psychosocial effects of stuttering (Langevin et al., 2009; McAllister, 2016; Vanryckegehem et al., 2005) all CWS should have access to early intervention to minimize these effects (Woods et al, 2002 &
Based on this, further speech language pathology management of a child’s stuttering should be recommended as soon as stuttering is suspected. SLPs reported the child’s reaction to stuttering, a positive family history of stuttering and stuttering severity as the three most common factors that influence their decision to recommend further speech language pathology management for stuttering. These factors all reflect more complex cases as reactions to stuttering indicate psychosocial comorbidities (McAllister, 2016; Vanryckeghem et al., 2005), positive family history increases the likelihood of the child persisting with stuttering (Yairi et al., 1996) and increased stuttering severity may increase treatment time (Jones et al., 2000). Considering this knowledge, children who present with any of these characteristics would be prioritized for treatment. Alternatively, if a SLP feels they lack sufficient skills to manage more complex cases effectively they may refer to a more experienced SLP for further management.

At least 50% of respondents from each early childhood health professional group professional group identified stuttering severity as a factor that influences their decision to recommend further speech language pathology management for stuttering. More severe stuttering will arguably make communication more effortful for an individual and may also affect the functionality of a child’s speech in more severe cases. This may motivate professionals to recommend a child for stuttering intervention and/or intervention with a more experienced SLP. Only preschool teachers and SLPs reported a child’s reactions to stuttering as a factor that influences their decision to recommend further speech language pathology management for stuttering. This may reflect a SLPs knowledge of the possible psychosocial effects that stuttering can have on children or preschool teacher’s observations of the effects of stuttering on children in the classroom or playground. In contrast public health nurses do not receive the same level of education about stuttering as SLPs and are not afforded the same
observational opportunities as preschool teachers therefore they may not assign the same level of importance to children’s reactions to stuttering.

Collaboration

Positively, all three professional groups collaborated with one another. Most commonly, the early childhood professional groups reported collaborating with preschool teachers. This may reflect the frequent contact that preschool teachers have with children on a weekly basis. Almost all children in Norway (95%) attend preschool for up to 41 hours each week (Statistics Norway, 2021). Preschool teachers are consequently an invaluable source of information for public health nurses and SLPs involved in the evaluation and management of CWS. The finding that preschool teachers also reported collaborating most frequently with other preschool teachers may reflect their work environment. Preschool teachers work in small teams which provides an environment that is conducive to collaboration and consultation with one another. Many preschool teachers and public health nurses reported collaborating with SLPs or specialise SLP services. SLPs are responsible for assessing, diagnosing and managing childhood stuttering. Preschool teachers and public health nurses may therefore contact SLPs to discuss children who present to them with reports of stuttering or because they suspect they may be stuttering to determine whether they are appropriate for referral. These SLPs may be clinicians who assess and manage an array of communication difficulties or alternatively those who work at stuttering specialist services. Almost all SLPs reported collaborating with the child’s parents which likely reflects the fact that early intervention for stuttering is parent delivered (Franken & Laroes, 2021; Kelman & Nicholas, 2020; Onslow et al., 2020). The findings that very few SLPs and preschool teachers reported collaborating with public health nurses and the observation that these groups reported collaborating with a broader range of groups compared to public health nurses are not surprising. Beyond initial identification of children suspected to be stuttering and subsequent
referral to a SLP for further management, public health nurses are not involved in the management of CWS so they would not need to be involved in further collaborative efforts.

**Implications**

Many early childhood professionals who participated in the current study reported adopting a wait and see approach when they initially meet a child reported to be stuttering. Future research must examine the underlying rationale for this management approach across professions as well as whether other strategies are employed during this waiting period. Delaying stuttering treatment may have serious consequences for a child as it arguably increases the likelihood of them being exposed to negative listener reactions and developing their own adverse reactions to stuttering (Boey et al., 2009; Ezrati-Vinacour et al., 2001; Langevin et al., 2010). Given this, it is critical that professional guidelines are developed and provided in all workplaces so that SLPs, public health nurses and preschool teachers who work with CWS have access to updated evidence-based guidelines. This would include information about the timing of intervention, appropriate advice to provide to parents of CWS and assessment requirements when a child is reported to be stuttering. Guidelines could also be used to continually provide up to date information about stuttering, its potential impacts, evaluation and treatment to further educate preschool teachers, public health nurses and SLPs involved in the care of CWS. This way, all existing and newly graduated early childhood professionals can provide families with accurate advice whilst also connecting CWS with SLPs for effective management as quickly as possible to minimize the risk of persistent stuttering and adverse reactions developing.

Preschool teachers reported conducting assessments with CWS. Further exploration of the types of assessments that they are conducting and the information they want to collect is needed to better understand how they use this information to inform their management of a young CWS. Public health nurses need more knowledge about children’s possible reactions to
stuttering. Whilst treatment is encouraged for all CWS as close as possible to stuttering onset, this is particularly important for children who have developed adverse reactions to stuttering. Adverse reactions can be present from the onset of the disorder and demonstrate the negative impact that stuttering can have on children behaviorally, cognitively and emotionally (Langevin et al., 2010; McAllister, 2016; Vanryckeghem et al., 2005).

While the early childhood professionals responsible for routine developmental screenings vary between countries, all of them have the common goal of identifying children who may require early intervention for a range of developmental disorders including stuttering. Interdisciplinary collaboration between the relevant early childhood professionals in any country is therefore critical to ensure that CWS receive the best possible care from the onset of the disorder. Interdisciplinary professional development opportunities would provide a forum for early childhood professionals to maintain current knowledge about management of young CWS. A good example is the inclusion of education as one of five domains of professional practice outlined by the American Speech-Language-Hearing Association (ASHA). Within this domain, ASHA endorse interdisciplinary collaboration by highlighting the need for SLPs to serve as educators for students and professionals in related disciplines. ASHA also has an ongoing collaboration with teachers and other health care professionals to make effective decisions for people with communication disorders. Within this working relationship, there is a need for SLPs to assume responsibility for initiating this collaboration. In the U.S.A, children attend early childhood education centres, daycare centres and preschools prior to attending kindergarten at 5 years of age. As such, workshops and seminars hosted and delivered by SLPs for early childhood educators, carers at daycare facilities, kindergarten teachers and pediatricians would provide an opportunity for this interdisciplinary collaboration to occur whilst simultaneously ensuring that all professions involved in the care of young children maintain clinical currency and a unified approach to management of CWS.
Such collaboration would also provide a forum for these three professions to exchange their respective knowledge and practices with one another. This would facilitate dialogues between professions to enhance translation of knowledge to practice and ensure CWS are managed effectively.

If future evaluation of these interdisciplinary educational workshops demonstrates that they are an effective approach to improving the quality of care provided to CWS, this data could be used to encourage a similar exploration of health care systems for CWS in other countries. Whilst outcomes from the current study are specific to the healthcare system of Norway, identification of disciplines involved in the care of young CWS in other countries would enable similar initiatives to be developed to improve health care systems around the world.

**Conclusion**

The knowledge and practices of early childhood professionals during their first encounter with a parent who reports that their child is stuttering is of critical importance to the effective management of that child. While our findings indicated that many SLPs, public health nurses and preschool teachers are involved in the care of CWS, very few reported access to guidelines for working with CWS within their respective workplaces. This finding highlights a critical gap in current practices. That is, working with CWS is common across public health nurses, preschool teachers and SLPs, yet there is a paucity of information and support available to guide these early childhood professionals to deliver research-based practice to them. The development and introduction of guidelines and interdisciplinary seminars is needed to develop a complementary approach across professions ensuring that young CWS receive the care they need as soon as possible to minimize the debilitating effects of stuttering.
Acknowledgements

This study was conducted as part of the Effective Stuttering Treatment project which is funded by the Research Council of Norway, project number 260567.
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**Figure captions**

**Figure 1.** Participant recruitment

**Figure 2.** Approaches used by professionals during initial contact with parents of children reported to be stuttering

**Figure 3.** Collaboration between professionals about children reported to be stuttering.

NB. ‘Health care professionals’ include doctors and allied health; ‘Specialist SLP services’ refers to pedagogical-psychological services and ‘Statped’ national support system; ‘Other professionals’ refers to other professionals working directly with the child including special need educators, special needs assistants or supportive assistants.
Appendix

Appendix A. This appendix is a copy of the survey administered to childhood health professionals that has been translated from Norwegian into English.