Deaf children with spoken language bilingualism: professional guidance to parents

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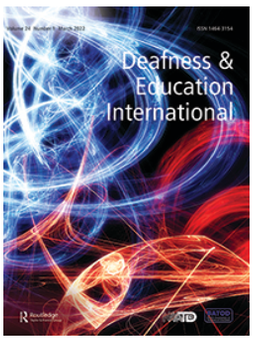

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Deaf children with spoken language bilingualism: Professional guidance to parents

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ABSTRACT

13% of deaf children in the UK use more than one spoken language. Parents of deaf children from bilingual backgrounds must decide whether to communicate with their child using more than one spoken language, with or without a signed language(s) as well. As most deaf children are born to hearing parents with little or no knowledge of deafness, professional guidance received during this decision-making process is critical. This study examined the beliefs of professionals on the ability of a deaf child to acquire two spoken languages and the advice professionals give to parents considering spoken language bilingualism for their deaf child. 108 professionals who work with deaf children in the UK (50 Teachers of the Deaf [ToDs], 47 speech and language therapists [SLTs] and 11 audiologists) completed an online questionnaire between the 24th May 2019 and the 1st July 2019. Most participants believed deaf children can achieve spoken language bilingualism and would advise parents to speak in their home language, regardless of the parents' English proficiency. However, audiologists were 11 times more likely than SLTs to report linguistic confusion, and ToDs at least 11 times more likely than SLTs to report reduced proficiency in English and the home language because of bilingualism. ToDs and SLTs were found to play a key role in bilingual parents' decision-making process. Consequently, there is a need for specific training and interprofessional learning to ensure parents receive consistent evidence-based advice.

KEYWORDS

Deafness; bilingualism; multilingualism; professional guidance

Introduction

There are more than 53,000 deaf children living in the UK, 13% of whom use more than one spoken language (Consortium for Research into Deaf Education [CRIDE], 2019). In parts of the UK this figure is much higher; Great Ormond Street Cochlear Implant Centre reported that 28% of children receiving cochlear implants were from families where the home language was a spoken language

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other than English (Mahon et al., 2011). However, relatively little is known about the guidance that education and healthcare professionals give to parents who are considering raising their deaf child to use more than one spoken language.

In this paper, the term deaf is used to refer to all levels and types of deafness. This term is currently used by national UK organizations such as the National Deaf Children's Society (NDCS) and the British Association for Teachers of the Deaf (BATOD). Specific audiological information is provided where required.

This paper's focus is limited to spoken language bilingualism. Definitions of bilingualism vary widely; for the purpose of this study, an individual is considered to be bilingual if they can produce or comprehend two spoken languages "regardless of the level of proficiency, use, and the age at which the languages were learned" (Grech & McLeod, 2012, p. 121).

Spoken language development in deaf children can be influenced by many factors, including the child's audiological profile (e.g. age of diagnosis and receiving cochlear implants), age of the child when they started intervention and parent–child interaction and engagement (Duchesne & Marschark, 2019; Nicastri et al., 2021; Yoshinaga-Itano, 2003). For deaf children acquiring two spoken languages, language outcomes are also related to the quantity and quality of exposure to each language (Teschendorf et al., 2010; Waltzman et al., 2003; Yim, 2012), and whether intervention is provided in one or both languages (Bunta et al., 2016).

Research on spoken language bilingualism in deaf children is limited, but emerging evidence suggests deaf children can learn two spoken languages (Bunta et al., 2016; Bunta & Douglas, 2013; Guiberson, 2014; McConkey Robbins et al., 2004). A review of 22 studies looking at communication outcomes in deaf children with two spoken languages, found that, whilst there was a high degree of variability, there was no adverse effect of bilingualism (Crowe, 2018). Based on the current evidence-base Crowe (2018) concluded that professionals should not discourage parents from considering spoken language bilingualism for their deaf child.

Parents must decide whether to communicate with their deaf child using a signed language, spoken language, or both. Bilingual parents have the additional option of raising their deaf child to use two spoken languages. Most deaf children are born to hearing parents (Mitchell & Karchmer, 2004), who are therefore likely to have little or no prior knowledge or experience of deafness. Yet, communication decisions are often made by parents soon after their child has been identified as deaf. As a result, the decision-making process can be challenging, especially when the possibility of multiple spoken languages is introduced. The information that professionals provide, particularly those in health and education, can therefore be highly influential. In an online survey on parents' communication choices for their deaf children in the USA, Decker et al. (2012) reported that more than 71% of parents

stated the main source of information on communication options for their deaf child came from medical professionals, speech and language pathologists (SLPs), and audiologists.

Parents of deaf children are likely to encounter several different early intervention professionals, both within healthcare and education. These professionals are likely to include, but are not limited to, Speech and Language Therapists (SLTs), audiologists and Qualified Teachers of the Deaf/Teachers of the Deaf (QToDs/ToDs). BATOD distinguishes between QToDs who hold the Mandatory Qualification and ToDs who are due to start or are in the process of completing the mandatory training. As a result, professionals will often be an important source of information in decision making concerning language choice (Crowe et al., 2014). In line with the concept of family-centered care, professionals have a responsibility to enable parents to be active participants in the decision-making process. Specifically, parental engagement is facilitated when professionals provide relevant information at the appropriate time (Moeller et al., 2013). The lack of research evidence on communication outcomes for deaf children with spoken language bilingualism presents a challenge for professionals supporting parents through their decision-making on language choice.

Although numerous research studies have explored parental communication choices for their deaf child (Ching et al., 2018; Scarinci et al., 2018; Watson et al., 2008; Wheeler et al., 2009), very few have focused specifically on decision-making concerning spoken language bilingualism. Studies in the UK and the USA on communication mode report that the advice of medical or education professionals most frequently influences parental decisions, especially immediately after their child's deafness is diagnosed (Eleweke & Rodda, 2000; Kluwin & Stewart, 2000). Similar findings have been reported for decision-making associated with spoken language bilingualism in deaf children. SLTs, audiologists and deaf educators were the three professional roles most involved in the decision-making process of parents of deaf children in Spain (Guiberson, 2013).

The actual advice given to parents considering spoken language bilingualism is less consistent though. Research in the USA shows parents were often advised by professionals to speak only English to their deaf child (Guiberson, 2005; McConkey Robbins et al., 2004; Steinberg et al., 2003; Waltzman et al., 2003). More recently in Spain, Guiberson (2013) found that half the parents were encouraged to raise their child with two spoken languages, although this study did not differentiate who the advice came from and included family and friends in addition to professionals.

Despite bilingual parents of deaf children frequently reporting professional advice to be a strong influencing factor in their language choice, only two studies have explored what advice is given on spoken language multilingualism from the professionals' perspective. Crowe and McLeod (2016) conducted a study on 16 Australian professionals who worked with deaf children from multilingual families. All participants reported that they would sometimes or always

recommend the use of more than one spoken language for deaf children, and that doing so provided good language models and encouraged a sense of belonging. Similarly, Crowe and Guiberson (2021), also reported that all 19 professionals in their study who worked with deaf children from multilingual families in Australia, encouraged and supported the use of a spoken language other than English. Furthermore, participants highlighted the role of professionals in supporting parents to make informed language choices by engaging in family-centered practice and using research evidence. However, they frequently stressed the lack of available research on outcomes and interventions for multilingual deaf children.

Despite the increasing number of bilingual families in the UK, and the potential influence that professionals have in their decision-making, no research has explored the advice that professionals in the UK give to parents who are considering raising their deaf child with more than one spoken language. It is critically important that we understand what factors professionals consider when giving advice to ensure parents make informed decisions.

The present study provides an overview of the advice given by UK professionals to parents during this decision-making process. The study also explores professionals' beliefs on the ability of deaf children to acquire more than one spoken language, on the factors that can influence language outcomes in bilingual deaf children, and the consequences of different language choices.

Research questions

Due to the heterogeneity of deaf children, research questions sometimes focused on a specific sub-set of deaf children.

(1) What are the beliefs of professionals on spoken language bilingualism in deaf children with a bilateral severe-to-profound sensorineural deafness and cochlear implants?
   (a) Can a deaf child become bilingual in two spoken languages?
   (b) Does the presence of additional speech and/or language impairments (e.g. Developmental Language Disorder (DLD)) affect the ability of a deaf child to become bilingual in two spoken languages?
   (c) What factors affect the ability of a deaf child to become bilingual in two spoken languages?
   (d) What are the potential consequences of exposing a deaf child to two spoken languages?

(2) What advice do professionals give to parents who have a deaf child on raising their child to use two spoken languages?
   (a) Do professionals believe they have a role in the decision-making process parents experience when deciding whether to raise their deaf child to be bilingual in two spoken languages?

(b) Does the advice given by professionals to parents on whether to raise their deaf child to become bilingual in two spoken languages differ depending on whether the parent is a proficient speaker of English?

Materials and methods

Data collection

The study was given ethical approval by the University of Reading's Research Ethics Committee. All participants gave informed consent before taking part. A pilot questionnaire was completed by four SLTs, one QToD, and one audiologist who were experienced with working with deaf children to establish content validity. The final questionnaire was available on the onlinesurveys.ac.uk platform between the 24th May 2019 and the 1st July 2019 and took approximately 15 minutes to complete. The first section investigated the participants' professional beliefs about a deaf child's ability to learn two spoken languages. The second section explored the advice on spoken language bilingualism professionals give to parents of a deaf child. The third section gathered demographic information about the participants. A copy of the survey questions and of the data set are available at (https://osf.io/w4cn7/?view_only=848efa934ee34878880afb1aeb03c995). The data will be eventually archived on the UK Data Service ReShare (https://reshare.ukdataservice.ac.uk).

Recruitment strategy

Participants were recruited via several methods. Respondents needed to be QToDs/ToDs, SLTs, or audiologists currently working in the UK with deaf children. Emails were sent to settings in the UK which educate/support deaf children, including education settings, National Health Service (NHS) departments, charities, and independent organisations. The Royal College of Speech and Language Therapists (RCSLT), the British Academy of Audiology (BAA), BATOD, and the NDCS helped to promote the project and recruit participants. The authors also advertised the project on Twitter.

Analyses

The data were analyzed using SPSS v. 25. Descriptive statistics were calculated for each of the professional roles and logistic regression analyses were conducted to examine the relationship between the professionals' background variables and the likelihood that they would respond positively to the questions. Due to the small sample of ToDs ($n = 4$), the responses for QToDs and ToDs were combined into one category.

The Likert 4-point Rating Scales ("completely true", "mostly true", "partially true" and "not true") were collapsed into dichotomous levels due to the small

sample size within some groups. "Completely true" and "mostly true" were grouped together and "partially true" and "not true" were grouped together. For all logistic regression analyses the following professional background variables were used: professional role, number of years since qualifying, previous training on spoken language bilingualism in deaf children, knowledge of other languages, and having spoken language bilingual deaf children (not including BSL) on their caseload. Statistical significance was set at $p < 0.05$.

Results

Participants

A total of 108 professionals who work with deaf children (0-18 years) in the UK participated in the study. The sample comprised: 50 QToDs/ToDs (46.3%), 47 SLTs (43.5%) and 11 audiologists (10.2%). We distinguished between QToDs and ToDs in the survey to reflect BATOD's classification, however, because only four ToDs participated, we combined their responses with the QToDs.

Three of the four professional roles require a university degree (QToDs, SLTs and audiologists). 77.8% of those participants who worked in a qualified role completed their training six or more years ago. 38% of all participants were currently working in London, 1.9% in Scotland and 7.4% in Northern Ireland, and there were no respondents from Wales. Only 5.6% of participants had worked with deaf children for less than a year, while 26.9% had worked with this population for more than 21 years. Within each professional role, participants worked with children across all four age groups (under 5 years, 5–11 years, 11–16 years and 16–18 years). Participants were employed in specialist pre-schools for the deaf, hearing impairment units in mainstream schools, cochlear implant centres, specialist Schools for the Deaf, hospitals, independent organisations, university clinics and Sure Start centres.

65.7% of participants reported they had knowledge of another language(s) (spoken and/or signed) (63.8% of SLTs, 36.4% of audiologists and 74.0% of QToDs/ToDs). 32.4% of participants had received some form of additional training on working with deaf children with spoken language bilingualism (34.0% of SLTs, 9.1% of audiologists and 36.0% of QToDs/ToDs) and 90.7% confirmed they would like to receive additional training in this area (SLTs = 89.4%, audiologists = 90.9% and QToDs/ToDs = 92.0%). Overall, 74.1% of participants had worked with deaf children with spoken language bilingualism (not including BSL).

The beliefs of professionals on spoken language bilingualism

For each of the survey questions that elicited the information for Research Question 1, respondents were asked to answer with reference to a deaf child (with hearing parents) in their caseload age range who has a bilateral severe-to-

profound sensorineural deafness (diagnosed before 6 months old) and who received bilateral cochlear implants by the age of two.

Respondents were asked to rate on a four-point scale how true the following statement is: "The child has the potential to develop two spoken languages (including English)." 95.7% of SLTs, 100% of audiologists and 84.0% of QToDs/ToDs stated it was "completely true" or "mostly true". Professional background variables did not affect the probability of rating this statement as mostly or completely true, $\chi^2(6) = 11.69$, $p > .05$.

The effect of speech and language impairments

Participants were asked to rate how true they felt the following statement was: "The child has the potential to develop two spoken languages (including English) if they have additional speech and/or language impairments." 68.1% of SLTs, 54.5% of audiologists and 46.0% of QToDs/ToDs stated it was "completely true" or "mostly true". Professional background variables did not affect the probability of rating this statement as mostly or completely true, $\chi^2(6) = 9.34$, $p > .05$.

Factors affecting spoken language bilingualism

The descriptive statistics (Table 1) show that all participants agreed that the quantity of exposure to two languages affects a deaf child's ability to acquire two spoken languages. Age of diagnosis, age of receiving hearing technology, presence of additional speech, language and/or communication impairments or comorbid diagnoses and opportunities to speak the two languages were also almost all rated by all participants, across all professional roles, as factors

Table 1. Descriptive statistics for professional views on factors that affect the ability of deaf children, with a bilateral severe-to-profound sensorineural deafness and cochlear implants, to become bilingual in two spoken languages.

Factor	Percentage of each professional role who responded "yes"		
	SLT	Audiologist	QToD/ ToD
Degree of deafness	59.6%	63.6%	86.0%
Age of diagnosis	91.5%	100%	100%
Type of hearing technology used	55.3%	72.7%	76%
Age of receiving hearing technology	95.7%	100%	100%
Socioeconomic status (SES) of the family	44.7%	72.7%	56.0%
Enrolment in an oral-aural programme	40.4%	81.8%	50.0%
Presence of additional speech, language and/or communication impairments	85.1%	100%	96.0%
Presence of comorbid diagnoses	87.2%	100%	92.0%
Parent's proficiency level in English	57.4%	45.5%	84.0%
Quantity of exposure to the two languages	100%	100%	100%
Opportunities to speak the two languages	100%	100%	98.0%
What language the main caregiver speaks	48.9%	90.9%	84.0%
Whether both parents speak the home language to the child	38.3%	54.5%	56.0%
Number of different speakers in the two languages that interact with the child	61.7%	72.7%	86.0%

affecting the ability to achieve spoken language bilingualism. Twice as many audiologists (81.8%) compared to SLTs (40.4%) agreed that enrolment in an oral-aural programme was a contributing factor to acquisition of two spoken languages in deaf children.

A logistic regression was performed for each of the 14 factors. The models for the following factors were statistically significant: age of diagnosis, parents' proficiency level in English, what language the main caregiver speaks, and the number of different speakers in the two languages that interact with the child. For the factor "age of diagnosis" the model was statistically significant $\chi^2(6) = 16.69$, $p < .05$; however, no individual predictors were statistically significant, $p > .05$.

For the factor "parents' proficiency level in English", $\chi^2(6) = 13.88$, $p < .05$, QToDs/ToDs were more than 4 times more likely than SLTs to report that this factor can affect the ability of a deaf child achieving spoken language bilingualism ($p < 0.01$).

For the factor "what language the main caregiver speaks", $\chi^2(6) = 21.78$, $p < .01$, audiologists were more than 14 times more likely than SLTs ($p < 0.05$) and QToDs/ToDs were more than 4 times more likely than SLTs ($p < 0.01$) to report that this factor can affect the acquisition of two spoken languages in deaf children.

QToDs/ToDs were more than 3 times more likely than SLTs ($p < 0.05$) to agree that the "number of different speakers in the two languages that interact with the child significantly affects a deaf child's opportunity to become bilingual" $\chi^2(6) = 13.25$, $p < .05$.

None of the other 10 models were statistically significant.

Potential consequences of bilingual exposure

Descriptive statistics (Table 2) show that almost all participants across all professional roles stated that exposure to two spoken languages results in maintenance of the home language, improved family relationships and dynamics, access to the culture of the home language and better identity/sense of self. 72.7% of audiologists (compared to only 17.0% of SLTs and 26.0% of QToDs/ToDs) stated that linguistic confusion can be a consequence of exposing deaf children to two spoken languages, while 27.3% of audiologists (compared to only 4.3% of SLTs and 4.0% of QToDs/ToDs) said that speech, language and/or communication difficulties could arise.

A logistic regression was performed for each of the 11 statements. The models for the following consequences were significant: linguistic confusion, reduced proficiency in English, and reduced proficiency in the home language.

Audiologists were more than 11 times more likely than SLTs to agree that linguistic confusion can be a consequence of bilingual exposure, $\chi^2(6) = 18.65$, $p < .01$. There was also a small difference for the predictor "knowledge of

Table 2. Descriptive statistics for professional views on consequences of deaf children, with a bilateral severe-to-profound sensorineural deafness and cochlear implants, being exposed to two spoken languages.

Potential consequence	Percentage of each professional role who responded "yes"		
	SLT	Audiologist	QToD/ToD
Home language maintenance	97.9%	90.9%	94.0%
Improved family relationships and dynamics	100%	90.9%	100%
Linguistic confusion	17.0%	72.7%	26.0%
Access to culture of heritage language	97.9%	90.9%	98.0%
Better identity/sense of self	97.9%	90.9%	98.0%
Difficulties with peer relationships	2.1%	9.1%	8.0%
Speech, language and/or communication difficulties	4.3%	27.3%	4.0%
Reduced proficiency in English	2.1%	18.2%	16.0%
Reduced proficiency in the home language	2.1%	18.2%	18.0%
Advantages in cognitive skills	83.0%	63.6%	88.0%
Reduced academic achievement in English at school	2.1%	18.2%	12.0%

another language", with participants who were bi/multilingual themselves being more than 0.3 times less likely to report linguistic confusion.

For reduced proficiency in English, $\chi^2(6) = 13.53$, $p < .05$, QToDs/ToDs were more than 11 times more likely than SLTs to report this as a potential consequence.

For reduced proficiency in the home language, $\chi^2(6) = 15.21$, $p < .05$, QToDs/ToDs were more than 12 times more likely than SLTs to report that exposure to two spoken languages could lead to reduced proficiency in the home language.

None of the other 9 models were statistically significant.

Professionals' advice

For each of the survey questions that elicited the information for Research Question 2, no specific audiological information was given as the questions aimed to identify the advice professionals give in general to bilingual parents of deaf children.

Professionals' perceived role in parents' decision-making

Seventy-seven percent of SLTs, 36.4% of audiologists and 64.0% of QToDs/ToDs reported that they are asked by parents whether they should speak English or their home language with their child. The logistic regression including the predictor variables was statistically significant, $\chi^2(6) = 35.47$, $p < .01$. Participants with bilingual deaf children on their caseload were more than 18 times more likely to be asked than those without. There was also a significant but negligible effect for professional role, with audiologists 0.1 times less likely than SLTs to be asked for advice.

When asked if they would give advice regarding language choice, regardless of whether they had been asked before, 97.9% of SLTs, 72.7% of audiologists and 94.0% of QToDs/ToDs stated that they would. A logistic regression was not statistically significant, $\chi^2(6) = 9.51$, $p > .05$.

Participants were asked to rate the following statement: "The decisions parents make about what language(s) to speak to their deaf child in are influenced by the advice they receive from professionals." 70.2% of SLTs stated it was "completely true" or "mostly true" compared to 36.4% of audiologists and 40% of QToDs/ToDs. A logistic regression was not statistically significant, $\chi^2(6) = 11.08$, $p > .05$.

Next, participants rated the following statement: "Professionals have a role in helping to advise parents of deaf children on what language(s) they should speak to their child in." The majority of SLTs (80.9%) responded "completely true" or "mostly true", compared to only 36.4% of audiologists and 56% of QToDs/ToDs. A logistic regression was not statistically significant, $\chi^2(6) = 12.28$, $p > .05$.

Does the advice given to parents differ depending on whether the parent is a proficient speaker of English?

Participants were given the statement: "Professionals should advise parents to speak their home language to their deaf child." They were asked to rate the statement on a 4-point scale for two different scenarios.

First, participants were asked to consider a parent whose first language is not English and who does not speak English proficiently. Almost all participants responded that it was "completely true" or "mostly true" that the parent should be advised to speak their home language: 100% of SLTs, 81.8% of audiologists and 94.0% of QToDs/ToDs. A logistic regression was not statistically significant, $\chi^2(6) = 10.24$, $p > .05$.

Second, participants were asked to consider a parent whose first language is not English but who does speak English proficiently. Similar to the first scenario, almost all SLTs (91.5%) and audiologists (90.9%) stated it was "completely true" or "mostly true" that the parent should be advised to speak their home language to their deaf child. Slightly fewer QToDs/ToDs (74%) responded with "completely true" or "mostly true". A logistic regression was not statistically significant, $\chi^2(6) = 12.46$, $p > .05$.

Participants were then asked to rate the following statement: "Asking the parent to speak in their home language will have a negative effect on their child's English language skills." When considering a parent whose first language is not English and who does not speak English proficiently, the majority of participants stated that it was "not true" that asking the parent to speak in their home language would have a negative effect on their child's language development in English (SLTs = 95.7%, audiologists = 72.7% and QToDs/ToDs = 76.0%). A logistic regression was not statistically significant, $\chi^2(6) = 5.00$, $p > .05$.

With the second scenario, a parent whose first language is not English but who does speak English proficiently, again nearly all SLTs (97.9%) stated that it was "not true" that parents speaking the home language would be detrimental to the child's English compared to 72.7% of audiologists and 78.0% of

QToDs/ToDs. A logistic regression was not statistically significant, $\chi^2(6) = 9.80$, $p > .05$.

Discussion

Professional beliefs on spoken language bilingualism for deaf children

Overall, nearly all participants generally agreed that deaf children, with a bilateral severe-to-profound sensorineural deafness (diagnosed before the age of six months) and who received bilateral cochlear implants by the age of two, can develop two spoken languages. This may suggest that the participants would also believe that deaf children with less severe types of deafness, and indeed unilateral as opposed to bilateral deafness, would also be able to achieve spoken language bilingualism.

Research into the development and outcomes of spoken language bilingualism in deaf children is very limited and has produced mixed results; however, emerging evidence suggests acquisition of two or more spoken languages is possible for this population (Crowe, 2018). The participants' positive attitudes towards spoken language bilingualism could be in response to the evidence base, or alternatively may have been due to their own professional experience. On average, three quarters of respondents had worked with deaf children who used more than one spoken language, and their strong professional opinions on the possibility of spoken language bilingualism may reflect what they see deaf children achieve in their own practice. Previous research on professionals' perspectives on spoken language multilingualism in Australia also indirectly suggests that professionals (including SLPs and ToDs) would agree that the acquisition of multiple spoken languages is attainable for deaf children. Crowe and McLeod (2016) and Crowe and Guiberson (2021) report that 93.8% and 78.9% of professionals respectively, mildly, or strongly disagreed that exposure to more than one language is confusing for deaf children.

The professionals' perspective greatly changed with the presence of additional speech and/or language impairments, with far fewer stating it was "completely true" or "mostly true" that spoken language bilingualism is achievable. Whilst there was a great reduction in the number of participants across all three professional groups, SLTs were the profession with the greatest percentage of participants expressing a favourable view. These findings are consistent with those of Crowe and Guiberson (2021) in which professionals described having other needs in addition to being deaf as a negative influence on the likelihood that deaf children could achieve spoken language multilingualism.

Respondents may have expressed reservations about the possibility of spoken language bilingualism for deaf children with additional speech and/or language impairments due to their presence in addition to a degraded auditory system. Spoken language bilingualism has been suggested to intensify the

difficulties deaf children have acquiring speech and language due to placing greater demands on their degraded auditory system by forcing it to differentiate between sounds of more than one language (Crowe & McLeod, 2016). Deaf children have consequently been reported to be at risk of not acquiring either language proficiently (Waltzman et al., 2003), although the evidence base is conflicting, and studies have demonstrated deaf children can achieve proficiency in two languages (Bunta et al., 2016; Bunta & Douglas, 2013; Guiberson, 2014; McConkey Robbins et al., 2004). The present study's findings that more SLTs believed spoken language bilingualism is possible for deaf children with additional speech and language impairments might relate to the specific training they may receive on multilingualism and language development, specifically how multilingualism is not responsible for speech and/or language difficulties (Cruz-Ferreira, 2011).

In terms of predictive factors, nearly all participants agreed that quantity of exposure and opportunities to speak the two languages affects the ability of a deaf child to become bilingual in two spoken languages. This is in line with previous research that in deaf children acquiring two languages, outcomes are associated with the quantity and quality of exposure to each language (Waltzman et al., 2003; Yim, 2012).

The majority of participants also agreed that exposure to two spoken languages has many positive outcomes including improved family relationships, better identity/sense of self, maintenance of the home language and access to their cultural heritage. Interestingly, audiologists were more than 11 times more likely than SLTs to state that exposure to two spoken languages could lead to linguistic confusion (72.7% vs 17.0%). These results were higher than those reported in Crowe and McLeod's (2016) study where only 6.3% of professionals (including SLPs and ToDs) mildly agreed (and none strongly agreed) that exposure to more than one language is confusing for deaf children.

A possible explanation for audiologists being more likely to report linguistic confusion because of exposure to two spoken languages may be reflected in the demographics of the participants. Only 36.4% of audiologists in the present study reported knowledge of another language(s), compared to 63.8% of SLTs and 74.0% of QToDs/ToDs. Additionally, only 9.1% of audiologists reported having received training on working with deaf children with spoken language bilingualism. In comparison, 34.0% of SLTs and 36.0% of QToDs/ToDs stated they had received relevant additional training. Interestingly, despite similar frequency of specific training, QToDs/ToDs were also more than 11 times more likely than SLTs to report reduced proficiency in English as a result of bilingual exposure (16.0% vs 2.1%), and more than 12 times more likely than SLTs to report reduced proficiency in the home language as a result of bilingual exposure (18.0% vs 2.1%). In the absence of additional information on the content of the training received, we can only speculate that the

nature of the content of the professional training may be responsible for this discrepancy.

A second possible explanation may be due to SLTs having a greater overall experience working with multilingual children, both those who are deaf and those with typical hearing. Exact figures of the number of SLTs who work with bilingual children in the UK are unavailable. However, with just over 21% of primary school aged pupils in the UK recorded as having English as an additional language (GOV.UK, 2021) and Developmental Language Disorder (DLD) estimated to affect approximately 7% of the population (Norbury et al., 2016), the likelihood that SLTs will have worked with bilingual children is relatively high, particularly in multicultural cities like London where 38% of our respondents were based. Because of their linguistics training, SLTs may also be less likely to perceive code-switching, the use of more than one language in the same sentence or conversation (Myers-Scotton, 2006), as a sign of linguistic confusion or as a strategy to fill in gaps of vocabulary knowledge but recognise it as a sign of proficient bilingualism (Yow et al., 2018).

Professional advice given to parents

The second aim of our study was to explore the advice professionals give to parents considering spoken language bilingualism for their deaf child. Our results show that QToDs/ToDs and SLTs play an important role in bilingual parents' decision-making process as they are routinely consulted by parents about which language(s) they should use with their deaf child. Conversely, audiologists seem to play a less significant role, with only just over a third of participants reporting they are asked for advice. However, nearly all QToDs/ToDs and SLTs, and just under three quarters of audiologists said they would give advice if asked. This view is consistent with previous research on professionals where participants highlighted that their role included supporting decision-making by providing advice on multilingualism to families (Crowe & Guiberson, 2021). It may be that, while audiologists play a key role in a deaf child's development, parents in the UK particularly value the emphasis on language and communication that QToDs/ToDs and SLTs bring from their specialist training.

Our findings also suggest that SLTs believe more strongly than the other professional groups that the decisions parents make are ultimately influenced by the advice they provide. This is consistent with parental accounts in the UK and USA who reported advice provided by professionals in medicine and education to be the factor that most frequently influences decisions on communication choices for deaf children (Eleweke & Rodda, 2000; Kluwin & Stewart, 2000). However, the beliefs of the audiologists and QToDs/ToDs who participated in the present study are in line with a more recent study by Decker et al. (2012) in the USA who found that whilst 71% of parents reported that SLPs, audiologists and medical professionals were sources of information,

only 14% said SLPs and audiologists were influential in their communication choices, and the figured dropped to 9% for medical professionals.

Regarding the advice that professionals provide, almost all participants agreed that professionals should advise parents to speak to their deaf child in their home language, regardless of whether the parent speaks English proficiently or not. These results are in line with previous research conducted in Australia both by Crowe and McLeod (2016) – where all participants sometimes or always recommended the use of more than one spoken language for deaf children – and by Crowe and Guiberson (2021), whose participants all stated they supported and promoted spoken language multilingualism in deaf children. However, the findings are not consistent with parental accounts of advice received from professionals in the USA where parents report being advised to speak only English with their deaf child and not their home language (Guiberson, 2005; McConkey Robbins et al., 2004; Steinberg et al., 2003; Waltzman et al., 2003). The discrepancies between the more recent studies on professionals' perspectives and older studies focusing on parental accounts may reflect evolving attitudes towards multilingualism.

The fact that our participants agreed that parents should be advised to speak their home language irrespective of whether they speak English proficiently could suggest that they believe parents may provide a less than optimal language model in their non-native language. Encouraging parents to speak a language they are not proficient in might affect the quantity and quality of the linguistic input their deaf child receives. Both dimensions of the linguist input are widely acknowledged to play a crucial role in a child's language development (Newman et al., 2016; Rowe, 2012).

The professionals' advice may also demonstrate their awareness that the benefits of maintaining the home language extend beyond linguistic proficiency. Nearly all participants agreed that exposure to two spoken languages results in maintenance of the home language, improved family relationships, access to the cultural heritage, and better identity/sense of self. Professionals who participated in Crowe and Guiberson's (2021) study also focused on the importance of the home language in facilitating communication with family and the wider community and supporting the development of identity and wellbeing.

Future directions and limitations

The present study has limitations related to the sample size, in particular the small number of audiologists ($n = 11$) who participated. In addition, the participants may not be representative of all QToDs/ToDs, SLTs and audiologists who work with deaf children in the UK. Professionals who participated were likely to have had a stronger interest and knowledge of multilingualism than professionals who chose not to participate as 65.7% reported they had knowledge of

another language(s) (spoken and/or signed). This could have led to selection bias. Additionally, the geographical spread of participants was uneven, with 38% of all participants working in London and no participants working in Wales. The survey was also limited in its scope; due to the heterogeneity of deaf children and the impact that a child's audiological profile can have on language development, professional beliefs on spoken language bilingualism focused on deaf children with a bilateral severe-to-profound sensorineural deafness who use bilateral cochlear implants, but not on any other types/degrees of deafness.

Future research on advice regarding spoken language bilingualism should consider including other professional roles who encounter deaf children, particularly in the early years, including medical staff (e.g. audiological physicians, Ear Nose and Throat (ENT) Surgeons, General Practitioners (GPs) and health visitors). The use of different methodologies such as interviews and/or focus groups may also help to provide a more in depth understanding of the advice professionals give to parents, compared to survey data. Secondly, research should examine the decision-making process around spoken language bilingualism for deaf children from the parents' perspective in the UK by investigating the internal and external factors that impact their communication choices and to what extent professional advice influences their decision.

Conclusions

This is the first survey looking at the beliefs held by UK professionals on whether a deaf child can acquire two spoken languages, and the advice they give to parents considering spoken language multilingualism for their deaf child. Nearly all participants stated spoken language bilingualism is achievable, although far fewer agreed when additional speech and/or language impairments were present, and audiologists and QToDs/ToDs were considerably more likely than SLTs to report linguistic confusion and reduced proficiency respectively. However, most participants agreed that professionals should advise parents to speak to their deaf child in their home language, regardless of their proficiency in English, acknowledging the wider benefits of bilingualism. QToDs/ToDs and SLTs in particular played a key role in bilingual parents' decision-making process in this UK sample, highlighting their responsibility to enable parents to make informed decisions.

To ensure parents receive the advice needed to make fully informed decisions, we recommend that all professionals working with deaf children complete specific training on spoken language multilingualism. This is particularly crucial for those professionals whose university curriculum did not include training on language development in bilingual populations. A review of relevant university training courses to ensure that they include a focus on multilingual populations and multicultural issues is also recommended. Additionally, interprofessional collaboration should be encouraged to ensure specialist

knowledge on language development and multilingualism is shared. Finally, further research on the language outcomes of deaf children using more than one spoken language is needed to enable professionals to provide evidence-based advice.

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