Perspectives and Experiences of Autistic Multilingual Adults: A Qualitative Analysis

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Abstract

Background: The combined experience of autism and bilingualism is poorly understood, leading to poor support for autistic people in multilingual environments or those interested in languages. While most available studies focus on the language and cognitive profiles of autistic bilinguals, or on the experiences of parents, little is known about the lived experiences of autistic multilinguals.

Methods: To address this question, this study examined the impact of autism and multilingualism on the lives of 54 autistic multilingual adults who completed an online survey assessing the profiles of autistic bi- and multilinguals. We conducted a thematic analysis of responses to the survey's open-ended questions to explore motivations for learning languages and the perceived benefits of being both autistic and multilingual.

Results: There was a wide range of language profiles in the sample, with various levels of proficiency, ages of acquisition, and learning environments. Respondents felt that being autistic can both positively and negatively influence language learning. They reported various motivating factors for the acquisition of multiple languages, including social aspects and a predisposition for language learning. Respondents reported many benefits of multilingualism, such as educational, employment, or leisure opportunities; social skills and understanding of other people; self-confidence in their own abilities; and relationships with family, friends, and the worldwide autistic community.

Conclusions: Unlike previous work with autistic multilinguals involving case studies, the larger sample involved here offers valuable insight into the profiles and experiences of this overlooked population. Importantly, autistic people can experience numerous benefits from multilingualism. These findings will have implications for language education practices as well as for multilingual families and the practitioners who support them.

Keywords: autism spectrum disorder, autistic adults, bilingualism, multilingualism, lived experiences, language learning

Lay Summary

Why was this study done?

We wanted to understand what it feels like to be both autistic and multilingual, in a world where it is often assumed that both cannot go together. The combined experience of autism and bilingualism is poorly understood. This leads to poor support for autistic people in bilingual environments or for those interested in languages. Most studies available focus on the language and mental abilities of autistic bilinguals, or on the experiences of parents. However, very few studies focus on the lived experiences of autistic multilinguals themselves.

What was the purpose of this study?

The purpose of this study was to understand the experiences of autistic multilingual adults. We focused on their learning motivations and the perceived benefits of being autistic and multilingual.

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What did the researchers do?

Fifty-four autistic multilingual adults completed an online questionnaire designed for autistic bi- and multi-linguals. The questionnaire included questions about the respondents' language history and language profiles. There were also open-ended questions about the respondents' motivations for learning languages, and their general experience of being both autistic and multilingual. We analyzed and summarized the responses to these open-ended questions to understand the experience of autistic multilingual adults.

What were the results of the study?

Our sample had a diverse range of language profiles and experiences. Respondents thought that autism could be both an advantage and a disadvantage for language learning. They reported a range of motivations for language learning, including a predisposition for language learning. They considered relationships as both a motivation to learn languages and a benefit of multilingualism. Respondents thought that being multilingual had brought them many opportunities for leisure, travels, education, and employment. They considered that being multilingual had improved their self-confidence. They also thought that being multilingual had increased their awareness and understanding of autism, allowing them to connect with the wider autistic population.

What do these findings add to what was already known?

Previous research with autistic multilinguals involved only one or two participants. The larger group of autistic multilinguals involved in this study offers valuable insight into the lived experiences of this overlooked population.

What are potential weaknesses in the study?

The online questionnaire was not originally designed to collect in-depth data on lived experiences. This means that the questions included very few prompts: respondents were able to discuss the aspects of their experience that were the most important to them. The absence of specific topics in the results does not mean that they are not experienced, but simply that the participants did not spontaneously mention them. Future research should build upon our findings and focus on specific topics, such as learning environments or opportunities.

How will these findings help autistic adults now or in the future?

These findings will help autistic adults by highlighting the diversity and richness of their language profiles, abilities, and experiences. This will prompt families, educators, and practitioners to better support and include autistic people in multilingual environments or those interested in languages.

Introduction

AUTISM IS CHARACTERIZED by social communication difficulties but is independent of potentially co-occurring language difficulties.[1] Indeed, the language profiles of autistic people are extremely varied: while 15% to 25% of autistic children have very limited expressive spoken language,[2] most go on to develop language. Autistic people can show typical or even enhanced language skills,[3] with or without peculiar language or speech patterns, independent of their general nonverbal cognitive abilities.[4] Autistic people can experience pragmatic language difficulties,[5,6] and sometimes dysgraphia or selective mutism.[7–9] However, other aspects of language, such as vocabulary or grammar, are generally in the typical range, even if evidence suggests that word-learning occurs differently in autism.[6,10–12] Importantly, these language skills may also be enhanced compared with typical populations, particularly regarding grammar patterns.[13,14] Some autistic individuals also demonstrate exceptional psycholinguistic abilities, such as hyperlexia, eidetic memory, or an enhanced capacity for systemizing or pattern recognition. While these abilities also occur in neurotypical (NT) people, studies suggest that they are more common in

autistic individuals.[15–18] The distinction between communication and language difficulties is critical in autism, especially in the more linguistically complex context of multilingualism.

Recent findings demonstrate that autistic people can acquire additional languages in multiple ways and through various life experiences, leading to a rich diversity in the autistic bi- and multilingual population.[19] Specific evidence from a range of detailed case studies involving autistic multilinguals indeed shows enhanced abilities in multiple languages.[3,20,21] Nonetheless, misconceptions about multilingualism can lead to the belief that being multilingual is inherently impossible for autistic people. In the absence of definitive evidence, practitioners and parents worry about potential confusion, developmental delays, or restricted access to services, caused by the use of multiple languages with an autistic child.[22–25] Therefore, they often favor monolingualism for the child, sometimes even while the rest of the family maintains multilingualism.[26]

In recent years, research has started to address this topic. Most studies available focus on the language[27] and overall cognitive skills[28] of autistic bilingual children and adolescents and found no evidence for a developmental delay caused by bilingualism.[27,28] A systematic review[27] of eight

studies on language development in autistic bilingual children found no effect of bilingualism, providing evidence against the commonly held concern that bilingualism may cause language delays in autistic children. Fewer studies considered lived experiences, and most of them focused on the experiences of parents.[24,29] To date, the only account of the lived experiences of autistic bilinguals themselves targeted the school experience of 11 autistic children aged 7 to 14 years from bilingual families.[30] Therefore, with the aforementioned exception of a handful of case studies,[3] a direct account of the experiences of autistic multilingual adults, some of whom may have learned languages after childhood, is still lacking.

When attempting to understand the experiences of multilinguals, we can draw inferences from research in the general population. Relying on interviews with six polyglots (one female) with knowledge of five languages or more, Paradowski and Wysokińska[31] reported that self-taught multilinguals were primarily motivated by ''improving one's chances in the job market,'' ''hobby,'' ''travel,'' ''interest in culture,'' and ''life circumstances.'' These findings were reproduced by Hyltenstam[32] who interviewed 10 polyglots (one female) with knowledge of seven languages or more. However, it is unknown whether these motivating factors are also relevant for autistic people. Importantly, recent findings from a large sample of mono-, bi-, and multilingual autistic adults suggest a link between multilingualism and their self-rated social life satisfaction,[19] suggesting that the social domain may play a crucial role in the lived experiences of autistic multilingual people.

The present study explores the combined experience of being autistic and multilingual. While one existing large-scale description of autistic multilinguals includes people with two or more languages,[19] this study aims to describe the experiences of a subsample of 54 autistic multilingual adults with knowledge of at least four languages, thus providing an unprecedented account of autistic multilingualism. Since proficiency in four or more languages is likely a matter of choice rather than circumstance, this could be linked with unusual motivations and specific experiences of language acquisition. Specifically, this study sets out to describe how autism and multilingualism intersect to influence one another and shape the lives of autistic multilinguals. Our research questions ask (1) what are their motivations for language learning? and (2) what are the perceived benefits of these unique profiles? Overall, the study seeks to provide a better understanding of the autistic multilingual experience, which could help families and practitioners to better support autistic people who live in multilingual environments or have an interest in languages.

Methods

Participants

We selected participants from a large-scale online study addressing the demographic and language profiles of autistic bilingual and multilingual adults (aged 16 years or older), as well as their social life experiences.[19] Inclusion criteria for the online survey were: an age of 16 years or older, language information self-reported for at least one language, and self-reported autism diagnosis. Given the great degree of underdiagnosis among autistic adults[33,34] due to barriers to diagnosis, such as stigma, time, and cost of evaluation,[35] the study purposefully included a small number of self-diagnosed participants to capture the diversity of autistic experiences. The original sample of 297 respondents included 89 monolinguals, 98 bilinguals, 56 trilinguals, and 54 multilinguals knowing four languages or more. The present study focused on this subset of 54 multilingual autistic adults. While most respondents reported that they had a clinical diagnosis, seven indicated that they were self-identified as autistic.

Design

This study had a cross-sectional survey design using self-report measures and open-ended questions to explore the demographic, language, and social profiles of autistic bilingual and multilingual adults, as well as their lived experiences.

Measures

The study used the Autism & Bilingualism Census (ABC),[36] an online survey available to view at https://osf.io/xsqy7 The ABC consists of four main sections (detailed in Digard et al.[19]): general demographic information, general life satisfaction and social life quality, detailed language history for up to seven languages (additional languages could be listed, but no further information about them was required), and open-ended questions. The present study focused on the answers to the open-ended questions, while details were taken from the demographic and language history sections to describe the respondents.

The open-ended questions addressed the participants' language learning experience, their views on the importance of language learning, and their perception of the interplay between autism and their language experiences. Additional open-ended questions were also included within each language-reporting page, allowing respondents to provide more details about their past and current use of this language. Importantly, no question was mandatory, to ensure the comfort of the respondents, as well as the voluntary nature of the responses. The three main open-ended questions, formulated as follows, each allowed for responses of up to 5000 characters:

1. Do you find learning several languages challenging? Why? Do you think being on the autism spectrum affects how you learn languages?
2. Do you find learning several languages useful? Why? Do you think knowing several languages is important/useful for someone on the autism spectrum?
3. Do you think bilingualism influences your life as someone on the autism spectrum? If so, how?

Procedure

The PPLS Research Ethics Committee of the University of Edinburgh approved the study. The consent form was built into the first page of the online survey created in Survey-Monkey. Respondents provided consent by completing these items, which was necessary to progress to the survey. We recruited participants between February and March 2017, with a flyer circulated via social media, autism charities, and networks across the United Kingdom, and disability services of UK universities. Respondents completed the survey online independently, in their own time. They were not compensated for their participation.

Survey data management

Full details of the survey answers' filtering, as well as the cleaning steps regarding the language history measures, are available in the study of Digard et al.[19] and in the Supplementary Data. The final sample of respondents for the current study was obtained by selecting only those who had provided language profile details for four languages or more. For each participant, we extracted their full-text responses to all open-ended questions for inclusion in the analysis.

Data analysis

We determined the demographic characteristics and language profiles with descriptive analyses using R (version 3.5.3). We analyzed the qualitative data in NVivo (version 12) using inductive thematic analysis, an approach appropriate for exploratory studies addressing underresearched topics, deriving themes from raw data rather than looking at the data from the perspective of prior theories and assumptions.[37] A first coder (K.N.) initially analyzed the survey responses for first-level codes labeling content in the data (e.g., "making friends" or "better than peers"), leading to 128 distinct first-level codes (see Supplementary Table S1 for examples of initial first-level codes). To confirm validity, a second coder (B.G.D.) double-coded the responses from 12 of the 54 participants (22%) and generated thematically equivalent first-level codes (e.g., the first-level code "higher education" generated by B.G.D. was equivalent to the first-level code "academic development" generated by K.N.). The two coders met to discuss potential combinations and divisions of the initial codes. Subsequently, the revised first-level codes were grouped into midlevel subthemes and top-level themes in collaboration between the first and second coder. The coders regrouped and rearranged the codes, subthemes, and themes until a final configuration was achieved that encapsulated almost all the coded material. Themes and subthemes are described below and subsequently applied to address our research questions of interest: what are the motivations for language learning? and what are the perceived benefits of language learning? for this population.

Results

Respondents

The sample included 54 autistic adults (mean age = 32.7 years, range = 18–64 years), 47 of whom had a clinical diagnosis of autism (mean age at diagnosis = 26.0 years), whereas 7 were self-identified autistic. The gender distribution was 55.6% female, 14.8% male, and 29.6% not listed or not disclosed. Respondents had a mean English proficiency (averaged across oral expression, oral comprehension, written expression, and written comprehension skills, each self-rated on a Likert-type scale ranging from 0 = "Not at all" to 8 = "Excellent") of 7.4 (SD = 0.9, range = 4.3–8.0), confirming all were proficient in English, and thus able to complete the survey. As the recruitment flyer was circulated online through social media, non-UK residents also took part in the study (57.4% of the respondents). Notably, 20.4% of the respondents (n = 11) were residents of the United States, 5.6% residents of Germany (n = 3), and 5.6% residents of the Netherlands (n = 3). All other countries represented no more than 4% (i.e., one or two participants) of the sample (see

Table 1 for further details about the countries of origin and residence of the respondents). Respondents' demographics are reported in Table 1, and their language profiles in Figure 1 and Supplementary Table S2.[38]

Lived experience themes

Direct influence of autism on language learning. This theme encapsulates the respondents' multiple, explicit references—across all questions asked—to the fact that their learning experiences differed from those of their NT peers. Autism was described both as an advantage and as a disadvantage (Fig. 2) for language learning. For example: "I think the autism matters because it makes me able to concentrate a

TABLE 1. RESPONDENTS' DEMOGRAPHIC
CHARACTERISTICS (N = 54)

Demographic	
Age in years, M (SD, range)	32.7 (9.8, 18–64)
Gender, n (%)	
Female	30 (55.6)
Male	8 (14.8)
Other gender identity[a]	14 (26.0)
Not disclosed	2 (3.7)
Diagnosis, n (%)	
Diagnosed[b]	47 (87.0)
Self-identified	7 (13.0)
Age of diagnosis, M (SD, range)	26.0 (12.4, 3–51)
Highest education, n (%)	
Less than an undergraduate degree	16 (29.6)
Undergraduate degree or higher	38 (70.4)
Country of birth, n (%)	
United Kingdom	17 (31.5)
Non-UK, English-speaking[c]	12 (22.2)
Europe, non-English-speaking[d]	18 (33.3)
Outside Europe, non-English-speaking[e]	7 (13.0)
Country of residence, n (%)	
United Kingdom	23 (42.6)
Non-UK, English-speaking[f]	13 (24.1)
Europe, non-English-speaking[g]	16 (29.6)
Outside Europe, non-English-speaking[h]	2 (3.7)
Non-UK-born UK-residents, n (%)	7 (13.0)
Age of arrival in the United Kingdom, M (SD, range)	21.6 (10.1, 8–36)

Sociodemographic characteristics of the respondents (N = 54).

[a]The 14 respondents who selected "Not listed" provided a written-in answer, each including one or several gender identity labels, for a total of 8 labels: nonbinary (4 respondents), agender (3), gender queer (3), genderfluid (3), bi-gender (1), neutral (1), neutrois (1), not dysphoric (1).

[b]48.1% (n = 26) reported "Asperger's syndrome" as diagnosis, 27.8% (n = 15) reported "Autism," 9% (n = 5) reported "Autism spectrum disorder," and 7 respondents reported combinations of these labels, and 1 was "unsure."

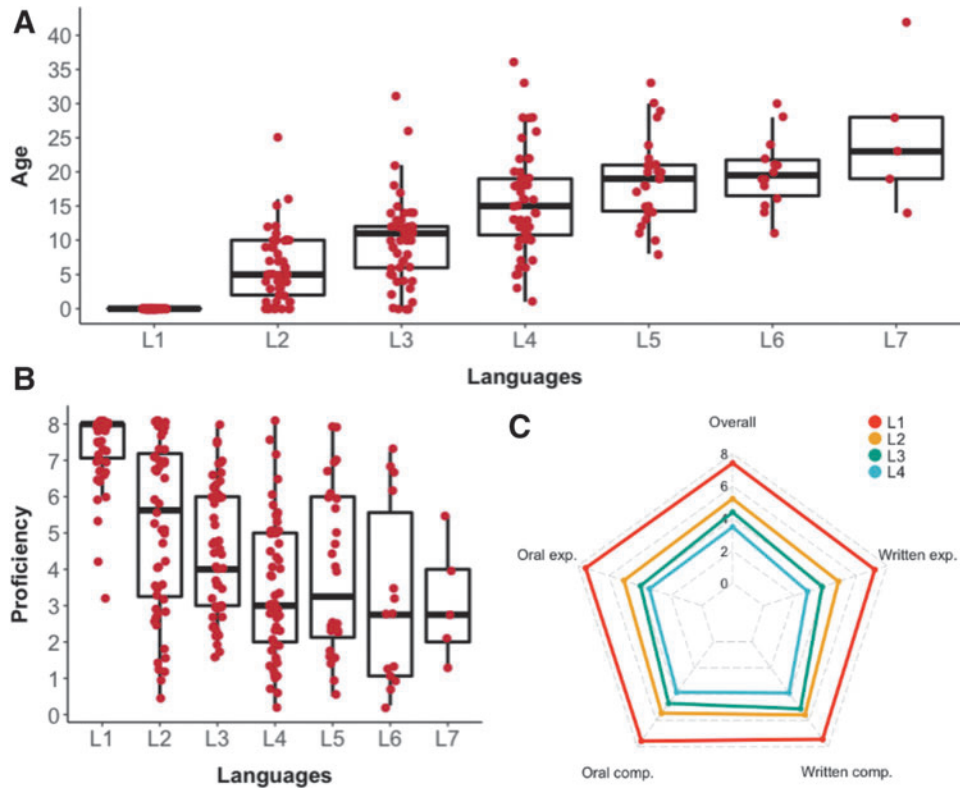[c]Ireland (2), United States (12).

[d]Belgium (1), France (1), Germany (5), Italy (2), The Netherlands (2), Norway (3), Spain (1), Sweden (3).

[e]Algeria (1), Brazil (1), Curacao (1), Hong Kong (1), Israel (1), Turkey (2).

[f]Ireland (2), United States (11).

[g]Estonia (1), France (2), Germany (3), Italy (1), The Netherlands (3), Norway (2), Spain (1), Sweden (2), Switzerland (1).

[h]Curacao (1), Turkey (1).

FIG. 1. Age of acquisition and proficiency for the languages reported. **(A)** Age of acquisition: box plot and scatter plot of the distribution of the reported ages of acquisition (in years) for the languages (L) 1 to 7, ranked by age of acquisition for each respondent. **(B)** Language proficiency: box plot and scatter plot of distribution of the overall self-rated proficiency (averaged across self-rated abilities in written expression, written comprehension, oral expression, and oral comprehension) for the languages (L) 1 to 7, ranked by age of acquisition for each respondent, on a scale from 0 (''not at all'') to 8 (''excellent''). **(C)** Detailed language proficiency: radar plot of the mean overall and detailed (written expression, written comprehension, oral expression, and oral comprehension) self-rated proficiency of the respondents for their languages (L) 1 to 4, ranked by age of acquisition for each respondent, on a scale from 0 (''not at all'') to 8 (''excellent'').[38]
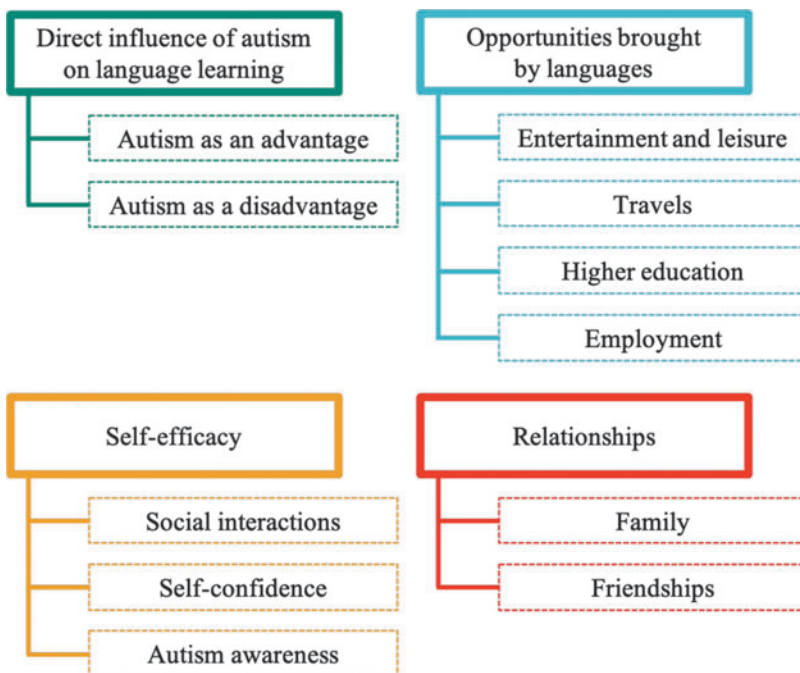
FIG. 2. Thematic map of themes and subthemes identified in the data. Themes are circled in bold, related subthemes are circled with dashed lines.[38]

lot on something I'm interested in (like learning [language]* now, and [language] in the past), while also making it very hard to concentrate on something I'm not interested in (like learning [language] in the past).[†]" [P1250]. Importantly, many stated that language learning was one of their special interests, thus facilitating their learning experience: "I find it fascinating and very fun. I do not learn languages for their usefulness, but for the joy I get from learning them." [P1152].[38]

Many participants mentioned an aptitude for pattern finding that allowed them to quickly grasp grammatical structures within a language and extend them to related languages, or imitation skills that allowed them to reproduce accents. Other advantages mentioned were memory or focus. A few respondents claimed to possess learning advantages that went above and beyond the norm. These included hyperlexia (five participants), hyperfocus (two participants), and eidetic memory (one participant). However, respondents also highlighted how autism hindered their language learning, notably in terms of "difficulty switching focus" [P1036], selective mutism (eight respondents) or dysgraphia (one respondent).

Opportunities brought by languages. This theme brings together participants' references to options that were available to them, which they attributed to multilingualism. The theme covers four subthemes: "Entertainment and leisure," "Travels," "Higher education," and "Employment" (Fig. 2). The following quote encapsulates all the aforementioned opportunities: "Knowing several languages is absurdly useful. Languages can help you with work, traveling, learning (I have learned three languages in languages that were not L1 or L2 and I got one of my degrees in English), making friends and so on. I'm not sure if knowing several languages is more useful while autistic. I think it might be equally useful for everyone." [P1117]. Many other respondents echoed this and focused their responses on how multilingualism expands horizons. Indeed, participants reported using their language skills to access a wide range of special interests: "For other autistic people I think it may help them find a lot of informations and point of view about subjects they are interested in." [P1202]. Participants also reported that being multilingual made traveling and moving abroad more comfortable, for example, when travelling for education purposes. Indeed, respondents repeatedly described languages as particularly useful for academic reading and coursework at foreign institutions. They also perceived multilingualism as particularly beneficial for employment, listing overall a wide range of professions such as teaching, health care, retail, business, interpreting, or editing, among others.

Relationships. This theme refers to the way family and friends (Fig. 2) were a driver of and a benefit from knowing multiple languages. Participants discussed the influence that family members, friends, or partners had on the necessity or desire to learn a language. Participants often highlighted their family as a reason for language learning, especially to communicate with relatives in or from a foreign country was an important factor motivating the acquisition of a language: "It is also useful to me personally for helping me communicate with my family especially with my gran who didn't speak English" [P1215]. However, multilingualism could also strengthen familial relationship, without it being a necessity. For example, a participant mentioned sharing a special bond with their mother as a result of their shared interest in languages. Likewise, participants mentioned that multilingualism enabled them to form and develop friendships with people from other backgrounds, especially online ("learning languages makes it easier to make online friends from far away" [P1180]) or in the community ("I found myself speaking a lot more Italian with my friends at university after having joined a society for all Italians and we meet up outside of those meet-ups as well" [P1220]).

Self-efficacy. This theme summarizes respondents' feelings of increased understanding of themselves as autistic people, increased confidence in themselves, and increased assurance in their social-interactive abilities (Fig. 2). It provides insight into the ways that multilingualism can have an effect on someone's experience of autism (as opposed to the opposite direction of effect, mostly described in the "direct influence of autism on language learning" theme). Participants saw multilingualism as a tool increasing their ability to connect with autistic people from around the world and join the autistic community, while also widening their horizon by learning more about autism through online forums that were not in their native language. The following quote encapsulated both ideas of this subtheme: "It makes it possible for me to interact with a wider set of people. Without my knowledge of the English language I would not have met several people who are important to me, and who have enriched my life as an autistic person, and helped me in gaining an identity. There is not much of a neurodiversity movement in [language], so without knowledge of additional languages I would have been very isolated indeed." [P1250].

Respondents also expressed feelings of self-assurance, confidence, independence, and reduced anxiety linked with multilingualism. The following quote illustrated this subtheme: "Apart from others' views, internally you feel more capable. I can go abroad by myself and can survive without others' help. This lowers anxiety." [P1273]. For some respondents, this increase in confidence was linked with the notion that their language skills surpassed those from their NT peers: "I have a certain pride in my bilingualism because it highlights that there are certain things I'm very good at and do well despite being autistic […]. It highlights that we all have strong and weak points." [P1148]. This same participant went on to describe multilingualism as an "autism superpower."

Respondents also considered that being multilingual facilitated their ability to interact socially, beyond the simple fact of being able to speak with somebody who shares their languages. First, respondents explained that using a non-native language to communicate could feel more comfortable than using the native one. The following quotes illustrate this subtheme: "I think bilingualism and multilingualism have helped reduce my social anxiety and have given me more self confidence in social situations." [P1111]. Other respondents linked this idea with the attitude of their interlocutors when interacting in their non-native languages: "I think socially

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*All languages (but English) and countries (but the United Kingdom) were removed for anonymity.
[†]All participant quotes are reported exactly as they appear in the original data from the online survey, regardless of spelling, capitalization, and/or grammatical errors.

people are very forgiving of faux pas if they know you're a foreigner so it's not uncommon for autistic people to feel more comfortable in another country. I am much more comfortable in a multi-lingual setting.'' [P1220]. Second, participants expressed that learning and knowing other languages had increased their social understanding and social abilities, which in turn made them more comfortable when interacting with others. This was particularly evident in terms of perspective-taking abilities, as illustrated by ''You learn that there are more than one way of living, thinking. You have more perspectives'' [P1273]. This was also evident in terms of social rules understanding—as illustrated by ''I became more aware of social patterns- specific phrases- what to say in which situation, etc.'' [P1273], sometimes acquired via the communication ''scripts'' provided through the study of foreign languages—as illustrated by ''It helps with my communication, as it makes me put thought into what I say/gives me scripts to follow in social situations.'' [P1062]. Many participants who cited social skills as an advantage of multilingualism also commented that autistic people could potentially benefit from this aspect of multilingualism more than their NT peers.

Discussion

This study is the first to directly address the lived experiences of a larger group of autistic multilingual adults. It reveals a wide diversity of language experiences within the autistic multilingual population and highlights numerous ways in which autism and multilingualism can influence one another. In terms of our original goals, the themes identified in this analysis cast significant insight on the motivations and benefits that autistic people describe with respect to their learning of multiple languages. Motivations incorporate intrapersonal factors such as a predisposition for language learning, interpersonal factors such as family and romantic relationships, and societal factors such as academic and employment opportunities. Benefits likewise operate across these levels, incorporating gains in self-efficacy, benefits in terms of creating new social networks, and opportunities for travel and leisure.

Before examining these in detail, it is also worth noting that the diversity of profiles in this autistic multilingual sample mirrors, and builds upon, the diversity seen in the overall autistic bilingual population.[19] The demographics and language data demonstrate that, similar to their NT peers, autistic people can be multilingual, with high skills in several languages, without being a language savant extremely proficient in a large number of languages. A few respondents reported less than ''Good'' (6) proficiency in their L1, which can be due to a number of reasons unrelated to language difficulties (such as an extend period without using L1) outside the scope of this study. Overall, the range of profiles in this sample suggests that autistic people can become multilingual through life circumstances, education, or by choice, reaching varying levels of proficiency.

This study offers rare insight into how autistic multilinguals themselves perceive the effects of autism and multilingualism on their lives, particularly in the bidirectional influence of autism and multilingualism on each other. Our findings indicate that being autistic can be both an advantage and a disadvantage for language learning, depending on individual differences. This finding calls for a more personalized approach to second-language learning for autistic people, based on their individual strengths. Our results also show that being multilingual influences the experience of autism, by opening up access to a global community of autistic people sharing experiences.

Motivations for and benefits from being multilingual were found to be intertwined in many aspects of our participants' experience, especially in terms of relationships with friends or family and opportunities for employment or education. Importantly, the finding of communication with others as a motivation to learn languages suggests an intrinsic social motivation for some autistic people. This overlap between multilingualism and the social domain was further highlighted in the Self-efficacy theme. Indeed, we found that one benefit of multilingualism was a feeling of confidence in their own abilities, and a feeling of improved social interactions. Participants reported to have formed meaningful connections and improved their social and communication skills as a result of using multiple languages, domains often described as challenging for autistic people.[39–41] This qualitative result regarding a link between multilingualism and the social domain, both in terms of socio-cognitive skills and of social interactions, brings depth to the quantitative results found in the larger original sample described in Digard et al.[19] which showed that multilingualism predicted higher self-rated social life quality than monolingualism.

Participants also mentioned benefits in other areas that are relevant to broader issues that affect autistic people. For example, while unemployment is regularly highlighted as a serious problem in the autistic community,[42] participants mentioned that multilingualism was improving their employment prospects. Furthermore, while poor mental health is often experienced in autism,[43] participants reported increased confidence and joy stemming from multilingualism. Finally, one multilingualism benefit unique to the autistic population is the increased opportunity to interact with the worldwide autistic community and to access more information about autism, thus empowering autistic multilinguals who may otherwise feel isolated. Taken together, these findings suggest that the experience of autism can be shaped by multilingualism in a positive way, including regarding potentially challenging aspects such as social skills, confidence, and professional outcomes. Finally, these findings point out the need for adapted language learning practices, tailored to the specific learning profiles of autistic people. They also highlight the importance to support language learning in multilingual families, as multilingualism appears associated with valuable benefits.

These findings have to be considered in the light of their limitations. Importantly, the open-ended questions used to gather the data included very few prompts. While this allowed respondents to discuss the aspects of their experience that were the most important to them, future research could focus on more specific topics, such as learning environments or opportunities. Prioritizing depth over breadth might also reveal further intersecting experiences, for example, regarding cultural, ethnographic, or migratory aspects of the experience of autistic multilinguals. We were also unable to verify the multilingual abilities of our participants in person, given the anonymous online nature of the study, nor did we ask directly about language impairments or savant skills.

Studies have shown that self-ratings of language proficiency and standardized language tests generally provide comparable results[44,45]; however, this has not yet been verified in autism. Specifically, we cannot be sure whether participants had the same understanding of what counted as average or good language proficiency. Therefore, relating the self-reported language profiles with psycholinguistic abilities or impairments is outside the scope of this study, and future research should include direct assessments of language skills.

There are also some limitations with respect to our participant sample profile. Females were overrepresented, at odds with the male-to-female ratio estimates in autism approaching 3:1.[46] The gender distribution in our sample aligned with the regularly reported bias toward female respondents in online studies,[47,48] including studies with autistic participants.[49] We did not gather data on the ethnicity of the respondents, although we recognize that intersectionality[50] between autism, ethnicity, and status of the languages spoken may also greatly shape the experience of autistic multilinguals.[51] Furthermore, 7 of the 54 respondents were self-identified. It is possible that some of them would not meet criteria for a formal diagnosis of autism. Additionally, our data collection methods were unlikely to permit responses from autistic people with severe intellectual disability. Finally, the age range of the respondents, the range of their age at diagnosis, and the range of countries of origin and residence in the sample combine to indicate that variation of diagnosis systems across time and countries may have influenced their experiences. Overall, we acknowledge the diversity and complexity of autism: the lived experiences reported in this study may not be generalizable to all autistic multilinguals.

The present findings raise numerous questions regarding the combined experience of autism and multilingualism. First, this analysis exclusively focused on autistic adults who reported knowledge of at least four languages, but as no other study available assessed the experience of autistic individuals with only two or three languages, we do not currently know whether our findings are specific to autistic multilinguals, or comparable to the experience of autistic bi- and trilinguals. Addressing this question would indicate whether some of the benefits reported here only occur above a certain threshold of multilingualism or whether other aspects of the language journey (e.g., the active decision to learn a foreign language or moving to a different country) produce these benefits. Comparing the experience of autistic and nonautistic bi- and multilinguals would also highlight how autistic people can uniquely experience bilingualism, for example, in terms of social and communicative benefits. Finally, and importantly, respondents spontaneously reported social cognitive processes as an aspect of their lives influenced by multilingualism. To date, the link between social cognition and bilingualism has almost exclusively been researched in NT populations, and only counts few studies (see Schroeder[52] for a review). This relationship has not yet been directly addressed in autism, where the few studies currently available focus of social life quality,[19] overall functional[53] or social[54] communication, or overall social functioning.[55,56] Considering participants spontaneously pointed out the link between multilingualism and social cognition, particularly perspective-taking (generally challenged in autism, as described in Velikonja et al.[40]), it is now necessary to specifically address this topic in the context of autism.

Conclusions

This study is the first to provide a detailed account of the demographic and language profiles of a larger sample of autistic multilingual adults, as well as their perception of the combined experience of autism and multilingualism. Respondents reported multiple reasons motivating them to learn languages, such as increased opportunities and social motivations. Respondents also described multiple benefits linked with multilingualism, such as autism awareness, social abilities, and self-confidence. These findings have implications for language education practices as well as for multilingual families and the practitioners who support them.

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Authorship Confirmation Statement

K.N. contributed to the conceptualization and methodology of the study, analysis of the data, and writing of the original draft. S.F.-W. contributed to the resources for the completion of the study, the reviewing and editing of the article, and the overall supervision of the project. A. Sorace contributed to the reviewing and editing of the article and the overall supervision of the project. A. Stanfield contributed to the funding acquisition, the resources for the completion of the study, the reviewing and editing of the article, and the overall supervision of the project. B.G.D. contributed to the conceptualization and methodology of the study, validation of the analysis, investigation and visualization of the results, curation of the data, and the reviewing and editing of the article. All co-authors reviewed and approved the article before submission. The article has been submitted solely to this journal and is not published, in press, or submitted elsewhere.

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Supplementary Material

Supplementary Data
Supplementary Table S1
Supplementary Table S2

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