



## Homeschool Decision-Making and Evidence-Based Practice for Children with Autism Spectrum Disorder

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### Abstract

Homeschooling children with autism spectrum disorder (ASD) has increased in popularity and is an educational option considered by parents. Interviews were conducted with 9 parents homeschooling children with ASD to systematically characterize reasons parents provide for their decision to homeschool and the educational experiences parents are providing. Five distinct themes emerged regarding reasons parents decided to homeschool children with ASD. Parents began homeschooling at a mean grade of 4.33 and their decision to homeschool was characterized by a long-term process for 55.56% and following one catalyst event for 44.44%. Results suggest that parents are largely not implementing evidence-based practices or are utilizing methods that directly contradict best practice standards. The majority of homeschool programming described did not meet minimum educational requirements of amount of daily instruction and content areas covered, and social opportunities were limited. Results indicate clear areas where education professionals can improve service delivery for children with ASD.

**Keywords** Autism spectrum disorder · Homeschool · Education · Evidence-based practice

Children with autism spectrum disorder (ASD) present with unique challenges within a traditional educational environment and may require services from a variety of professionals. Recent prevalence estimates indicate that 1 in 68 children are diagnosed with ASD (Centers for Disease Control and Prevention 2014). The Individuals with

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Disabilities Education Act (IDEIA 2004) requires parental involvement in the education of children with disabilities. Unfortunately, interactions between parents of children with ASD and education professionals are often marked by confusion, frustration, tension, and lack of cooperation that hinder the effectiveness of service delivery (Lake and Billingsley 2000). Parents report being dismissed by professionals and repeatedly needing to request referrals and battle for services which leads to their reduced trust in the education system and increased trust in their own instincts (Stoner et al. 2005). Dominique et al. (2000) emphasized that parents' trust is based on the perceived ability of education professionals to effectively meet the needs of their children with ASD.

Anecdotal reports from lay literature (e.g., Dowty and Cowlshaw 2002; Harnett 2004; Pyles 2004; Schetter and Lighthall 2009) suggest that the number of families homeschooling children with ASD has increased over the past decade. Pyles (2004) estimated that there are 3300 to 5000 homeschooled children with ASD in the U.S.; however, it is unclear how this prevalence rate was obtained. The National Center for Education Statistics (NCES) indicates that, in the U.S., approximately 1,770,000 students are homeschooled, representing 3.40% of the school-age population (Noel et al. 2013). Assuming equal prevalence of ASD in the homeschool population, taking estimates of 1 in 68 school-aged children with ASD, suggests that approximately 26,000 children with ASD may be educated at home.

On a national survey of homeschool parents, the most frequently cited reasons for homeschooling were concern about the environment (e.g., safety, drugs, negative peer pressure; 25%), dissatisfaction with academic instruction (19%), desire to provide religious instruction (16%), and a variety of other reasons (21%; e.g., family time, travel, finances, distance). Of note, when the survey was last conducted in 2007, 3.60% of parents indicated that their most salient reason for homeschooling was their child's special needs (Bielick 2008).

Despite parents choosing to homeschool children with ASD, a review of the published research literature yielded no experimental research focused on the homeschooling experiences of students with ASD. One qualitative study was identified in which the experiences and perceptions of nine families homeschooling children with ASD were qualitatively described (Hurlbutt 2011). Hurlbutt (2011) identified that: (a) parents are involved and knowledgeable about ASD, (b) parents are implementing a variety of individualized programs, (c) parents have different opinions than public school teachers on what should be addressed, and (d) parents think that both parents should agree about the homeschool decision. Hurlbutt noted that, although parents felt that schools were not best suited for their children with ASD, they generally did not make negative comments about the school system. The overarching theme identified was that parents homeschooling children with ASD believed that they had identified a feasible treatment plan and that the school was either unwilling and/or unable to effectively provide that treatment.

Several studies have explored the reasons cited for homeschooling children with other disabilities. For example, Princiotta and Bielick (2006) reported that the main reasons cited for homeschooling children with disabilities are: dissatisfaction with academic instruction, safety concerns, and concerns about the learning environment. Parsons and Lewis (2010) reported that parents of children with special needs, including ASD, homeschooled in the U.K. due to the school's failure to accommodate their

child's needs, child's lack of happiness at school, bullying experiences, and desire to provide the best for their child.

Although No Child Left Behind (NCLB 2001) and the Individuals with Disabilities Education Improvement Act (IDEIA 2004) mandate that educational interventions are research-based, less than 10% of educators of children with ASD employ evidence-based practices (Hess et al. 2011). Furthermore, research suggests that there is a lack of school professionals trained to develop specialized programs for children with ASD (Hendricks 2011; Morrier et al. 2011). This lack of qualified professionals is especially problematic as diagnostic improvements lead to more children being diagnosed and at younger ages, resulting in staff without adequate training providing educational services for this population.

Research suggests that a small percentage of homeschooling parents subscribe to the philosophy of unschooling or self-directed learning without teachers, textbooks, or formal instruction (Martin-Chang et al. 2011; Ray 2010; Taylor-Hough 2010). The unschool philosophy is one of several suggested approaches by a number of parent self-help books on homeschooling children with ASD (e.g., Dowty and Cowlishaw 2002; Harnett 2004; Pyles 2004; Schetter and Lighthall 2009). The unschool educational philosophy stands in direct contrast to the literature on best practices for educating children with ASD. For example, it is well-documented that short instructional intervals in intensive and highly-controlled learning situations are most effective for students with ASD. The National Professional Development Center on ASD (NPDC; Wong et al. 2014) and the National Autism Center's National Standards Project (NSP; 2009) identify evidence-based practices for education programming for individuals with ASD which largely include high levels of structure and multiple practice opportunities (Wong et al. 2014).

Other aspects of homeschooling may be problematic for students with ASD. For example, arguments that have been cited against home instruction for typically developing students and students with special needs include limited opportunities for socialization and lack of adequate teacher training (Duvall et al. 1997). Education of children with ASD alongside typically developing peers has potential social benefits including modeling of appropriate social behaviors by classmates, promoting social acceptance, and decreasing stigmatization of students with disabilities (Frederickson 2010).

State laws differ in requirements of home study programs, ranging from high regulation to no requirements. In the state where all participants resided, parents or guardians providing home instruction must possess a high school diploma or general equivalency diploma or employ an educator with these minimum credentials. The homeschool program must include instruction in reading, language arts, mathematics, social studies, and science. In addition, the school year must consist of the equivalent of 180 days with a minimum of 4.5 h of instruction per day.

Currently, no empirical studies have systematically addressed reasons parents decide to homeschool children with ASD or quantified the homeschooling experiences of children with ASD, despite an apparent interest and increase in parents homeschooling children with ASD. The present study aimed to build upon anecdotal reports to systematically describe parents' reasons for choosing to homeschool and the evidence-based programming they are providing. Perceived inadequacies in the education system that give rise to parents' decision to homeschool their children with ASD are worthwhile to identify and potentially remediate. Given the stress placed on home

educators and the documented negative effects of stress on parent mental health and family functioning (Abelson 1999), research describing parent support needs and available resources is imperative. Although there is a small body of literature examining the utility of homeschooling children with ADHD and learning disabilities, children with ASD represent a unique population with different characteristics and educational needs. As teachers of students with ASD largely do not implement evidence-based strategies (Morrier et al. 2011), it is important to identify the amount of evidence-based practice being implemented in homeschool environments. Finally, as social deficits are a core feature of ASD and an identified limitation with homeschooling (Duvall et al. 1997), investigating the quality and quantity of social interaction that homeschooled students with ASD are receiving may help to improve homeschooling practice. It should be noted that the authors are not advocating for or against homeschooling children with ASD; rather, the intent of this research is to describe the educational experiences of this population.

The purpose of this study is to answer the following questions regarding the educational experiences of children with ASD:

1. What reasons do parents provide for their decision to homeschool?
2. What educational experiences are homeschool parents providing?

## Method

### Participants

Participants were nine parents who homeschooled their children with ASD between 5 and 18 years of age. Diagnostic categories from the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (American Psychiatric Association 2000) were employed as all participants received diagnoses under the diagnostic system utilized at the time of data collection. For the purposes of this study, homeschooling is defined as those families who submit a letter of intent to homeschool to the state. Three of the nine children (33%) were female, with a mean age of 11.89 years (range: 9–15 years). Seven children were identified as Caucasian and two as bi-racial. Parents identified seven of the nine children (77.78%) as having Asperger's Disorder, while the remaining two (22.23%) were identified as having Autistic Disorder. All children attended public school prior to the decision to homeschool, with five served in general education, three in a collaborative setting, and one in a self-contained class.

All parent participants were female and only one was interviewed per child. Parents all self-identified as Caucasian. Educational background (i.e., ranging from high school diploma to doctoral degree) and parental occupation (e.g., teacher, service industry, graduate student, unemployed) suggest that parents represent an economically diverse group. Location of residence (i.e., rural, city, suburb) suggests that parents represent a geographically diverse group within the state and across school districts. Two parents possessed certification or a degree in teaching and one parent indicated teaching experience (i.e., 33.33% had teaching experience). Two of the nine participants (22.22%) endorsed formal training related to autism.

## Procedures

Parents who homeschool children with ASD were recruited through state homeschool organizations and groups. Each participant received \$10 for participation. Interviews were conducted to elicit a description of educational experiences as well as homeschool experiences. Interview topics and guiding questions were developed prior to the start of data collection to address both research questions, following the interview-guide approach (Patton 2015). The NPDC's list of evidence-based practices, The National Autism Center – NSP's list of evidence-based treatments, and the National Research Council (2001) best practice standards for educating children with ASD were considered in developing topics on evidence-based practice. The interviewer asked open-ended questions allowing parents to describe their experiences and followed up on any topics that did not emerge in the participants' narratives. Interviews ranged from approximately 50 min to 3 h.

**Qualitative Analysis of Interview Data** Interviews were audio recorded and transcribed verbatim by the first author. The constant comparative method (CCM) of qualitative data analysis was employed to analyze the data (Glaser and Strauss 1967). CCM allows for explicit coding and analysis of qualitative interviews to systematically generate theory, allowing themes to develop from the research questions and participant narratives (Charmaz 2008; Glaser and Strauss 1967; Morgan 1997). CCM was selected as the authors aimed to discover themes that emerged from participant narratives, rather than for provisional hypothesis testing. CCM falls under the broad classification of grounded theory in that conclusions are grounded in the data, not speculative. Such emergent methods are typically selected to study novel phenomena that have yet to be pursued in the literature (Charmaz 2008).

Analysis occurred concurrently with data collection. Each participant's transcript was coded into as many categories as possible. Categories were added as they emerged and data were fit to existing categories. As subsequent transcripts were coded, each incident of a category was compared with previous incidents of that category within that participant's transcript as well as within other transcripts. When incidents could potentially be coded in multiple categories, specific rules and exclusionary criteria were established to facilitate further coding and to increase the likelihood that an independent analyst would approach the data in a similar manner (Seidman 2006). Once the data were coded, the authors enumerated the theory, providing a thorough description of the categories coded. All data were coded to determine a measure of salience within and across participants as we aimed to not only identify reasons parents chose to homeschool, but also to discuss how important these factors may have been in their decision-making. Morgan (1997) advocates for the qualitative researcher to consider answering their research question with numbers when they feel that counting codes is justified and quantification may add to understanding. One may consider as an indicator of emphasis how many people mentioned a topic and how much enthusiasm that topic elicited.

The number of incidents of each coded category was summed for each participant and a total sum obtained across participants for each category. Coded data were interpreted in terms of frequency of incidents of each category, both within and across participants to rank order the salience of themes, considering each individual participant a unit of analysis (Patton 2015). Specific reliance on participants' own words helps

convey meaning of the identified categories from the perspective of the participants themselves (Charmaz 2008). As such, we present ample examples to illustrate participants' perspectives across topics discussed.

Each homeschool environment was coded for amount of structure. Structure was defined as: (a) a predictable schedule, (b) clearly presented expectations, (c) direct provision of instruction, (d) an instructional workspace, (e) multiple opportunities to respond, and (f) performance feedback. Level of structure was categorized by the number of applicable indicators of structure reported by parents, as follows: Low = 0–2; Moderate = 3–4; and High = 5–6.

**Inter-Rater Reliability** The first author reviewed coding definitions for the five established themes and level of structure with a second coder. A second coder coded a randomly selected sample of 40% of the total interview time. Results of the reliability coding revealed an overall percent agreement of 96.99%; domain agreement included: (a) Domain 1: 100%, (b) Domain 2: 98.41%, (c) Domain 3: 90.77%, (d) Domain 4: 86.96%, and (e) Domain 5: 86.44%. Agreement for level of structure was 100%.

**Descriptive Analysis** Descriptive analyses were conducted to examine current homeschool education (e.g., mean hours child receives instruction, mode of who provides instruction). When a participant provided a range of time, the median was used in overall calculations.

## Results

### Decision to Homeschool

The mean grade parents reported beginning to homeschool children with ASD was 4.33 (*Mdn* = 5; mode = 5; range: 1–9). All parents reported beginning to homeschool prior to the start of high school (i.e., grade 9), with eight of nine parents (88.89%) beginning to homeschool prior to the start of middle school (i.e., grade 6). Five parents (55.56%) indicated that their decision to homeschool was part of a long-term process (i.e., several months to years), while the remaining four parents (44.44%) described a particular catalyst event. Catalyst events generally encompassed a compromise in the child's safety and social-emotional well-being and concomitant negative interactions with education professionals (e.g., discovering that problem behavior resulted in child's seclusion). At the time of interview, parents had been homeschooling for a mean of 2.44 years (range: 0–5 years). All participants indicated that the school could not adequately provide an education for their child.

All participants indicated that they consulted outside recourses prior to making the decision to homeschool and/or immediately following their decision. Of the resources mentioned, seven of the nine participants (77.78%) relied on internet resources; six (66.67%) consulted with other parents; five (55.56%) read books; two (22.22%) joined autism groups, in person and online; and two (22.22%) consulted forms of media.

Five themes emerged across homeschool parents regarding reasons cited for their decision to homeschool children with ASD. Themes are ranked by their frequency of mention across parents and within individual participant narratives:

1. Dissatisfaction with educational placement.
2. Negative interactions with education professionals.
3. Social-emotional responses of children to traditional school.
4. Safety of child.
5. Stress placed on the family.

Overall coding is presented in Table 1. From the frequency of the five themes discussed by each participant, the percentage corresponding with each theme was calculated. This analysis controls for external variables that may have affected the interview duration (e.g., time constraints). Themes were rank ordered by the percentage of times each theme was mentioned across all parents. The order of themes for each participant was considered to determine whether the same order was reflected across participants to control for elevations in one domain for select participants that might skew results. In general, when the exact order of themes for a participant was not consistent with the overall order, there was only one substitution in the order (e.g., theme 2 ranked first and theme 1 ranked second). For each theme, the majority of participants corroborated its position in the sequence (e.g., theme 1 ranked first for 8 of 9 participants).

**Dissatisfaction with Educational Placement** From parents' perspectives, dissatisfaction with educational placement encompassed dissatisfaction with the following subthemes: (a) classroom placement, (b) educational program, (c) resources received, (d) implementation of educational placement/program, (e) classroom support, (f) characteristics of school, and (g) characteristics of professionals. For example:

P: He didn't meet the educational guidelines for autism. So he was actually under [Other Health Impaired] and [Emotional Behavior Disorder] and then when the

**Table 1** Percentage and number of times five different themes were mentioned by parents

Child No.	Theme 1	Theme 2	Theme 3	Theme 4	Theme 5
1	44.80 (56)	20.80 (26)	15.20 (19)	10.40 (13)	8.80 (11)
2	37.36 (34)	23.08 (21)	19.78 (18)	16.48 (15)	3.30 (3)
3	30.61 (15)	22.45 (11)	26.53 (13)	14.29 (7)	6.12 (3)
4	31.17 (24)	50.65 (39)	6.49 (5)	5.19 (4)	6.49 (5)
5	29.18 (82)	22.42 (63)	18.15 (51)	19.57 (55)	10.68 (30)
6	46.39 (45)	8.25 (8)	26.80 (26)	6.19 (6)	12.27 (12)
7	51.16 (66)	27.91 (36)	0 (0)	6.20 (8)	14.73 (19)
8	44.00 (33)	22.67 (17)	14.67 (11)	10.67 (8)	8.00 (6)
9	30.38 (48)	25.95 (41)	17.09 (27)	5.06 (8)	21.52 (34)
Total:	38.34 (403)	24.91 (262)	16.08 (170)	10.45 (124)	10.21 (123)

Percentage of overall themes is presented first, with the frequency reported in parentheses

Theme 1 = Dissatisfaction with educational placement; Theme 2 = Negative Interactions with education professionals; Theme 3 = Social-emotional responses of children to traditional school; Theme 4 = Safety of child; Theme 5 = Stress placed on the family



speech thing came up, he was under Speech. He was serviced under three categories of the IDEA and we never got anywhere.

P: I said, “Can you tell me how my son’s education got altered to that point without my knowledge or permission?” because it came out that he was basically spending the majority of the day in the special ed. classroom and his placement was mainstream not special ed.

P: There was no support. There was no one-on-one. There was no anything.

P: I felt like school was a waste of time for him. And I could do so much more in a small enough time than they were doing in 8 h. It’s like, if they’re going to expect me to teach him anyways when he comes home from school, I’ll just keep him home from school. What’s the point?

P: We don’t particularly like what they’re learning in the schools. I don’t like that it’s being taught to the test. I don’t think that they’re developing any kind of critical thinking skills. I think when they are critical, they’re punished for it.

Overall, this sense of dissatisfaction with educational placement was reported by parents as pervasive throughout their child’s education in the traditional educational system. Of note, dissatisfaction with characteristics of the school environment frequently centered around specific transition periods (i.e., middle school and high school) and the increased demands that such a transition would present (e.g., changing classes, use of a locker).

**Negative Interactions with Education Professionals** Participants described a variety of negative interactions with different education professionals (e.g., teachers, paraprofessionals, administrators, school staff). Subthemes of negative interactions with education professionals included: (a) negative educational meetings, (b) battling for services, (c) verbal arguments, and (d) lack of cooperation. For example:

P: We had this IEP meeting with all these people in it and they wouldn’t listen to me. There was like 30 people sitting there. We banged heads with them for hours over every IEP meeting and never got anywhere.

P: They don’t want you to know what your options are. They want you to listen to them and they want you to do what they tell you to do and that’s it.

P: They tried to get out of stuff as much as they could.

P: At a certain point, you just get tired of arguing with the school.

P: I felt like they had met up beforehand and were like, “This is what we’re going to tell her so we don’t have another one on our list.”

P: My experience is that rules will be changed to suit the people and the administration.

P: She just blatantly said in an IEP meeting that, you know, she really didn’t feel comfortable having her in her class.

The negative experiences described by parents were present from early in their child’s education and largely centered around perceived disconnect between parents and professionals. This reported lack of collaboration and consideration of parents’ perspectives was most often noted during educational meetings at which the child’s educational program was determined. Furthermore, parents described these meetings as overwhelming and adversarial in the number of professionals present, the educational jargon used, and the predetermined decisions.



**Social-Emotional Responses of Children to Traditional School** Parents reported concerns regarding the social-emotional responses of their children to traditional school, under the following subthemes: (a) anxiety, (b) depression, (c) need for psychotropic medication, (d) emotional outbursts, (e) diminished self-confidence, and (f) compromised health. For example:

P: At school, what I found out is that the older he gets, the more anxious he gets. He needs more medicine. He's getting more anxious, and the less he's able to do.

P: He used to be a happy kid, but two years in public school like almost destroyed him, I mean really. I've worried about kids like him. You worry about suicidal tendencies.

P: By the end of his 8th grade year he was unhappy as a person. I mean, completely a shift from my very happy easy-go-lucky go with the flow child.

P: They just wanted her to be quiet and they wanted us to give her medicine and to make her sit there like a zombie.

P: So here you've got a kid who has an IQ of 138 who when he puts everything he has into being in that room, he can be in that room. We may see the effects for the next 3 days. He may not sleep or he may not wake up for 3 days but he can do it because he's got it within him to do it.

P: When he's been at school for 8 h and overloaded sensory-wise, he comes home and he just has a meltdown.

Parents reported increasing concerns regarding social-emotional functioning with their child's continuation in the traditional education system. Parents attributed these concerns to the educational environment and described changes in their child's social-emotional functioning, corresponding with increased educational demands and negative peer interactions.

**Safety of Child** Parents' concerns extended to the safety of their child at school or directly related to school. Subthemes regarding safety concerns included: (a) school staff's ability to manage student's behavior, (b) supervision of child, (c) peer victimization, and (d) inappropriate consequences for problem behavior. For example:

P: I want him in school. If I knew that I could take him into school and not take him out in a bodybag, he would be in there.

P: They put him in a lock-up room. A little bitty closet with nothing in it. They put him in there and locked the door.

P: He tried to stab pencils in his legs because he was so frustrated 'cause he couldn't draw something perfect. He couldn't use his words to explain to us.

P: I was worried because of her being a runner that something bad was going to happen.

P: The kids weren't being supervised on the playground, so they were crossing a fairly busy street to get to school. The kids were very callous to each other and she was picked on a little bit.

P: There wasn't a lot of safety. The kids beat up on each other and I found out later that it had become a sort of dumping ground for the kids who weren't making it in the system.

P: There was a lot of manipulation. Then he got in trouble. And all he did was what he was told. He didn't understand what he did wrong.

Parents reported concerns with their child's safety as mounting with increased time in the education system. The safety concerns described were often precipitated by specific events that compromised the child's safety (e.g., elopement from school property, physical fights with peers) and corresponded with a perceived inability or unwillingness of staff to remediate such concerns.

**Stress Placed on the Family** The final theme of stress placed on the family captured stress not directly related to one of the first four themes. Stress on the family included the following subthemes: (a) frequency of school visits, (b) frequency of communication with school, (c) completing schoolwork with child, (d) need to contact district level professionals, (e) considering of legal avenues, (f) general sense of frustration, (g) need for persistence, and (h) disruption in routine. For example:

P: I am scared to death actually about him being in school.

P: They called me a lot, probably about three times a week, to come and get her or sometimes to ask questions.

P: I just got to where I was... every day I would drop him off and kind of dread the phone ringing.

P: I'm doing the homework with my son. I'm spending so much time at the school. It's a whole other fulltime job between the IEP, then seeing that the IEP is being instituted, the meds.

P: Sixth grade wore me out. Time to get him settled at [school] and dealing with the teachers and I would check his grades like every day and, you know, what is this that's missing, what is this that's missing, and it just wore me out.

P: It was unbelievable stress. It was every night trying to fight. I mean, to get her to do this work. This homework. I mean, kindergarten they had homework. She'd be in tears. By the end of the night, I'd be in tears and frustrated. Frustrated with her and frustrated with the school.

Parents reported high stress levels throughout their child's education in the traditional education system. Overall, parents described the sheer amount of time spent surrounding their child's education, whether through the need to be at the school or communicating with the school, working directly with their child, or due to the time spent advocating for their child's education as a greater response effort than taking their child out of school to homeschool.

### Education Provided by Parents

The philosophy of unschooling was reported as an educational approach by five of nine parents (55.56%) homeschooling children with ASD. Parents reported varying degrees of unschooling, ranging from their entire education program to an approach employed several days per week. For example, a parent described her unschool approach:

P: We did absolutely nothing. We went and we played. Or we watched cartoons or we went to see a movie or we went to Goodwill or we colored or just whatever she wanted to do we did. We didn't have any curriculum. We didn't read, unless it was something she wanted to do. We went to the aquarium.

The majority of the homeschool learning environments were characterized as having only low to moderate structure (i.e., six of nine; 66.67%). Homeschooling parents reported that their child with ASD received instruction from 0.8 to 8.4 h per day ( $M = 4$  h per day; range: 4–42 h per week). Of these homeschool programs, five of nine (55.56%) did not meet the minimum state requirement of 4.5 h of instruction per day and six of nine children (66.67%) did not receive instruction in all required content areas. The majority of families (i.e., eight of nine; 88.89%) relied on an outside individual with teaching credentials to provide some part of the homeschool programming. See Table 2 for homeschool programming information.

Parents provided a range of social activities for their children (e.g., scouts, youth group, sports, art classes). Children participated in social activities for a mean of 2.56 h per week (range = 0–7 h). Four of the nine children (44.44%) received what parents described as ancillary services (i.e., talk therapy, occupational therapy, physical therapy, speech therapy, and massage therapy).

## Reported Benefits and Challenges

Parents reported a variety of benefits that homeschooling provided to their child and family, related to each of the identified themes for their decision to homeschool. For example:

P: We enrolled him in two of these high school classes and suddenly he's getting the intellectual stimulation which he loves, but he's not required to socially fit in with a group of kids.

P: It's completely individualized and he has total attention. If he was in a classroom with 40 other kids, 30 other kids, 20 other kids, he wouldn't get what he's getting.

P: I would say his social emotional growth that first year was huge.

P: She opened up. She was calm, she wasn't constantly in a state of anxiety. She was just happy. She was happy, like she was in the summertime.

P: They don't go to school every day and have to deal with the racial slurs and have to deal with people making fun of them because they're different or strange.

P: It's like he's the same, but he's like a different kid. He's not so stressed out because he's not so confused.

P: I would say that was the biggest change when we pulled her out... like it changed the dynamic of our family. It changed [sibling]'s life. It changed our lives. It wasn't a battle every night. It wasn't stress every night.

Parents also reported a variety of challenges to homeschooling and areas where support was needed (Table 3). For example:

P: I'm not a teacher. I don't know what the heck I'm doing.

P: I'm mommy and I'm 24–7.

**Table 2** Homeschool programming

Child No.	Homeschool method	Level of structure	No. of Hr. instruction/week	No. of Hr. instruction/day	Subjects	Curriculum used	Who provides homeschool instruction
1	In-home instruction	Low	42	8.4	Life skills	None	Mother
3	Unschool/Online Academy	Moderate	12	2.4	Math, science	Math U-See; online classes	Teacher/Mother
3	Unschool/Online Academy	Moderate	12	2.4	Math, history	Math U-See; online classes	Teacher/Mother
4	Unschool	Low	22.5	4.5	Math	Math U-See	Teacher/Mother/Babysitter
5	Specialized school	High	22.5	4.5	Math, reading, LA, science, history	Calvert	Special education teacher
6	Specialized school	High	19	3.8	Math, reading, LA, science, history	Calvert	Special education teacher
7	In-home ABA	High	40	8	Math, reading, LA, science, history	Lindamood Bell	Special education teacher/Child's older brother
8	Unschool	Low	6	1.2	History, math	None	Teacher/Mother
9	Unschool	Low	4	0.8	Math	Math U-See	Teacher

*ABA Applied Behavior Analysis; LA Language arts*

Math-U-See is a K-12 mastery-based math curriculum for homeschool and small groups. Calvert is an accredited K-9 homeschool curriculum with daily lesson plans combining textbook and online learning. Lindamood-Bell is a learning program for children and adults that focuses on assessing and improving the underlying skills of reading

**Table 3** Challenges of homeschooling and resources needed

Child No.	Homeschool groups	Benefit from parent training	Challenges to homeschooling	Resources needed	Plans to put back in school
1	No	Yes	Lack of teaching experience/knowledge of benchmarks; limited social opportunities; finances	Autism services; knowledge of benchmarks/standardized testing	Maybe
2	Yes	Yes	Online teachers not understanding child's disability	None specified	No
3	Yes	Yes	Lack of teaching experience; increased stress, time constraints	Behavioral therapy	No
4	No	Yes	Finances; ensuring child's compliance; time constraints	Explanation of laws; coaching how to keep on grade level; Secular homeschool group; homeschool group for children with disabilities	Yes
5	No	Yes	Finances; increased stress	Social skills training	No
6	No	Yes	Social opportunities; finances	Social skills training	No
7	No	No	Staffing education program; burnout; mother-teacher boundary; increased stress	Social skills training	Maybe
8	Yes	No	Time constraints	Public schools funded specials/therapy, "community bridge" between homeschool parents-teachers, "parent mentors" for homeschoolers	No
9	Yes	No	Finances; giving up career	Parent group of homeschooling high functioning children; professionals to consult	No

P: I don't know how to do those standard testings. I don't know how to know if I'm even coming anywhere near the mark.

P: The world 'aint bubble wrapped. And home is the safe zone. So home is bubble wrapped. And the world's not.

P: The stress level for me has increased because I work Saturday and Sunday 12 h shifts and then I do this during the week. I have no time for myself. I have no life.

P: You know, because I have to make it work because I'm the teacher now. You know, even though he still goes to a school there's hours that I have to make up the difference for what's required by law and um so it's kind of daunting.

P: Really my drawback to homeschool is not really having social skills, you know, having social problems anyway, he's not getting the normal kid social. That's probably the area he's lacking the most is having like normal social setting kind of stuff because he doesn't really get that anywhere.

One salient concern expressed by parents, particularly those providing the home instruction, was their child's on-task time and independent work completion. Parents, especially those employed from home, indicated that they were unable to engage in their own tasks due to the need for continuously prompting their child to remain on-task. The following were noted as areas where parents needed assistance: (a) information regarding applicable laws, benchmarks, and standardized testing; (b) additional services (e.g., autism services, behavioral therapy, social skills training); (c) parent support (e.g., parent groups, parent mentors); (d) professionals with whom to consult; and (e) a collaborative partnership between parents and traditional school professionals.

Considering the longitudinal possibility of homeschooling, 66.67% of parents indicated that they are not currently considering having their child return to the traditional school; 22.22% said that they may consider returning to traditional school; and one parent had plans for her child to return to school.

## Discussion

The overarching goal of this study was to initiate systematic inquiry into homeschooling children with ASD to guide implementation of evidence-based practice, both within the traditional education system and within homeschools. Overall, five themes emerged from participant narratives regarding reasons parents provide for their decision to homeschool children with ASD. Results showed that parents are largely not implementing evidence-based practices or are utilizing methods that do not adhere to best practice standards for educating children with ASD. The majority of homeschool programming described did not meet the minimum educational requirements of amount of instruction per day and content areas covered.

### Implications for Practice within Traditional Schools

Results indicate clear areas where education professionals can improve service delivery for families of children with ASD. As parents express dissatisfaction with educational placement and negative school interactions beginning in early elementary school, efforts should be directed to ameliorating these concerns from the outset.

Consultation and collaboration with parents of children with ASD, coinciding with initial educational concerns, has the potential to foster positive relationships and education more closely aligned with parents' expectations and ensure that socially significant objectives are identified that teachers are likely to implement.

Despite the increasing number of children identified with ASD, there is a national shortage of professionals trained in evidence-based intervention (Croen et al. 2002) which speaks to the need to incorporate academic and behavioral intervention coursework into education training programs and for trained professionals to work more closely with teachers. To address parents' concerns with the social-emotional functioning of their child, schools may have trained professionals work with educators to recognize symptoms of social-emotional difficulties and to develop intervention plans. To address safety concerns, educators may work with parents to create a behavior plan to appropriately manage problem behavior, educate peers on ASD, and implement anti-bullying programming.

Parenting a child with a disability is accompanied by added stresses within the home environment. Additional requirements will be necessary related to a child's education, such as educational meetings and additional homework support. When coding parents' concerns with their child's education, we only coded stress when it did not directly relate to one of the four areas. As such, stress is likely a more salient concern than is reflected by its rank of fifth in the themes. If issues in these aforementioned areas are remediated, stress will likely simultaneously decrease. Schools should be vigilant of parental stress and consider support options for families and siblings to manage stress.

### Implications for Homeschool Programming

Professionals have the ability to impact homeschooling practice from two different perspectives: consulting with parents as they make the decision to homeschool and assisting homeschool parents to implement evidence-based practices. Training parents to deliver educational interventions has the potential for improved academic and behavioral outcomes. Research suggests that children often receive services or interventions are implemented in the home that lack an established empirical basis (Green et al. 2006), which was reflected in this study. Not only is collaboration with the family important to ensure that parents are informed of evidence-based practice, but to increase their confidence in education provision.

Results indicate that the majority of parents are implementing educational strategies that lack an empirical basis or directly contradict best practices for educating children with ASD. The number of parents subscribing to the philosophy of unschooling is concerning given its lack of structure and inherent lack of instructional opportunities. Furthermore, one parent equated homeschooling with naturalistic teaching, citing evidence of its effectiveness. Although research supports the efficacy of naturalistic teaching (Wong et al. 2014), this empirically supported strategy fundamentally differs from the unschooling approach. Professionals should keep this distinction in mind should this misconception arise from other homeschooling parents.

Cited concerns for homeschooled students with special needs (i.e., limited opportunities for socialization and lack of adequate teacher training; Duvall et al. 1997) are relevant for the ASD population sampled here. Based upon the present study, homeschooled children with ASD appear to have limited opportunities for social



interaction within their current programming and several parents reported increasing social opportunities and developing social skills as current needs. Professionals may work with parents to identify appropriate social opportunities.

Interestingly, only one of the nine parents delivered all home instruction to their child. The decision to seek out teachers to provide programming, whether at a specialized school, physical unschool, or through online classes may be explained by parents' lack of teaching experience or the difficulty of addressing the unique educational needs of a child with ASD. Furthermore, the one parent who indicated plans for her child to return to school noted financial concerns as the impetus for the decision. Consultation with parents, including training in intervention strategies and information regarding evidence-based strategies has the potential to provide parents with the tools and guidance to deliver more effective instruction within the home, thereby decreasing the financial burden of employing outside educators.

The majority of participants included in this study were diagnosed with Asperger's Disorder. Although results are based on a small sample size, this finding might suggest that parents are more likely to homeschool a higher functioning child with ASD, due to the ability to manage educational needs outside of the school environment.

### Limitations and Directions for Future Research

Due to the heterogeneity of the population of homeschooled children with ASD and the likelihood that not all homeschooling families register with local governments or school boards, a random sample is unlikely to be obtained. Conclusions are also based on a small sample size and are limited to a single state, thereby affecting generalization. Quantification of reasons parents choose to homeschool should be conducted through survey methodology disseminated nationally. A nationally representative sample will also allow for more definitive characterization of homeschooled children with ASD (e.g., level of functioning).

In addition, this study only presents the results of interviews with parents currently homeschooling; other parents of children with ASD may have similar negative experiences, but choose not to homeschool due to other variables. Future studies should compare the educational experiences of families homeschooling and families whose children with ASD attend traditional school to determine if a statistically significant difference in experiences exists and/or to identify variables that prevent families from homeschooling.

Furthermore, inclusion in this study relied on parents' self-report of their child's diagnostic information; no assessment was conducted to confirm the veracity of each child presenting with ASD. Perhaps the most significant limitation is that information regarding educational experiences and current educational practices is subject to parents' perceptions rather than systematic observation. Future research should directly observe homeschool environments to determine amount of evidence-based practice being implemented. Finally, this study focuses on current homeschool practices and does not address outcomes for this group. Future studies should longitudinally follow families and determine academic outcomes.

In summary, results of this study may provide education professionals with insight into areas that could be remediated to increase parents' trust in the education system and topics to address in consulting with parents making the decision to homeschool children with ASD.

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## Compliance with Ethical Standards

**Ethical Approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Informed Consent** Informed consent was obtained from all individual participants included in the study.

**Conflict of Interest** The authors declare that they have no conflict of interest.

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