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## Mothers' Reflections on Cat Ownership for a Child with Autism Spectrum Disorder During COVID-19

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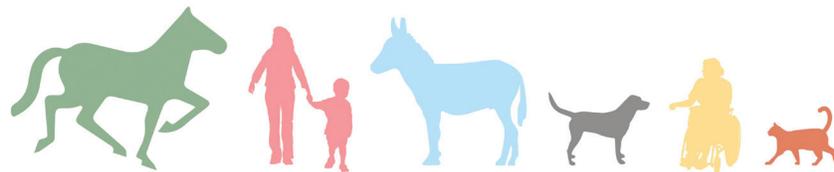
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### **Cover Page Footnote**

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## Mothers' Reflections on Cat Ownership for a Child with Autism Spectrum Disorder During COVID-19

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**Keywords:** autism spectrum disorder, children, cat ownership, mothers, COVID-19

**Abstract:** Animal-assisted interventions are increasingly used as a complementary therapy in clinical practice to support people with autism spectrum disorder (ASD), with promising outcomes compared to traditional therapies. Less is understood about the therapeutic benefits of more accessible and affordable small pet ownership for families with a child with ASD, alongside the pets' welfare living in these homes. This study explored the experiences of cat ownership for young people with ASD from the perspective of their mothers during a time of transition generated by COVID-19. Semi-structured interviews were conducted with six mothers and transcripts analyzed using reflexive thematic analysis. Three themes were identified: "Sensory benefits with heightened emotions," "Special bond between cat and child," and "Learning through the relationship." The results highlighted how cat ownership benefited cat and child, encouraging empathy and responsibility skills in children with ASD through the development of a reciprocated relationship between child and cat, while also providing a nurturing home environment for the cats in this study. The relationship and physical presence of each other provided sensory stimulation, a calming influence, and companionship for the children. In conclusion, cats with a sociable and easygoing temperament demonstrated multiple therapeutic benefits for children with ASD and should be considered as an accessible complementary home-based therapy for caregivers who are able to offer a nurturing home to a cat. Cats have the potential to play an important role in a family's life, particularly for parents managing additional demands and whose children experience sensory overload while outside. Given the importance of cat ownership for children with ASD in this study, this could enhance engagement with clinical practitioners through a shared cat-focused dialogue benefiting the wider development and well-being of children with ASD and their families.

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Autism spectrum disorder (ASD) is characterized by social communication difficulties and by repetitive behaviors and interests (American Psychiatric Association, 2013). Individuals with ASD may become distressed by routine changes and transitions (Makin et al., 2017), and be under- or overly sensitive to sensory stimuli triggering sensory overload and distress (Ben-Sasson et al., 2009). Such difficulties can mean those with ASD have poorer relationship quality and fewer friends (Orsmond et al., 2004), and lower than expected educational outcomes in school (Goodall, 2019). Further, adolescents with higher intellectual functioning and ASD are often more aware of their social difficulties, increasing risks of depression and loneliness (Locke et al., 2010; Lopata et al., 2010; Strang et al., 2012).

Consequently, compared to mothers of typically developing children, mothers of children with ASD have higher stress, anxiety, depression, and fatigue levels and lower parenting efficacy and satisfaction levels (Giallo et al., 2013). They also have significantly higher stress levels compared to mothers parenting a child with an intellectual disability or learning disorder, necessitating the recommendation for preventive programs to decrease their stress levels (Alamdarloo & Majidi, 2022).

One way of accessing support for parents of a child with ASD has been via child-focused traditional therapies, yet from the perspective of individuals with ASD these appear to have lower efficacy levels (Weston et al., 2016) compared to these interventions with typically developing peers (Ishikawa et al., 2007). Given that positive outcomes may arise from the nonjudgmental and calming nature of animals, this makes them beneficial for those with ASD who struggle with social difficulties (Kruger & Serpell, 2010). Spurred on by an emerging evidence base where symptoms of ASD improve after participation in human-animal interactions (Siewertsen et al., 2015), parents and carers of children with ASD increasingly utilize animal-assisted interventions (AAI) (O'Haire, 2013), with AAI becoming a core evidence-based practice for ASD (O'Haire, 2017).

These interventions often occur outside of the home with a few select species. For example, dogs

promote a relaxed environment in clinic-based AAI, reducing stress and anxiety (Berry et al., 2013); and horse-riding interventions reduce ASD symptoms and hyperactivity (Harris & Williams, 2017). Interestingly, generalizations have been noted from the clinic to the home, with horse-riding interventions improving caring behaviors toward home-based family pets (Petty et al., 2017). Yet the size and costs of upkeep for larger animals limits access, and more research is needed on the benefits of small pet ownership. Given that some generalization in learning can occur for children with ASD between places, activities, and people (Carruthers et al., 2020), perhaps there is scope in generalizing positive benefits from the home to external settings for children with ASD whose family already owns a pet cat.

While research on small animal-human interactions in wider contexts is still limited, evidence suggests benefits in home-based strategies through pet ownership (Carlisle, 2015; Carlisle et al., 2021) and companion animals such as dogs and cats (Byström & Persson, 2015). Most of this research has focused on dogs, with children with ASD forming attachment bonds with their pet dog, potentially improving social skills (Carlisle, 2015). Other research has looked at small pet ownership generically or in terms of companion animals, rather than specifically at cat ownership. For example, parental views suggest companion animals can contribute to social and behavioral development, improve mental health, and enhance quality of life for children with ASD, with activities with companion animals being more social and of a different quality from the restricted and repetitive activities their child normally engages in (Byström & Persson, 2015). Further, the introduction of a pet triggers significant improvement in prosocial behavior in families with a child with ASD, possibly through the encouragement of family interactions (Grandgeorge et al., 2012), and pet ownership can reduce depressive symptoms in adolescents with ASD, especially for those who take more responsibility in caring for their pets (Ward et al., 2017).

Despite the finding that cats were the second most common companion animal in homes of children with ASD, an earlier focus was on dog ownership;

this was also one of the few studies that considered the welfare of the animals (Carlisle, 2015). While dogs may be more interactive, they also require more care compared to smaller animals, thus, cats may be more compatible for children with ASD who experience hypersensitivity to sound (Carlisle et al., 2021). The few studies focusing on cat ownership in ASD show positive influences for children with ASD, with cats calming them and being a soothing protector (Hart et al., 2018), particularly adopted cats with a calm temperament (Carlisle et al., 2021). Importantly, benefits of owning a cat extend to parents, who experience less stress (Carlisle et al., 2021).

Positive benefits of cat ownership may be particularly pertinent during times of transition, which can negatively impact children with ASD and their parents (Makin et al., 2017). The COVID-19 pandemic has resulted in frequent school closures in the United Kingdom (UK) and multiple transitions impacting the well-being of children with ASD, with repeated readjustments to learning environments and restrictions in activities (Ofsted, 2020). Consequently, options for indirect interventions through cat ownership that bridge the gap between home and external settings may be beneficial for children with ASD and their parents.

Given these promising findings, to gain a more nuanced understanding, this study aimed to conduct one of the first qualitative studies on mothers' perspectives of cat ownership for a child with ASD during a period of transition. The consideration of the cats' welfare within these studies has been more limited, thus, this study also aimed to directly consider this within the interviews.

## Method

### *Design and Materials*

As this was an exploratory study, the researchers opted for a qualitative thematic analysis (TA) to explore the common themes of cat ownership within the experiences of mothers of children with ASD (Braun & Clarke, 2006, 2019).

An interview schedule was devised and refined through consultation with the research team and a parent with lived experiences. Questions included the following:

1. How does your child interact with your cat and what is their relationship like?
2. How has your child's relationship or attitude with your cat changed over the time you have had your cat?
3. In what ways has owning a cat helped or not helped your child?
4. Have you experienced any changes in routine due to the COVID-19 pandemic and how has this affected your child?
5. Are there any concerns or worries that you have about your cat's well-being?

### *Participants*

Criteria for inclusion in the study were caring for a child with a diagnosis of ASD and owning a cat for at least 1 year. A purposive sample of seven participants responded to advertisements on Facebook support pages for parents/carers of children with ASD; only mothers responded, all of whom met the inclusion criteria. Six mothers were recruited, and demographic information was obtained (Table 1).

Interviews were conducted by the second author during the COVID-19 pandemic and under social distancing rules; therefore, semi-structured interviews were video recorded via an online platform. Interview length ranged between 15 and 55 minutes (mean = 33.2; SD = 14.6). On completion, participants were thanked for their time and given a debrief sheet explaining the nature of the study, sources of support, and contact details.

### *Ethics*

Ethical approval was granted by the institution's ethics committee (protocol number: LMS/PGT/UH/04166). Participants received a participant information sheet and signed a consent form informing them how interviews would be conducted, data

Table 1. Participant Demographic Information

Participant	Age	Occupation	Marital Status	Other Type of Pets Currently Owned	Cat's Temperament***	Cat's Known Carers and Care Routine	Approx. Age of Cat and Length of Time Owned Cat*** (years)	Age of Child	Diagnosis*	Gender of Child
Cath	31	Midday supervisor at primary school	Married, cohabiting, civil partnership	Yes—ferrets, turtles, snakes, geckos Another cat (approx. age: 4.5)—timid, shy, and unfriendly	Sociable, confident, easygoing	Parents take responsibility for cats' care routine; son with ASD notices cat's needs, cat sleeps with him	8	12	ASD, attention deficit hyperactivity disorder (ADHD)	Male
Jen	41	Carer	Divorced	No Two other cats (ages not known)	Sociable, confident, easygoing	Son with ASD does bedtime routine, plays with cat, helps feed cat, changes water	4	11	ASD, ADHD, Tourette's, epilepsy, sensory processing disorder	Male
Bella	40	Civil servant	Married, cohabiting, civil partnership	No Another cat (approx. age: 3)	Sociable, confident, easygoing	All members of family care for cats; son with ASD helps feed and brushes cat, notices cat's needs	9	12	ASD	Male

Isla	37	Teaching assistant	Divorced	No	Sociable, confident, easygoing	Son with ASD helps feed cat, gives treats, cat sleeps with him	13 **	5	ASD and global development delay	Male
Liz	39	Carer	Married	No	Sociable, confident, easygoing	All members of family care for cats; son with ASD/epilepsy helps feed cat and changes water	16 **	11	ASD, epilepsy; NB have 3 other children with ASD (ages 20, 18, & 15)	Male
Ellen	40	Health care assistant	Married	No	Three other cats (approx. ages: 14, 12, 11)—one is sociable, confident, easygoing; one is sociable, playful, mischievous; one is antisocial with 2 of the cats but easygoing and sociable with child	Sociable, confident, easygoing, docile, and loving	3	9	ASD	Female

\*ASD diagnosed by a health care professional

\*\* Owned cat(s) before child was born

\*\*\* Cat(s) the child interacts with

stored, confidentiality maintained, and data used in a publication. Interviews were recorded, downloaded immediately, saved under a unique code, and pseudonyms were applied. Following transcription, video recordings were deleted.

### *Data Analysis*

Reflexive TA provides a well-defined explanation of the process of exploring underlying assumptions, issues and ideas, and surface-level meanings; data were analyzed by the second author through reflexive discussions with the first author (Braun & Clarke, 2006, 2019). The analysis involved familiarization with the data, multiple reading and noting initial ideas; the systematic generation of initial codes; collating codes into potential themes; checking and reviewing the themes with coded extracts and with the entire data set; clearly defining and naming themes; and producing the final paper by selecting extracts and linking these back to the research question and literature. To reduce bias, no theories were selected to drive the coding process; instead a flexible, inductive approach was implemented, enabling concepts to emerge from the data (Braun & Clarke, 2006, 2019). Multiple codes were used to ensure themes were representative of the transcripts, alongside quotes drawn from across all transcripts that were representative of the themes. To further ensure credibility, quality criteria were applied (O'Brien et al., 2014; Treharne & Riggs, 2015). This included reflexive discussions throughout the analysis between first and

second authors, research team discussions, consultations with an AAI therapist and parents with lived experiences, and member checking. Thus, once themes were established, all mothers were asked if they were representative of their experiences, with no changes requested. Through this reflective process and triangulation, agreement was met on the thematic structure and quotes used in the paper.

### **Results**

Analysis of six semi-structured interviews resulted in three master themes: “Sensory benefits with heightened emotions”; “Special bond between cat and child”; and “Learning through the relationship” (Table 2).

#### *Sensory Benefits with Heightened Emotions*

This theme encapsulated the heightened emotions and distress the children experienced in the context of their ASD, the exacerbation of anxiety from the global lockdown during COVID-19, and children’s comfort seeking toward their cat. Mothers often specifically noted anxiety or anger as examples of these heightened emotions, also using terms to describe behaviors or responses surrounding this, such as having a “meltdown,” “crying,” “sobbing,” or being “upset,” “heartbroken,” or “frustrated.” Sometimes

**Table 2.** Main Themes and Subthemes

Main Themes	Subthemes
Sensory benefits with heightened emotions	Changes due to COVID-19 lockdown
	Sensory seeking and managing distress
Special bond between cat and child	Developing a unique relationship over time
	“What happens if . . .”: In tune and concern for cat’s well-being
Learning through the relationship	A sense of responsibility
	Generalizing empathy and consideration

it was described as having a “bad day” or needing to “calm down.”

**Changes due to COVID-19 Lockdown** Mothers were already managing ASD-related issues, which, for some, factored into the decision around cat ownership. Jen stated: “It’s about the ASD so if you’ve got a child that doesn’t want to leave the house, there’s no point having a dog.”

Yet, with the global lockdown from COVID-19, all participants experienced additional changes. For some families this heightened anxiety and distress in their children. For example, Ellen described how changes in routines impacted her daughter:

I think it’s affected quite a bit because there’s not the full-time schooling, the routines up in the air, and it’s affected her world really, isn’t it? Which makes her a bit anxious and a bit cross.

For Bella the context of health and protection induced panic and worries for her child during lockdown around contracting and dying from COVID-19:

High anxiety levels, and we’ve had to seek medical help and advice three times because he really wasn’t coping . . . We try and go for walks . . . and then halfway around, he starts panicking and thinks he’s dying.

Thus, even basic tasks or tasks designed to help manage stress became challenging, resulting in repeatedly seeking additional support. Mothers noted that the comfort derived from their cats grounded their child during this time. For example, Ellen stated:

We’re at home a lot doing home schooling, but I find the cat kind of grounds her a bit like, you know, as a home thing, as a comfort thing.

It was notable that cats were easier to care for. Bella stated: “When you’ve got children, it’s a busy household, and cats are a lot easier to care for.” Participants repeatedly used terms such as “consistent,”

“calming,” and “comfort” to describe the effect their cat had on their children. For example, Isla stated:

Having the cats there was his consistency. You know, suddenly his school’s not there and he’s not going into school every day. But he’s got his cat.

Cath felt the cats played a significant role during the pandemic:

The cats have definitely played a huge role during the pandemic in, firstly, calming him and secondly, kind of helping with the sleep.

**Sensory Seeking and Managing Distress** Many participants spoke about the calming emotional benefits their cat provided during times of emotional distress, and times when their children engaged in sensory-seeking behavior toward their cat. Jen stated:

Well, I think it’s the sensory side. You know, they have got very soft fur, and they purr. They like the sound. So, I think it’s very much about that as well. And I don’t know, it must release something that when you stroke it, it’s just, all is calm.

In addition to the sensation of the cat’s fur, the stroking sensations, warmth, and purring sounds were key calming tools highlighted by Bella:

She’ll just lay there and be stroked, you know, the stroking sensation, and the noise, you know, the purring and the warmth. . . . Yeah, cats are quite, quite calming.

Similarly, Ellen highlighted the calming influence of the cat on difficult days:

I think she helps, like, calm her down. When [daughter’s name] is having a bad day, she will go sit with the cat on the bed and they have a little calm down time. She likes the feeling of her fur and it makes her feel calmer.

In addition to stroking and listening to purring, some participants found just the mere presence of their cat had a calming effect on their child. Cath noted:

If he's laying in bed and the cat is on the bed, that's when he steadies, that's when he kind of slows it down. . . . It's just like the calming effects of being in close proximity to the cat. I have no idea why. It's just connections.

Jen highlighted that the cat provided "reassurance and comfort," which was "very therapeutic." It had a reassuring reliability. Bella stated:

I think the cat has helped in the fact that she's always there and constant, and he knows that if you need comfort, then she will provide that for him.

The children seemed to see the cats as a form of comfort, which they used to manage emotional distress. Cath hypothesized: "I do think there's correlation between his anxiety and how much he seeks out the cats." This calming effect seemed to enable communication and resolution for these heightened emotions. Cath stated:

One time he had a meltdown and he was frustrated, he was crying. He was angry as well . . . and he went up to his room. . . . When I came to check on him, he was just calming himself down stroking the cat. . . . [It] would have escalated further if he hadn't had the cat there. . . . The cat kind of brings him down, he kind of gets to a level where he can communicate about it. So it kind of helps the resolution in the end.

Their cat would actively participate in this provision of support, which other participants articulated. For example, Liz stated that her son

has epilepsy and same type of thing when he seems to have a seizure, or he's not had a very good day, she'll stay near him.

Descriptions of cats approaching the children during times of emotional distress were also expressed by Bella:

If she hears he's upset, she will seek him out, and if he calls her, she actually talks to him. . . . She actually sort of answers him back.

Such occurrences seemed common among participants; the bond seemed so strong that verbal utterances formed a part of their shared connection and communication. The constant communication seemed to strengthen the bond between child and cat, which was reciprocated by the cat when the child was emotionally distressed, as Bella highlighted:

If he was having a meltdown, or crying, she would talk to him and then she'd go up to him and nuzzle him and play with him. And would calm him down and even now, he's . . . nearly 13, if he's feeling insecure or having a moment, he will seek out this particular cat. And she will just happily lie with him.

### *Special Bond Between Child and Cat*

Extending the previous theme further, almost all the participants spoke about a special and unique bond between their cat and their child, which developed and grew over time.

### **Developing a Unique Relationship Over Time**

There were qualities about the bond between their child with ASD and their cat, which differed from others' relationships, that mothers highlighted as special and unique. They often felt their cat interacted with their child differently from its interactions with others. Cath stated:

It's the weirdest thing the cats put up with [son's] quirks so much more than other people. You know, like, if I kept picking up the cat, she would avoid me. . . . They're really tolerant.

Similarly, Liz noted her cat seemed more tolerant of behaviors from her child with ASD that it would not tolerate from others:

[Son's name] can do whatever he wants to [cat's name], stroke her, pick her up, push her ears down, and waggle her tail around, and pick her up quite uncomfortably probably for her, but then [cat's name] will let him do it. But if it's me or [son's] dad . . . it's a case of, why are you touching me for?

Mothers mentioned that their children's relationship with their cat developed over time. It was common for the children to be less interested in the cats when they were first introduced to the family, forming a bond later, as Cath highlighted:

At the start, he was kind of too young. . . . It was kind of . . . he liked the cats but it was toys, videos, dinosaurs, walks, everything else. Now . . . cats are the main focus.

Similarly, Liz noted this development and focus with her children:

They loved playing with the cats, but I think there were often something more interesting to do. . . . As they've got older, they've become more and more interested in the cats than they were before.

Bella saw the quality of the bond enhance over time, involving love, protectiveness, and appreciation:

It's just he's grown more and more to love her and he's very protective of her as well. . . . I say he's growing more to really appreciate her.

Thus, it appeared that many of the children developed a strong bond with their cats over time.

**Attachment to the Cat** Many participants noted their child's strong attachment toward their cat. This was expressed in multiple ways, such as needing the cat with them at certain times, or the fear of losing them. Cath stated:

It's mainly at bedtime. He can't settle if he doesn't have a cat. We'll say to him, if you get out of bed one more time, you're going to lose the PlayStation. And then if he hears the cat meowing or he hasn't got a cat he will risk losing technology privileges to come get a cat.

For Cath, her son's need to be with the cat was so strong, he was unable to go to bed alone, even with the prospect of losing favorite privileges. This strong attachment was intensified with the increased dialogues around germs during the COVID-19 pandemic:

He was very much like "oh my god, you can't go out, you can't help COVID, you'll catch it, what happens if I catch it, you smoke, you're gonna . . . you're gonna die," and he was woosh straight up . . . that his sleep has been still really impacted, and I don't know if it's just bad routine or anxiety, but the cats have definitely played a huge role during the pandemic in firstly calming him, and secondly, kind of helping with the sleep.

The impact of loss was a prominent theme for some children. For example, Cath's son had experienced the death of a cat and would reminisce:

He kept kind of talking about him, he kept crying about him, and kind of went through that grieving process quite slowly. And then, you know, like, even now he'll just randomly say . . . "Do you remember when [cat's name] used to do this?"

The strong attachment the children had formed with their cats was evident across all mothers' descriptions.

**"What happens if . . .": In Tune and Concern for the Cat's Well-Being** Many of the participants expressed how their children frequently worried about their cats' well-being, heightening their awareness of their cat's needs, as noted by Bella:

If he thinks there's anything wrong with her at all, he's straight in to say, "She's not eating this or she's not doing that," and he worries. . . . He's

very in tune with her, he'd pick up on things that I wouldn't really pick up on.

It also appeared the children were often more in tune with their cats than others were, suggesting a real empathic capacity. Similarly, Cath stated:

If they're outside and he's going to bed he freaks out, he's like, you know, you need to let them in, what happens if it rains, what happens if they want to get in. He gets fixated on the idea of them being out in the cold or out in the rain and he can't kind of let that go.

Clearly, their children could have strong reactions to their cat's potential unmet needs.

### *Learning Through the Relationship*

This theme touches on the learning aspects participants experienced through owning a cat. All participants spoke about skills their children developed such as responsibility, empathy, and consideration.

**A Sense of Responsibility** Almost all participants felt that owning a cat had helped their child learn responsibility, becoming aware of their cat's needs and how to care for them. Jen noted that her child extended consideration away from their own needs toward another's:

I think it's given him a proper pet responsibility. . . . So I think it's made him think about actually, it's not just about what I want to do, it's about them as well.

Correspondingly, Cath explained her child became more responsible for the cat's health and well-being, showing concern and initiative when their cat was injured:

He kind of understands the responsibility of cat ownership. . . . [cat's name] came in and she had been through a spiky bush. She had some spikes stuck in her fur and he was like, you need to get that out.

It seemed one of the most common ways the children assisted was through feeding their cat; for example, as Jen explained:

If I'm on a meeting, and it's the cat's feeding time, I can say [son], can you go and feed the cats, and he'll get out a pouch each and he'll feed them.

It was often mentioned that the participants' children were involved in the care of their cats. Furthermore, Ellen also spoke of how her child had learned to feed their cat and through this learned about healthy eating:

I think she's learned more about how to look after her and that she's got to feed her. And she can't have treats all day long, she needs to eat healthy food.

**Generalizing Empathy and Consideration** All the participants mentioned that owning a cat had encouraged their children to be more considerate and empathic. Isla emphatically noted:

It's definitely taught him kindness; it's taught him to share. It's definitely taught him to share because he's thinking of the cat, he's thinking I've got to give the cat something.

Sometimes the inability to think of others was perceived to be selfish; thus, having a cat seemed to be a safe way of enabling Ellen's daughter to learn to put someone else's needs before her own:

When you have ASD you can be quite selfish. I think that's good because it makes her less selfish. It helped [her in] understanding someone else's needs before your own.

In contrast, Cath noted her son had a connection with all animals, which was highly empathic, and this helped him to understand his own internal experiences:

He just really connects with animals from horses, dogs, cats, even like degus and stuff. . . . He

empathizes with the animal and then kind of . . . he puts the animal's experience into his own.

This learning transferred beyond the family home into taking care of and wanting to understand the pets of others and how to approach them appropriately. Jen noted:

My friend recently got a dog. And when he went round there, he was saying, "Does he like to be stroked? Does he like this?" So, I think having his own pet, even though that was a dog and completely different, it didn't matter, because he thought to ask, "Does he like that?"

In contrast, despite direct exploration around any concerns about their cats' well-being, mothers were overwhelming positive about the benefits for their cat and their child. For these mothers, caretaking routines for their cat(s) were often a family endeavor, and while their children gained companionship and comfort, mothers and children forefronted their cat's needs, which sometimes generalized to other caring relationships. For example, Cath stated:

If there's a thunderstorm, he's got to make sure they're safe. He'll keep bugging me, "Have the cats been fed yet? Have the cats been fed yet? We've fed the cats; it's dinnertime for them." So it's that kind of care for someone else, something else, you know, another living thing, and that definitely developed because of them.

## Discussion

Mothers highlighted many benefits from their cat ownership for children with ASD, which supported their child when they had heightened emotions, such as anxiety, especially during the COVID-19 lockdown. Indeed, a perceived benefit of cat ownership was its calming effect on their children. It is common for children with ASD to experience sensory overload, triggering anxiety (Jones et al., 2020); conversely, some sensory activities can have a calming

influence, assisting children with ASD in their everyday lives (Schaaf et al., 2011). Many mothers spoke about their child seeking their cat during times of emotional distress, finding the sensory stimulation of the fur, warmth, and purring to be soothing, replicating previous findings of the soothing benefits of cats (Hart et al., 2018) and animals' ability to create a relaxed environment (Berry et al., 2013; Harris & Williams, 2017).

Given the higher stress levels of mothers with a child with ASD (Giallo et al., 2013), cat ownership could provide indirect support for children with ASD, impacting positively on maternal stress. Additionally, while acquiring a dog can have a positive impact on children with ASD, reducing parental distress (Wright et al., 2015), participants often felt a dog would be incompatible with their child due to their dislike of going outside, making dog walking difficult; or their child finding a dog too loud, triggering sensory distress. Clearly, options and flexibility are crucial and for some families with a child with ASD, cats may be an ideal pet (Carlisle et al., 2021).

Further, having a pet can improve prosocial behavior when newly introduced (Grandgeorge et al., 2012). It is possible this might be more relevant to having a dog given the natural sociable temperament of dogs, as in the current study the children were often initially uninterested in their cats, preferring to focus on other interests. The relationship developed over time through naturally evolving animal-child interactions, and through this prosocial behavior increased. The benefits also seemed to extend toward the cats having a positive, nurturing home environment where their needs were recognized and met, often by the children.

All participants described the main cat(s) as sociable and easygoing (Table 1), making it easier for their child to form a bond; when these were present, the benefits for their child were evident across all mothers' reflections. Indeed, children with ASD can form selective, secure attachments with people (Teague et al., 2017) and with pets (Carlisle, 2015). Perhaps this bond with their cat was akin to the development of an attachment relationship, increasing the circle of opportunities to experience secure

attachments. Their cats equally formed a unique reciprocated relationship with their child, accepting behaviors they would not accept from other members of the family. Sometimes the cat would actively seek out their child when the child displayed emotional distress. Such learning experiences evolved naturally over time and provide an indication of the value of home-based experiences in developing skills that can be transferred into external contexts. Indeed, children with ASD can generalize learning across people, settings, and activities (Carruthers et al., 2020), which can have wider implications for parental well-being, especially when managing transitions.

More generally, mothers believed their cats enhanced their child's ability to convey empathy and consideration, not only toward their pet(s), but also toward others' pets and other people. Increasing empathy with others has been noted with typically developing children who were highly attached to their pets (Daly & Morton, 2006; Poresky, 1996); and empathy skills derived through equine-assisted therapy were transferred back to family pets for people with ASD (Petty et al., 2017). Additionally, mothers reflected that cat ownership provided an opportunity to develop responsibility, similar to pet ownership in general (Ward et al., 2017) and dog ownership (Carlisle et al., 2018).

While research highlights empathy deficits in males with ASD (Baron-Cohen & Wheelwright, 2004), this may relate to individuals struggling to imagine views from another person's position rather than emotional empathy deficits per se (Jones et al., 2010). Mothers of children with ASD repeatedly reflected on times when their child took responsibility derived from empathic concern, even prioritizing their cat's perspective and/or needs. Sometimes they did this more often than other family members, suggesting refined empathy skills. Although none of the participants reported their children to have a diagnosed anxiety disorder, this information was not explicitly sought. However, research has consistently shown children with ASD experience increased levels of anxiety (Wood & Gadow, 2010), which was reiterated by the parents in the current study highlighting their children's anxiety, particularly around

issues related to COVID-19. At other times, the source of anxiety for their children often centered around worries about their cat's potential unmet needs, rather than more generic worries, again suggesting refined empathy skills.

While regional and organizational use of AAI in supporting children with ASD in clinical settings can differ (Burr & Wittman, 2020), pet ownership can be universally supported as a therapeutic option for parents of a child with ASD, bridging a gap between home and external settings. For example, children with ASD who are normally reluctant to talk in certain contexts may be more willing to do so when speaking about their pet (Carlisle, 2015); thus, pet ownership could form the basis of social stories used in clinical settings (Burr & Wittman, 2020). Further, there are benefits from touch being implemented with children with ASD (Cullen et al., 2005), and this can be attained via a safe animal-child interaction that can build over time. Additionally, the presence of a companion animal can protect against negative feelings (such as insecurity, loneliness, anxiety, irritability, sadness, and guilt) and interactions can generate positive feelings (such as cheerfulness, happiness, satisfaction, and enthusiasm) (Janssens et al., 2020).

It should be noted that while the well-being of the cat was directly asked about, no mothers identified welfare issues. As a family pet these animals appeared cared for, with families being aware of the needs of their cats and providing nurturing family homes for them. However, this may not be the case for all families; thus, when considering cat ownership, or whether this becomes more formalized as a companion animal (Society for Companion Animal Studies, 2022), the cat's welfare needs to be centralized, and for animals used in clinical settings animal welfare must be forefronted (Carlisle et al., 2021; Wright et al., 2015). Given that adopting cats with a calm temperament has been recommended for health care providers to suggest to parents of children with ASD (Carlisle et al., 2021), cat adoption in this manner would also necessitate the consideration of the cats' welfare and suitability of the home for them.

### *Strengths and Limitations*

For this study, a small sample size was used and only mothers were recruited, limiting generalizability. However, this is a common limitation of qualitative research, which seeks to provide a more nuanced understanding of lived experience through case-to-case transfer generalization (Treharne & Riggs, 2015).

Furthermore, while some mothers in the sample also had cats with a less sociable temperament, caregivers of children who had negative experiences, or more aloof cats, may have felt they did not have much to talk about. Also, while this sample is representative of the high comorbidity that exists with an ASD (Mpaka et al., 2016), it is difficult to rule out whether different disorders, such as ADHD, may have shown more benefit from cat ownership than ASD per se.

### *Future Implications and Conclusion*

The present study provides an original contribution to the literature by demonstrating detailed insight into the experiences and benefits of cats for children with ASD and their mothers during a time of transition. The findings suggest owning a cat may be emotionally beneficial for children with ASD, helping them manage sensory overload and heightened emotional distress. Further, by providing companionship and opportunities to take responsibility to care for their cat, it enhanced their ability to empathize. Thus, cats have the potential to play an important role in the wider development of a child with ASD, potentially impacting positively on parental well-being.

Future research is still needed on the use of cats to facilitate non-language-based interventions that can foster the development of caring relationships over time. This would benefit from clear differentiations between pet ownership, companion animals, and AAI. Wider use will also need to consider potential issues with allergies and the well-being of the cats themselves. As this was an exploratory qualitative study, future research could utilize quantitative methods to build an evidence base through larger-scale research. Future research could also explore the

role of other types of small pets in the development of empathy and caregiving in children with ASD, and transferable skills between home and outside settings derived through this unique bonding experience and the deeply positive impact this can have on children with ASD.

### *Summary for Practitioners*

Individuals with autism spectrum disorder (ASD) exhibit social communication difficulties, and repetitive behaviors and interests. They may become distressed by routine changes and transitions (Makin et al., 2017) and be under- or overly sensitive to sensory stimuli, triggering sensory overload and distress (Ben-Sasson et al., 2009). Such difficulties can mean those with ASD have poorer relationship quality and fewer friends (Orsmond et al., 2004).

Spurred on by an emerging evidence base showing that symptoms of ASD improve after participation in human–animal interactions (Siewertsen et al., 2015), parents and carers of children with ASD increasingly utilize animal-assisted interventions (AAI) (O’Haire, 2013), with AAI becoming a core evidence-based practice for ASD (O’Haire, 2017). Further, parental views suggest companion animals can contribute to social and behavioral development, improve mental health, and enhance quality of life for children with ASD, with activities with companion animals being more social and of a different quality from the restricted and repetitive activities their child normally engages in (Byström & Persson, 2015). Cats may be particularly compatible pets for children with ASD who experience hypersensitivity to sound (Carlisle et al., 2021). The few studies focusing on cat ownership in ASD show positive influences for children with ASD, with cats calming them and being a soothing protector (Hart et al., 2018), particularly adopted cats with a calm temperament (Carlisle et al., 2021). Importantly, benefits of owning a cat extend to parents, who experience less stress (Carlisle et al., 2021).

The COVID-19 pandemic has resulted in frequent school closures in the United Kingdom and multiple transitions impacting the well-being of

children with ASD, with repeated readjustments to learning environments and restrictions in activities (Ofsted, 2020). Consequently, options for interventions that bridge the gap between home and external settings may be beneficial for children with ASD and their parents.

This study explored the experiences of cat ownership for young people with ASD from the perspective of their mothers during a time of transition generated by COVID-19. Semi-structured interviews were conducted with six mothers, and transcripts were analyzed using reflexive thematic analysis. Three themes were identified: “Sensory benefits with heightened emotions,” “Special bond between cat and child,” and “Learning through the relationship.”

Mothers highlighted many benefits from cat ownership for children with ASD, which supported their child during times of heightened emotional distress, especially during COVID-19. Indeed, a perceived benefit of cat ownership was its calming effect on their children. Many mothers spoke about their child seeking their cat during times of emotional distress, finding the sensory stimulation of the fur, warmth, and purring to be soothing, replicating previous findings of the soothing benefits of cats (Hart et al., 2018) and animals’ ability to create a relaxed environment (Berry et al., 2013; Harris & Williams, 2017). Given the higher stress levels of mothers with a child with ASD (Giallo et al., 2013), cat ownership could provide indirect support for children with ASD, impacting positively on maternal stress.

All participants described the main cat their child interacted with as sociable and easygoing, making it easier for their child to form a bond akin to the development of an attachment relationship, increasing the child’s opportunities to experience secure attachments. Their cats equally formed a unique reciprocated relationship with their child, accepting behaviors they would not accept from other members of the family. Sometimes the cat would actively seek their child when emotional distress was displayed. More generally, mothers believed cats enhanced their child’s ability to convey empathy and consideration, not only toward their pet(s), but also toward others’ pets and other people. Additionally,

mothers reflected that cat ownership provided an opportunity to develop responsibility, similar to pet ownership in general (Ward et al., 2017) and dog ownership (Carlisle et al., 2018).

While regional and organizational use of AAI in supporting children with ASD in clinical settings can differ (Burr & Wittman, 2020), pet ownership for families who can offer a nurturing home can be universally supported as a therapeutic option for parents of a child with ASD, bridging a gap between home and external settings. For example, children with ASD who are normally reluctant to talk in certain contexts may be more willing to do so when speaking about their pet (Carlisle, 2015); thus, pet ownership could form the basis of social stories used in clinical settings (Burr & Wittman, 2020). Further, there are benefits from touch being implemented with children with ASD (Cullen et al., 2005), and this can be attained via a safe animal–child interaction that can build over time.

In conclusion, cats with a sociable and easygoing temperament provided multiple therapeutic benefits for children with ASD and should be considered by caregivers who are able to offer a nurturing environment as an accessible complementary home-based therapy. Indeed, cats can have the potential to play an important role in a family’s life, particularly for parents managing additional demands and whose children experience sensory overload when outside. Cat ownership could also enhance engagement with clinical practitioners, benefiting the wider development and well-being of children with ASD and their families. Finally, for cat ownership in homes where a child has ASD, while the well-being of the cat was directly asked about, no mothers in the current study identified welfare issues; the benefits seemed to extend toward the cats having a positive, nurturing home environment where their needs were recognized and met, notably by the children with ASD. Nevertheless, given that adopting cats with a calm temperament has been recommended for health care providers to suggest to parents of children with ASD (Carlisle et al., 2021), cat adoption in this manner would also necessitate the consideration of the cats’ welfare and the suitability of the home for them.

## Data Availability Statement

Data available within the article or its supplementary materials.

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## Declarations of Interest

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