

Pet Keeping in the Time of COVID-19: The Canine and Feline Companions of Young Children

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Abstract

Amid COVID-19, children's interactions with pet animals in the household were at times strengthened, strained, or established anew. Extensive periods of confinement made the home environment not only the site for most family activities but also the hub for children's school and many adults' work. Research on the role of pets during the pandemic has consisted primarily of online surveys with the general finding that sweeping changes to daily living had major consequences for the dynamics between pets and people. This article addresses issues related to young children and pet keeping within the context of the recent world health crisis and the resultant lockdowns. First, it describes how the definition of a pet has changed. It then examines children's attachments to dogs and cats, the two species most frequently chosen as pets for young children worldwide. Next, it highlights the potential risks and rewards of children cohabitating with cats and dogs at a time when many families were sequestered in homes. The article concludes with a discussion of the limitations and contributions of research on pet keeping during COVID-19 and suggests appropriate next steps that take into consideration the welfare of young children and their companion animals.

Keywords Pets · Dogs · Cats · Companion animals · Attachment · Child-pet bond · COVID-19 · Pet keeping

During the COVID-19 pandemic, it became undeniable that the welfare of human and non-human animals is inextricably bound (Decaro et al., 2020). Zoonotic disease-infection that is spread from other species to human beings-became an international focal point as researchers attempted to identify the source of the deadly virus and develop effective vaccines. The pandemic experience made it clear that the welfare and health of people, other living things, and the environment are interdependent, with damage to one reverberating across the others. This holistic view of well-being was referred first as a "One Health" perspective recognizing that, to achieve optimal health, we must first consider the interconnections between and among people, animals, plants, and their shared environment (Centers for Disease Control and Prevention, 2021b; Hediger & Beetz, 2021; Morgan et al., 2020). Its corollary is the One Welfare movement, defined in 2018 as "the interrelationships between

Mary Renck Jalongo mjalongo@comcast.net animal welfare, human wellbeing and the physical and social environment" (García Pinillos, 2018, 2021).

COVID-19 had a profound impact on the daily lives of families, children, and the animals that resided togethermainly, at home-for over a year (Fine, 2021). Keeping dogs and cats as companion animals is a widespread practice throughout the world. It is estimated that there are roughly 470 million dogs and 370 million cats owned and kept as pets in the world (Bedford, 2020). In the United States, 70% of households are homes to one or more pets (American Pet Products Association [APPA] 2020–2021). During lockdown, families were experiencing a vastly different way of being together, with children and their companion animals in one another's company almost continuously. To illustrate, in a UK survey of 6004 dog owners, 79.5% reported their dog's routine had changed after lockdown, with 58% of dogs not left alone for more than 5 min on any day during the week and the percentage of dogs being left alone for over 3 h at a time decreasing from 48.5% (pre-lockdown) to 5.4% (during lockdown) (Christley et al., 2021). If the child had been cared for previously in another family member or friend's home, in childcare, or attended school for many hours throughout the week, the amount of time that children

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and family pets spent together increased significantly and, with that intensification, both positive and negative outcomes were possible. In households with pets and children, almost 9 in 10 dogs were spending more time with children (Christley et al., 2021).

The purpose of this article is to examine how young children's relationships with their family's dogs and cats were reportedly affected by the atypical circumstances surrounding the recent global health pandemic. It begins with a discussion of pets as companion animals and a summary of what is known about the child-pet bond. Next, it reviews the literature that identified the potential risks and rewards of pet keeping during the pandemic for families. The article concludes with an overview of the limitations and contributions of research that focused on pets conducted in the time of COVID-19 and makes recommendations that take into consideration the welfare of both human and non-human animals in the household.

Redefining Pets

Pet keeping is a widespread practice with a long history. It is estimated that over half of the global population share their lives and homes with one or more pets (GfK, 2016). The practice of keeping dogs as pets, for example, can be traced back at least 15,000 years (Serpell, 2017). Nevertheless, historical pet keeping practices tend to differ from prevailing contemporary perspectives. Originally, the word "pet" was a synonym for being a favorite and was often used to refer to a person (e.g., a teacher's pet) or object of affection (e.g., a pet project). In addition, "pet" is sometimes used as a term of endearment in the UK or to refer to the behavior of stroking or patting affectionately, as when petting a dog or cat. Over time, the word was appropriated to refer to special animals. Pet animals usually differed from other animals in several important ways. First, they were brought indoors to protect them from the elements and resided with the family. Secondly, pets had individual names and would never be used as a food source. Third, one or more people in the family had formed an emotional tie with the animal. Finally, family pets-most often, a dog or a cat-were regarded as sentient-not merely alive, but capable of feelings. Current ideas about pets frequently add another aspect: concern about meeting an animal's requirements for health and a reasonable quality of life. Usually, family members form attachments with their pets (Zilcha-Mano et al., 2011) and consider their companion dogs and cats as deserving of proper care, attention, and affection. Along similar lines, the Cambridge English Dictionary (2020) now defines a pet, not only as an animal kept in the home, but also one who is a companion and is treated kindly.

For increasing numbers of people around the globe, pet animals are something more. They are regarded as part of the family (McConnell et al., 2019). Many people throughout the world form a bond with their companion animals and view them as a unique category of kin (Barcelos et al., 2020; Sable, 2013). According to national survey data gathered by the American Veterinary Medical Association (2012), 63.2% of people viewed pets as part of the family. However, when the Pew Research Center surveyed 3014 adults and asked about dogs exclusively, the ratings were much higher. Not only did 85% of adult respondents in the United States consider dogs to be members of the family, 94% reported that they felt closer to their dog than to some human family members (Taylor et al., 2006).

In the past, both dogs and cats were valued primarily for their work roles. Dogs helped with hunting, herding, and protection while cats controlled vermin. Today, a cat is more apt to be selected as a child's pet, for example, if it is a playful kitten or a "lap cat" that enjoys affection rather than because it is a good mouser. Many family dogs are valued primarily as companions as well. When Italian parents were asked to describe the ideal dog, the best dogs were described as safe with children, housetrained, healthy, friendly with humans and other animals, long lived, and obedient (Diverio et al., 2016). Where families of young children are concerned, parents frequently acquire pets with children in mind and are convinced that learning to care for a dog or cat is a way of teaching the child to be more compassionate, less self-centered, accept responsibility, and practice caregiving behaviors (Jalongo & Ross, 2018).

Early in the COVID-19 crisis, questions were raised about pet dogs and cats getting the disease and transmitting it to humans. This caused some panic abandonment, relinquishment, and euthanasia of companion animals (Huang et al., 2020; Parry, 2020). In some countries, such as Mexico, pet overpopulation was already a public health threat and the number of stray animals tended to increase (Indepediente, 2020). After it appeared that these initial fears about COVID-19 being transmitted by dogs and cats were unfounded (Csiszar, et al., 2020), there was an international surge in the acquisition of cats and dogs as pets. In a global study of the relative search volume (RSV) on Google for pet adoption using key words (e.g., cat adoption, dogs for adoption near me), the researchers found that RSV peaked between April and May 2020, increasing by 250% (Ho et al., 2021). Homeless dogs and cats were adopted in unprecedented numbers with a trend toward "a global emptying of shelters" (Frost, 2020; Kavin, 2020; Thomas, 2020). At the same time, breeders of purebred dogs were inundated with demands for new puppies and had long wait lists; The Kennel Club (2020) in the United Kingdom reported a 168% increase in people searching for puppies to buy during 2 months of lockdown alone. Many dog and cat rescue facilities weathered the pandemic by advertising homeless pets on social media, carefully screening adoption applications submitted online, closing their doors to the public, and scheduling individual appointments that limited human contact for approved adopters to meet and possibly take home the animal they had selected. Israel, for example, has a national, online, searchable, nonprofit data base of animals available for adoption. Prior to the pandemic, about 15 animals were adopted per day. During the total lockdown, however, it rose to approximately 26 per day (Morgan et al., 2020). The number of families willing to foster a homeless dog soared as well; prior to the crisis, the number of dogs needing a foster home far outweighed the available placements yet, by April of 2020, there were 844 available foster families who were approved but did not receive a dog to foster (Morgan et al., 2020). Possible explanations for this international phenomenon varied. After it became clear that lockdowns would go on for an extended period, it is possible that pets were viewed as companions who might help to ease feelings of isolation from human company. Some families sought a dog or cat out of a desire to bring joy to children confined at home and deprived of interaction with peers (Compitus, 2020). The continuous presence of adults in the home was also perceived as conducive to helping a new companion animal adapt to the household (Applebaum et al., 2020b).

There were adverse animal welfare consequences of this high demand as well. Some people were taken in by online scams and made payment to purchase nonexistent dogs. The UK reported a sharp increase in the number of dogs stolen (Woodfield, 2020). Many parents unwittingly procured puppies from factory farming operations referred to as "puppy mills" where severe overcrowding, substandard care, overbreeding of adult dogs, and neglect/abuse are common (McDonald & Otte, 2020). In many instances, animals were obtained on a whim with little forethought. Thus, there is concern in the animal welfare community that large numbers of pet cats and dogs will be abandoned or brought to shelters after time at home is in shorter supply, finances are stretched, and drastic changes to daily routines occur (Johnson & Volsch, 2021; Vincent et al., 2020; UK Dogs Trust, 2020).

For dogs and cats already in the home, problem behaviors in both children and the pets tended to be exacerbated by close quarters and the stresses of confinement. A toddler who had stopped chasing the family cats, for example, seemed to regress during quarantine and intervening often to stop the behavior became a source of stress for the child's single mother. Reasons for deciding to relinquish a pet to a shelter, rehome it with another family, abandon a cat or dog, or even euthanize an animal vary; however, the most common explanations that are given consist of problematic behaviors within the animal–especially aggression toward people and other animals–frequent escapes, destructive behaviors, excessive vocalization, and separation anxiety syndrome in both dogs and cats (Salman et al., 2020; Schwartz, 2003). Issues within the family that cause adults in the family to give up on a pet typically include allergies, financial constraints, housing issues, geographic relocation, and health problems that prevent owners from providing proper care (Carter & Taylor, 2017; Scarlett et al., 1999). Living through a pandemic together created some additional challenges and risks for children and their pet dogs and cats.

Potential Risks for Children and Their Companion Animals

The popular media tends to extol the human benefits of pet ownership, which can lead to unrealistic expectations in families (Applebaum et al., 2020b). In this highly idealized version of companion animals, pets and children form an instantaneous bond and "grow up together" effortlessly. Such expectations fuel impulsive decisions to acquire an animal-particularly an adorable puppy or kitten-without much consideration of the time and work necessary to supervise the child-pet interactions or, in the case of dogs, train the animal. In these fanciful scenarios, the expectation is that the mere presence of the animal will teach the child to be a responsible caregiver. Building behaviorally healthy relationships between children and their pets, however, depends to a great extent on the guidance and role models provided by adults (Jalongo & Ross, 2018). Various studies have indicated that, particularly when children are young, it is the adults-often mothers-who bear most responsibility for a companion animal's welfare (Kerrry-Moran & Barker, 2018). When adults were asked, "Do you feel your pet helped you or is helping you cope with shelter in place?" 90.7% of those without children answered yes while 82.1% of families with children responded affirmatively. This led the researchers to conclude that parents of younger children may find companion animals to be more of an additional obligation than a social support or respite from responsibilities in the home (Johnson & Volsche, 2021). Overstating the positives can set dog and cat owners up for failure and disappointment, ultimately increasing the risk of shelter relinquishment (Herzog, 2011).

Although there is some evidence that companion animals can exert a positive influence on the self-reported stress of people, there are many different views and practices about pet keeping and a wide range exists in the depth and quality of individual adults' and children's attachment to specific companion animals (Johnson & Volsche, 2021). Animals need time to adjust, interactions with children must be closely monitored, and deciding that an animal is trustworthy around children should be based on observations over time, rather than expecting a dog or cat to be inherently "good with children". After a dog or cat is brought home, prior experiences viewing charming online portrayals of gentle interactions between pets and young children sometimes prompt uninformed/misinformed adults to do things that would be considered dangerous by knowledgeable professionals-such as staging a photo of a newly acquired dog or cat face-to-face with a baby on the bed. Any animal may defend itself if it feels threatened or is in pain. Where children are concerned, their developmental levels affect bonds with pet dogs and cats (Melson, 2001). Young children tend to have more physical relationships with pets that include hugging and petting as a source of comfort, while older children tend to emphasize the companionship provided by pets (Mueller et al., 2019). Furthermore, there is some evidence that gender differences exist in the ways that children talk about their companion animals' mental states and interact with their pets (Bosacki & Tardif-Williams, 2019; Muldoon et al., 2019).

Fear that Dogs and Cats Were Carriers of COVID-19

Particularly in the early days of the COVID-19 crisis, adults expressed concerns about dogs and cats transmitting COVID-19 to humans. After a pet dog in Hong Kong tested "weak positive" for COVID-19 in February of 2020, people became understandably worried about the potential humanto-animal infection. Although the dog was asymptomatic, it was quarantined and later tested negative. Later, a person who tested positive for COVID-19 owned a dog and four cats who also tested positive initially, yet all remained healthy (Huang et al., 2020). After subsequent findings suggested that the virus was spread primarily by human-tohuman contact, some of these fears were allayed. A Centers for Disease Control [CDC] (2021a) publication concluded that, in the cases of COVID-19 in pets documented thus far, the direction of the transmission appeared to be from humans to pets, rather than the other way around. The CDC document stated that "Based on the information available to date, the risk of animals spreading COVID-19 to people is considered to be low". They further recommended isolating animals from people who had contracted the virus.

If parents do decide to rehome, abandon, or even euthanize a child's pet it is important to consider that, if a child is bonded with an animal, losing it is a major developmental event (Melson & Fine, 2019). Young children view animal minds differently from adults and attribute dogs' behavior less to instinct and more to intention (Hawkins & Williams, 2016). Unlike some adults, young children do not need to be persuaded that animals are sentient beings. Instead, they tend to imbue them with human or even superhuman attributes. To illustrate, within 5 min of interacting with an unfamiliar dog, 76% of the 7- to 15-year-old children believed that a dog knew how they felt while another 84% indicated they would confide secrets to a dog (Melson, 2019). Children who are highly attached to a pet often are especially vulnerable to psychological trauma if a beloved animal suddenly and surprisingly disappears from the home and painful memories of that loss can persist into adulthood (Edwards et al., 2018).

Unique Hardships Associated with Pet Keeping

Quarantines, lockdowns, supply chain problems, business closings, and the suspension of various services created many pet keeping challenges. Adults responsible for dogs and cats reported that they were worried about getting proper food for their animals, gaining access to veterinary services, and providing care if they were to become incapacitated (Applebaum et al., 2020a, 2020b, 2020c). In cases where a family pet had major health issues, there was a persistent fear that a dog or cat could not get medication or would reach a crisis stage. Many adults expressed concern that their family dogs were getting inadequate exercise, insufficient mental stimulation, and few opportunities to interact with other dogs and people (Applebaum et al., 2020a, 2020b, 2020c). A survey of 688 dog owners, for example, concluded that difficulties with family dogs were more prevalent in living situations where there was no yard or garden (Jezierski et al., 2021) and another study found that limited access to outdoor areas had a negative effect on dogs' quality of life (Piotti et al., 2021). Families who were working with an animal trainer prior to the COVID-19 to address behavioral issues no longer had access to this support, nor did they have access to professional pet grooming services. If the adults in the home were first responders or essential workers who continued to go out into the community, their customary arrangements for pets' care while working were sometimes unavailable. One study found that devoted pet owners went so far as to postpone being tested for COVID-19 or getting treatment themselves out of concern for the welfare of their pets (Applebaum et al., 2020a, 2020b, 2020c). Each of these concerns was a source of additional stress for the adults responsible for pets.

Balancing Parenting Roles

Many parents working from home without the support of other caregiving options for children or pets had to take on new roles, such as home schooling. A child who would normally be in the care of a family member, home-based childcare, group care, or a formal educational program suddenly was in the company of a pet cat or dog all the time while parents were otherwise occupied. One mother who was attending a meeting on Zoom had her 5-year-old close by yet later discovered that the preschooler had used markers, paste, and scissors on the long fur of the family dog. Fortunately, the situation could be remedied but the mother still felt that she had failed in balancing her responsibilities. Those pressures became more overwhelming as her other two children, who were enrolled at different schools, needed support.

Pets sometimes disrupt the focus needed for work and school—particularly if they are noisy or demanding of attention (Hoffman, 2021). In a study of online learning in Norway, Sweden and the United States, preschoolers frequently could be seen online sitting with their pet animals who accompanied them to classes—sometimes with humorous results (Pramling Samuelsson et al., 2020). Studies suggest that older children who are bonded to their pets see them as friends and confidants and, at times, feel even closer to them than some human siblings (Cassels et al., 2017).

Interactions that previously were problematic between children and pets tended to escalate. Dogs typically spend nearly half their day sleeping yet, during lockdown, they were always available and may have had almost no quiet or alone time (Holland et al., 2021). In families where, prior to the pandemic, adults and children were away nearly all day throughout the week, this was a drastic schedule change. UK Dog's Trust (2020) found a 57% increase in dog's problem behaviors toward children such as growling and nipping, which is a major concern for parents. In fact, there was a sharp rise in dog bites reported during the pandemic (Dixon & Mistry, 2020), with one pediatric emergency department in England reporting a threefold increase in July 2020. The latter research team cited the surge of dog adoptions during stay-at-home orders-referred to in the media as "pandemic puppies"—as one possible explanation for this trend (Tulloch et al., 2021). Likewise, a study in Italy found that the incidence of serious dog bites from family dogs increased during the pandemic while bites from unfamiliar dogs decreased, presumably due to the stay-at-home orders (Parente et al., 2021).

For troubled families, forced confinement to homes tended to intensify and increase conflict. When a family member is already volatile, a minor annoyance from a pet can prompt an angry outburst with violence directed toward the animal and/or other family members. Worry that a pet will become a target of cruelty is a recurrent theme in studies of intimate partner violence because perpetrators often injure or even kill pets as a way to control and hurt people who care about the animal (Campbell et al., 2018). Throughout the world, the incidence of child neglect, abuse, and violence within families increased significantly during the COVID-19 epidemic (Campbell, 2020), and the European Union reported a 60% increase in the incidence of domestic violence (Mahase, 2020). Given that dogs and cats frequently are sensitive to the emotional tenor of human interactions (Kaminski et al., 2009), the welfare of canines and felines in a family characterized by conflict is severely compromised. Nevertheless, for many victims of violence in homes, pets can represent a safe haven

that helps them to cope with adverse family situations (Hawkins et al., 2019).

Inexperience with Pets

Shortly before COVID-19 hit, the mother of a toddler and a preschooler adopted a 12-week-old puppy but returned it to the shelter when it was almost a year old because he grew much larger than anticipated, the children were now afraid of him, and she considered the dog to be untrainable. The high energy and mouthing that she found cute in a tiny puppy had become worrisome behaviors from a large dog who had not been taught any manners. He was bursting with energy, knocked over the children, destroyed toys and shoes, and grabbed at items, resulting in some minor scratches and bites. After local businesses reopened, the family visited a pet store and the children begged for a hamster, so the mother obliged, hoping to brighten their days. She reminded her children to keep the hamster and dog separated, but a door was left open, and the dog killed it by shaking it and breaking its neck. None of the positive outcomes for pet ownership that this young mother had imagined occurred and she "felt like a total failure." Research conducted by the National Council on Pet Population Study and Policy (NCPPSP) in 12 shelters over the course of a year found that 47.7% of dogs brought to shelters were young—5 months to 3 years old—and had been owned for less than a year (Kwan & Bain, 2013). Most of the dogs that are owner surrendered to shelters have little or no training.

In a study of 2537 adult pet owners who self-selected to complete an online survey, the researchers expressed concern that bringing children and pets together could put their children at risk of injuries from companion animals when caregivers are inexperienced with managing children and pets, otherwise occupied, or unaware of appropriate child-pet interactions (Bussolari et al., 2021). A common mistake is to acquire a pet before a child is ready to learn how to be gentle and caring rather than treating the animal like an inanimate object. Although this depends on the individuals involved, toddlers tend to be less suitable as companions for dogs and cats. Taken as a group, they are more apt to chase animals, pull fur/tails/ ears, step or walk on an animal, squeeze it tightly, or collapse onto it without the ability to consider the effect on the pet. Despite the challenges that COVID-19 restrictions placed on children and pets, the presence of dogs and cats in the home appears to have been predominately positive for children during the pandemic (Adams et al., 2021) as the next section describes.

Potential Benefits of Children's Pets During the Pandemic

In times of severe adversity, stress, and trauma, pets can provide people with "a source of nonjudgmental support, stress-reducing companionship, positive outlets for joy and laughter, a safe haven for physical touch and emotional vulnerability" (O'Haire et al., 2019, p.16). When young children form a bond with a pet dog or cat, it can exert a positive influence on biological, psychological, and social well-being.

Physical Effects

There is some biological evidence suggesting that, when bonded people and pets interact, oxytocin (the "feel good" hormone) is raised, and cortisol (the stress hormone) is lowered in the body (Beetz et al., 2012; Nagasawa et al., 2015). For many children who are bonded to a companion animal, pets represent a reliable source of contact comfort, which is important because social touch may have a stressbuffering role (Morrison, 2016). "During the pandemic, other people were seen as physically untrustworthy, since it is impossible to tell who carries the virus, and yet it is considered unlikely that animals can contract or spread the coronavirus. Perhaps people were naturally turning to animals as a source of companionship and affection, for a sense of physical and emotional safety, and as a trustworthy companion" (Compitus, 2020). It is also possible that the contact comfort is reciprocal, because both the person and a pet can enjoy and show signs of pleasure from relaxing touch (Young et al., 2020).

Yet another physical effect of the company of dogs is that they can encourage children to be less sedentary and take a break from screen time. Experts on children's physical development recognize that playing and walking with dogs is an important way to increase children's vigorous physical activity and address the issue of childhood obesity (Christian et al., 2016). After some of the restrictions were relaxed and people were outdoors again, insights from qualitative research suggest that dogs, especially, encouraged routines such as taking a walk. Dog walking not only increased physical activity but also provided opportunities to interact with other people from a distance who were doing the same thing (Oliva & Johnston, 2020).

One negative physiological consequence of the pandemic for young children has been disruptions to their sleep. Markovic et al. (2020) conducted a baseline assessment in April 2020 and two follow-up assessments in May and June 2020 via online surveys to study the effect of confinement on sleep quality. Caregivers from several countries, mainly European, reported on sleep patterns in 452 babies (0–35 months) and 412 preschool children (36–71 months). The presence of pets in the household was identified by 26% of caregivers as exerting a positive effect on sleep quality in young children (Markovic et al., 2020).

Psychological Influences

Pandemics are associated with sharp increases in mental health issues (Hawkins & Brodie, 2020) and there is emerging research to suggest that positive interactions with the natural world can be a complementary therapy for people dealing with stress and trauma (Chaudhury & Banerjee, 2020; O'Haire et al., 2015). During the COVID-19, survey research conducted with adults suggested that they viewed pets as a form of complementary social support that provided stability, counteracted unpredictability, and supplemented technology initiated human-to-human interaction (Nieforth & O'Haire, 2020). Spending time with family pets was identified as a key strategy for coping with stress during long periods of quarantine and lockdown (Mueller et al., 2021). Interacting with animals also provided people with a sense of joy, perhaps because family pets appear to love unconditionally and without judgment (Compitus, 2020). In a study of dogs during lockdown, 97% of pet owners indicated that they were grateful for the company of their dogs, 78% of pet owners believed that that their pet helped them to cope during lockdown, and 34% of pet owners indicated feeling closer to their dog during the pandemic (Bussolari et al., 2021). Furthermore, thematic analysis of responses to the online survey found three ways in which increased time spent together improved relationships with family dogs: having more quality time; heightened attunement to and intuition about the dogs' behavior; and increased playtime or training time.

Companion animals as a source of psychological support and stress reduction may be particularly important to children. When children were asked to list the ten most important individuals in their lives, they frequently included pets on their lists, and 42% of 5-year-old children spontaneously mentioned turning to their pets when they are feeling sad, angry, happy, or want to share a secret (Melson, 2001). One family turned their newly adopted dog into a group project and their three children designed "online school" for their canine companion using the Kiko Pups series of dog training videos as a resource (https://www.youtube. com/playlist?list=PLF26FD559887E7EA4). This project was a productive diversion for everyone in the household and the family shared the dog's progress by posting videos online. Positive comments from family and friends encouraged them to continue and focusing on the dog was a respite from preoccupation with the COVID-related information being broadcast through the media.

Alternative Forms of Social Support

There is little question that support networks for children were severely shaken by the COVID-19 crisis. For over a year, many young children had extremely limited contact with extended family members, peers, teachers, neighbors, and members of the larger community. They may have lost someone dear to them who contracted COVID-19. During stressful, unpredictable times and the trauma associated with loss and grief, people across the age spectrum may turn to pets for consistency and an alternative type of social support (Hoy-Gerlach et al., 2020; Meehan et al., 2017; O'Haire et al., 2019). Young children are apt to see their pet dogs and cats as surrogate peers and playmates (Bonas et al., 2000).

Complementary social support represented by pets can be indirect, such as interaction with the kindly pets of other people. For example, a 7-year-old boy was delighted when the family who lived next-door adopted a mellow, older cat from the shelter. The cat loved looking out the window, so the owner built a large, screened enclosure as a "pandemic project." Weather permitting, the cat spent some time outdoors and the child could visit the cat—something that both of them relished.

Virtual experiences with pets also occurred. Companion animals often made a surprise appearance during work and school gatherings, sometimes eliciting positive comments, providing a quick break, or offering comic relief. Handlers of visiting therapy animals who would ordinarily appear in person at schools, libraries, and health care facilities planned virtual sessions online or outdoors, through the window. Some large corporations deliberately integrated therapy animals into their meetings based on research, such as a Japanese study that concluded breaks of "kawaii"cuteness-might even increase productivity (Nittono et al., 2012). There is emerging evidence that simply viewing images of animals can be relaxing and people living through COVID-19 reported that they shared animal stories, photos, memes, and videos as a mechanism of distraction, enjoyment, and humor (Vincent et al., 2020). Sharing pictures and stories of their pets' antics on media outlets like Instagram and Facebook also was a way to remain socially connected to the outside world while keeping physically distanced.

Conclusion

There are some common limitations in the research on pets conducted during the pandemic. Thus far, the COVID-19 research about people and their pets has tended to rely on large scale, quantitative, online surveys administered at one point in time. This approach has several drawbacks. First, there is a selective bias created when respondents need access to technology and high-speed internet to respond; this tends to recruit groups of participants that have higher incomes and perhaps greater family stability, given that they are willing to invest time in completing a questionnaire. Responsible pet keeping can be quite costly and frequently is out-of-reach for people with low-income backgrounds (Carter & Taylor, 2017), so those from higher socioeconomic groups are more likely to have companion animals in the first place. Further, when social media are used to solicit participation, this tends to produce samples that are predominantly female and white. In addition, children's perspectives about companion animals were interpreted by and filtered through adult perspectives, which may not adequately describe the child's point of view. To illustrate, in previous studies where children were asked to identify who is most significant in their lives and to list the sources of their well-being, they ranked pets considerably higher than expected by their parents or teachers (Bryant, 1985; Sixsmith et al., 2007; Tipper, 2011). A further limitation of research on pet keeping during the pandemic was that few studies collected data at more than a single point in time. One exception to this was a study conducted by Hawkins and Brodie (2020) that included data collection early and late in the pandemic. They found that, when lockdowns were first imposed, adult respondents reported feeling increased stress associated with responsibility for a pet. However, after restrictions began to lift, people who were attached to a pet considered that bond to be beneficial for reducing anxiety and negative emotions. Another limitation of research on pets that applied to some of the COVID-19 research was a tendency to include all animals residing in the home rather than analyzing the data in more species-specific way. This is important because bonds with more social animals, such as a family dog or cat, well may be qualitatively different from those with reptiles and birds, particularly when the expectation is to provide emotional support and companionship.

Research on pet keeping conducted during the pandemic also has made important contributions. Some of the sample sizes were large, with 1000s of respondents (cf., Applebaum et al., 2020a, 2020b, 2020c; Bussolari et al., 2021; Christley et al., 2021). Even though sample bias was an issue, multiple points of view within that group were amply represented. A second strength of the research on the pandemic was that, because entire countries implemented policies and practices to halt the spread of COVID-19, the body of research produced was exceptionally international in scope. A third possible strength in the studies about pet keeping during the pandemic is that many people had an unprecedented opportunity to closely observe their dogs' and cats' behavior and forged an even stronger bond because they survived a crisis together, as comrades. For some, animals distracted them from the relentless stream of frightening statistics and provided a refreshing, restorative break from constant worry.

During the height of the Coronavirus epidemic, the two species most kept as pets-dogs and cats-fared both better and worse than previously. Homeless canines and felines were adopted from animal shelters in unprecedented numbers as adults attempted to counteract physical isolation and cope with stress yet, as social animals, dogs and cats were experiencing stress as well. There is evidence, for example, that long-term stress levels are synchronized in dogs and their owners (Sundman et al., 2019) and that pets with health and behavioral issues can become burdensome, even for caregivers with a strong commitment (Buller & Ballantyne, 2020). Consistent with the One Welfare movement, human beings who were already struggling prior to the pandemic suffered the most deleterious effects while nonhuman animals with pre-existing behavioral issues were the most affected by the angst of their caregivers, the dramatic changes in lifestyles, and the turbulent times in which they were living (Bowen et al., 2020). Some companion animals were rehomed or abandoned due to financial crisis while others were destroyed, based on apparently unfounded fears that they were the cause of Coronavirus in humans (Huang et al., 2020).

It remains to be seen how pets-particularly those that were newly acquired in record numbers during the crisisfare after some semblance of normalcy is reinstated. For example, dogs reportedly got more attention and exercise during lockdown but only about 1/3 of adults surveyed had made any efforts to prepare their pets for new routines and schedules (Esam et al., 2021). Well before the pandemic, separation anxiety syndrome was a growing concern as well as a leading reason for rehoming dogs (Schwartz, 2003), so there is concern throughout the animal welfare community that many animals will "bounce back" to shelters (Todd, 2020). The hope is that actual and vicarious petkeeping experiences during the pandemic will prompt more adults to carefully consider the decision to bring a pet dog or cat into the home and attempt to integrate the animal into families with children. Too often, pets are treated as property, impulse purchases, and playthings for children rather than a unique category of kin. At times, an animal is selected to fill some unmet need in the adult, even though the companion is ostensibly "for the children". Companion animal choices are sometimes influenced by a popular movie, acquired as a status symbol, or used to elevate an adult's reputation as a rebel, expert trainer, or superlative rescuer. Instead, both the species and the individual animal need to be carefully selected, matched to the family's lifestyle, and be carefully assessed as a suitable choice for a particular child. As with any important decision, every stakeholder needs to be respected-adults, children, and animals-because the welfare of each affects the wellbeing of all.

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