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Pet parenting: A systematic review of its characteristics and effects on companion dogs

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Abstract

Pet parenting is part of the pet-guardian relationship and involves caring for companion animals by applying strategies and actions typically seen in the parent-child caregiving system. This phenomenon, which is becoming increasingly common in cultures experiencing the second demographic transition (marked by urbanization, increased educational attainment, and life orientation beyond reproduction), reflects a shift in the perception of companion animals, particularly dogs. Using the PRISMA method, we conducted a systematic review to provide a comprehensive overview of these emerging patterns of dog-directed parenting. We analyzed 15 scientific articles on pet parenting involving companion dogs, the results of which were thematically grouped into three sections. The first section, *the use of parent-child terms related to companion animals and guardians*, showed that familiar terms (e.g., father or the kid) are widely used within pet parenting and that factors such as familiarity with the conversational partner, culture, and the existence of children affect their usage. The second section, *the influence of offspring, culture, and gender on pet parenting*, included studies indicating that having children was negatively associated with attachment intensity and resource investment. We also described research pointing to common factors (e.g., the second demographic transition) and disparities (e.g., gender roles differentiation in traditional parenting) in cultures experiencing this phenomenon. The third section, *pet parenting styles*, discussed studies that identified traditional parenting styles and dimensions within the dog-guardian relationships (i.e., authoritative, authoritarian, and permissive), characterized by guardians' level of demand and responsiveness towards their dogs. Moreover, we described findings regarding the impact of pet parenting styles and dimensions on dog's health, attachment, sociability, and problem-solving behaviors. Results of the systematic review are discussed to comprehensively characterize the pet parenting phenomenon in relation to dogs; overall, they emphasize the relevance of adopting authoritative strategies to parent, educate, and train dogs, which directly impact on dog's well-being.

Keywords: Attachment; caretaking; companion animal; human-animal bond; parenting strategies; pet parenting.

Introduction

The human-dog relationship has a particularly long evolutionary history. Archaeozoological and palaeogenetic studies claim that the dog (*Canis familiaris*), originally derived from Pleistocene wolves (*Canis lupus*), was the first domesticated animal. The domestication of dogs occurred between 40,000 and 15,000 years ago, during the Last Glacial Maximum, potentially in multiple regions of Europe and/or Asia (Ovodov et al., 2011; Bergström et al., 2020). Since then, dogs have become the most widely domesticated animals, being present in nearly all human cultures worldwide, with their roles varying across different times and places (Chambers et al., 2020). In Western culture, the Victorian era likely marked a significant shift in the social role of dogs that continues to the present day; this shift led to less utilitarian relationships and greater affection towards animals (Franklin and White, 2001; Cushing, 2020).

Dog guardianship¹ has recently reached unprecedented levels (Serpell, 2015). For instance, the American Veterinary Medical Association (2022) estimated a 6% increase in dog guardianship between 2016 and 2020. Additionally, in 2022, 44.6% of households reported owning at least one companion dog. Financial investment in companion animals has risen in tandem with the growing rate of guardianship. In 2018, annual expenditure in the US was estimated at \$90.5 billion. By 2023, this figure had risen to \$147 billion, with \$150.6 billion being projected for 2024. Households with companion dogs are expected to spend approximately \$367 annually on veterinary care, \$339 on food, \$99 on grooming, \$79 on toys, and \$28 on other goods/services related to dog care (American Pet Products Association, 2024).

Reflecting this significant increase in both the number of companion dogs and the financial investment in their care, research has documented the trend toward considering companion animals as family members, bringing them into the realm of attachment and caregiving behaviors (Rehn and Keeling, 2016; Laurent-Simpson, 2021). This emerging phenomenon, which is becoming increasingly common (see Stoeckel et al., 2014; Volsche and Gray, 2016) is known as *pet parenting* (Volsche, 2021). Pet parenting is characterized by the investment of money, emotions, and time in companion animals (mainly dogs and cats) and is considered a form of alloparenting (i.e., care provided by someone other than the biological parents of the offspring; Volsche, 2021). Guardians practicing pet parenting self-identify as pet parents; e.g., they use parent-child terms to refer to themselves and their companion animals (Volsche, 2018a). Moreover, pet parents tend to make inferences regarding their animals' state of mind (i.e., "doing mind"), constructing a theory of mind that allows them to understand the emotions, desires, and wills of their companion animals. Practicing pet parenting involves considering companion animals' needs and demands in daily life (Blackstone, 2014) and acting with the aim of addressing them (Volsche, 2021). Pet parenting is, therefore, part of the companion animal-guardian relationship.

The framework of child-oriented parenting has also been adopted to study pet parenting, given their similarities. For instance, the care demonstrated in pet parenting practices mirrors that provided to human offspring (see Volsche, 2018b). Moreover, dogs trigger the *oxytocin loop*, an inherent mechanism associated with the parent-child relationship that plays an important role in attachment (Nagasawa et al., 2015). In

human psychology, the combination of demandingness (i.e., monitoring and practicing confrontive control, providing instructions on “how to behave”) and responsiveness (i.e., emotional warmth and supportive actions, attending to someone’s needs) leads to four general patterns of behaviors: authoritative (high demandingness and responsiveness), authoritarian (high demandingness and low responsiveness), permissive (low demandingness and high responsiveness), and uninvolved (low demandingness and responsiveness) (Maccoby and Martin, 1983; Baumrind et al., 2010; Baumrind, 2013). Three of these styles have been observed in dog guardians (i.e., authoritative, authoritarian, and permissive) based on guardians’ attitudes and behaviors (Brubaker and Udell, 2022).

In the same manner that child-directed parenting styles influence the socioemotional and behavioral development of the child (e.g., impacting attachment, performance, emotional stability, etc.; Maccoby and Martin, 1983; Maccoby, 1992; Baumrind, 2013), pet parenting styles impact on dog’s cognition, behavior, and welfare (Brubaker and Udell, 2022). Accordingly, dog-directed parenting styles create an overarching emotional sphere in which dog-guardian interactions (e.g., in guidance or training) take place. For instance, while authoritative guardians tend to focus on teaching the dog how to behave via praise and a step-by-step approach, authoritarian guardians report applying corrective measures such as shouting, slapping, or the correctional chain (van Herwijnen et al., 2018). The quality of such interactions has potential consequences for both the animals and the animal-guardian bond.

The emerging phenomenon of pet parenting is more common in cultures with higher urbanization rates, decreasing total fertility rates (average births per woman), and greater support of life orientations beyond reproduction (Laurent-Simpson, 2021); i.e., in cultures characterized by the second demographic transition (SDT; Lesthaeghe, 2014). The SDT has resulted in a flexible life orientation marked by postponement of parenthood, subreplacement fertility levels, and non-marital parenthood (Lesthaeghe, 2014). Shifting away from intergenerational parenthood expectancies creates, in some individuals, a desire to approach nurturing differently; e.g., choosing to bring companion animals into their homes to implement caregiving strategies, and to love and feel loved, without the difficulties linked to having a child (Shir-Vertesh, 2012; Owens and Grauerholz, 2018; Volsche, 2021). According to Volsche (2018a), this might explain why nonparents (vs. parents) are more likely to express greater generalized attachment and affective responsiveness to their animals, as well as to invest more in general care. Nonparents also allocate resources to companion animals, much like parents invest in their children, supporting the notion that nonparents may be nurturing companion animals as a trade-off/alternative to raising children (Volsche, 2018a).

Considering that research on dog-directed parenting is important to improve and understand dogs’ welfare, and that it is becoming increasingly common in some societies, more scientific work is needed to gain a deeper understanding of this phenomenon. To contribute to this end, we performed a systematic review of scientific literature to offer a comprehensive overview of pet parenting, synthesizing the research that has been done in this field and potentially guiding future research.

Method

We conducted a systematic review following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; Page et al., 2021) guidelines, which provide a clear framework for reporting systematic reviews. We performed an initial search of scientific articles in March 2023 using the generic term *pet parenting*. In this search, we observed variations in terminology across studies. Consequently, we created a search line in which the term *parenting* was associated with other explanatory terms: *companion animals*, *pet*, *dog*, *interspecies*, and *human-animals*. The final search was conducted in the Scopus, Public MEDLINE (PubMed), and Web of Science (WOS) databases. Scopus was chosen for its extensive collection of articles and documents, providing a broad view across various disciplines (e.g., sciences, technology, medicine, social sciences, arts, and humanities) and covering a wide range of topics (Sweileh, 2018; Codina et al., 2020). PubMed allows access to a larger number of articles online. WOS includes older publications, thus giving rise to a broader temporal perspective of the knowledge base (Falagas et al., 2008). The combination of keywords and Boolean, positional, and truncation operators varied, as detailed in Table 1.

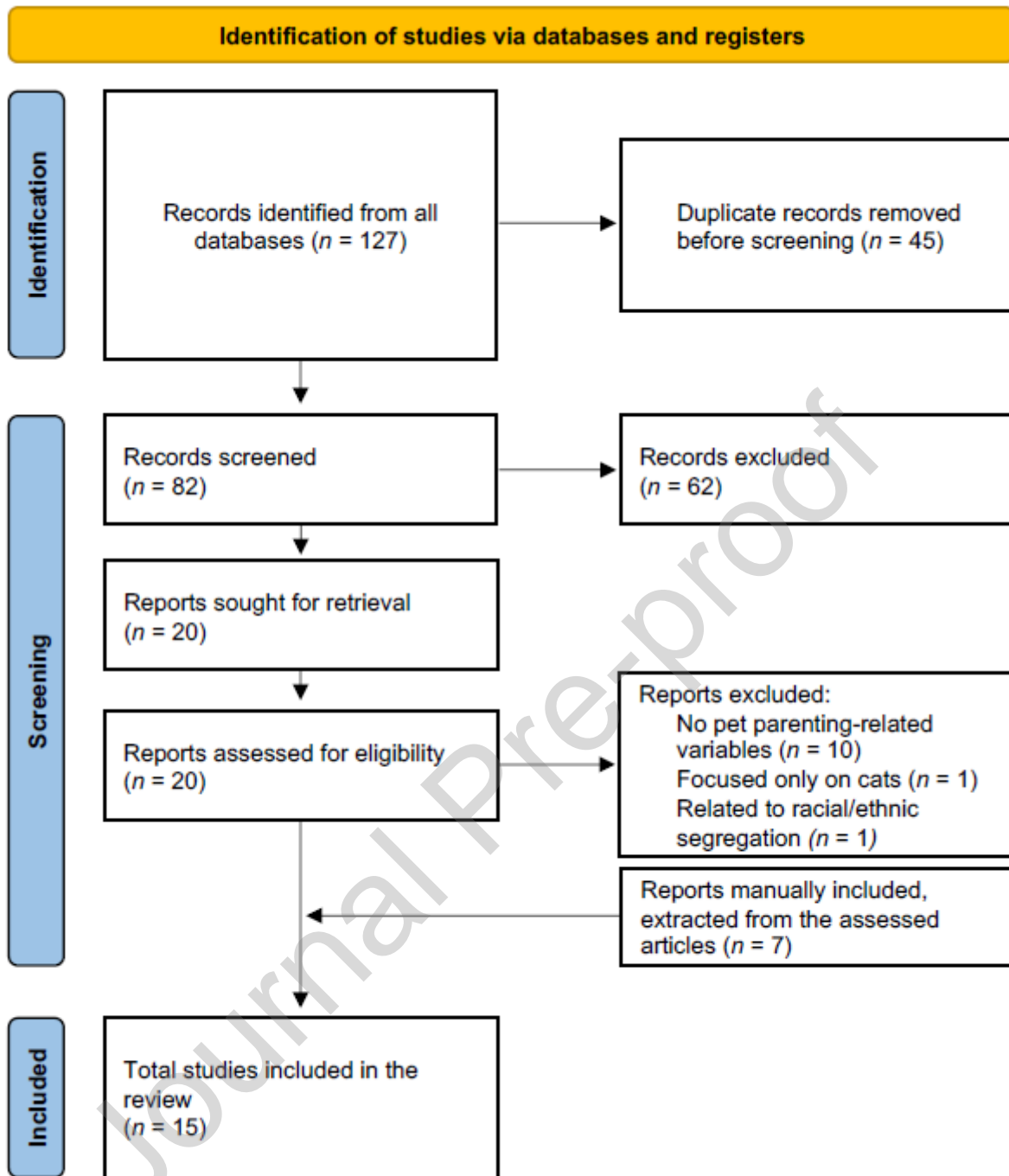
Table 1

Databases and search terms

Although the search was conducted in June 2023, we manually added references until October. There were no restrictions on publication date due to the limited number of publications related to pet parenting. The process of searching for and selecting scientific, empirical articles about pet parenting is detailed in Figure 1.

Figure 1

Flow diagram of study selection.



Our systematic searches identified 127 articles, 45 of which were excluded due to being duplicates. Subsequently, we reviewed titles and abstracts to identify relevant studies. Sixty-two studies were excluded either for not being empirical works (i.e., they did not systematically collect original data for quantitative or qualitative analysis) or for not considering aspects related to pet parenting in their design; for example, although numerous studies address the topic of pet parenting or reference it in their discussions, they focus predominantly on general bonding aspects such as attachment, emotional closeness, or relational quality. These studies frequently neglect to examine specific attitudes, practices, or styles of pet parenting. Hence, a total of 20 articles were downloaded and evaluated for eligibility. Ten of them failed to meet the criteria,

mostly because of a lack of explicit evaluation of variables related to pet parenting due to cultural, individual human, or animal-centered factors. Additionally, two studies were excluded because they diverged from the objectives of this study: one because it exclusively focused on a cat sample (Finka et al., 2019), while our aim was to characterize pet parenting and its effect on dogs, and the other because it examined how the pet parenting ideology can be used to explain a broad racial/ethnic segregation in veterinary medicine (James, 2023). Therefore, a total of eight studies met the criteria for inclusion in this study.

Afterwards, based on the reference lists of the included articles ($n = 8$), we identified and manually included 7 additional articles. Furthermore, we conducted a final search in Google Scholar, leveraging its powerful search algorithm to ensure comprehensive coverage of relevant research; however, restricting our research to empirical papers published in English, we did not identify any additional references suitable for inclusion. Thus, the current systematic review comprised a total of 15 articles. Studies forming part of the same research (i.e., Brubaker, 2019; Brubaker and Udell, 2022) were considered to be independent.

For the analyses, we thematically grouped the extracted data from the different studies to facilitate the subsequent interpretation and discussion. We used an inductive reasoning approach, creating thematic categories based on each study's results. In this process, we first listed the main constructs as units of record for each investigation. Next, we identified recurrent themes across articles (e.g., pet parenting practices of guardians of companion animals). As a third step, we looked for constructs with similarities and direct links with units of record that recurred across studies (pet parenting practices of guardians of companion animals + affectivity + communication). Then, we identified more indirect links to include the rest of the units of record within previous groupings (e.g., practice of pet parenting practices of guardians of companion animals + affectivity + communication + attachment + care). Finally, we gave each grouping a sufficiently comprehensive name. The results are presented as a narrative summary.

Results

The 15 articles selected for this review and their main results are presented in Table 2.

Table 2

Main results of empirical studies analyzing pet parenting and pet parenting styles.

Note. All studies sampled humans aged 18 years and older, except for Cimarelli et al. (2016), whose sample included individuals aged 13 years and older.

Twelve studies used quantitative designs and three used qualitative designs, implemented by means of interviews. In all studies, the minimum age of the participants was 18 years, except for one study where the minimum age was 13 years (Cimarelli et al., 2016). Thus, the age ranged from 13 to 76 years. The age group with the most participants was 18–55 years old. Results were grouped thematically to facilitate data

interpretation: (1) The use of parent-child terms related to companion animals and guardians; (2) the influence of offspring, culture, and gender on pet parenting; (3) and pet parenting styles.

The use of parent-child terms related to companion animals and guardians

The use of traditional parenting language to name one's companion animals (i.e., dogs and cats) and oneself (in relation to one's companion animals) is a means by which guardians emphasize their role as pet parents (Owens and Grauerholz, 2018). Authors found that variables such as the level of familiarity with the conversational partner impact on terminology usage. Accordingly, parental terms (e.g., the kid, the girl, furry child, grand doggy, family members, children) were more prevalent in conversations with family members compared to interactions with coworkers or strangers. In the latter cases, nonparental terms (e.g., animal [dog/cat] or pet) were more commonly used. This pattern persisted when guardians referred to themselves: parental (e.g., mom/dad) and nonparental terms (e.g., owner) were more commonly used in interactions with familiar members and unfamiliar individuals, respectively (Volsche, 2018a, 2021; Volsche et al., 2023).

The switch in terminology usage can be better understood when studied across cultures, given that authors found cultural differences in its use across countries. For instance, Indians were more inclined to use familiar terms both with acquaintances and trusted individuals, as well as with strangers and those in whom there was less trust. In the United States and Finland, people appeared to prefer terms like owner or animal when speaking with strangers (as opposed to family members). On the other hand, Japanese people used less familiar terminology, regardless of the audience (Volsche, 2021; Volsche et al., 2021, 2022, 2023). Those differences might be indicating an influence of local norms in shaping how pet parenting is practiced in each culture (Volsche et al., 2021), as well as cultural differences in the extent to which guardians engage in parent-like behaviors (Volsche, 2018a).

The terminology was also affected by the presence of children in the family unit and the guardians' gender. According to the first factor, nonparents were more likely to identify with parental terms, whether they were speaking with family and friends or with coworkers and strangers. On the other hand, parents tended to adjust the use of terms, employing more parental expressions when addressing familiar individuals compared to strangers (Volsche, 2021; Volsche et al., 2023). In relation to gender, the evidence was contradictory: while some studies found that men used nonparental terms more than women when talking to friends and relatives (e.g., Volsche et al., 2022), others found no such gender differences (Volsche et al., 2021).

It is worth noting that not all guardians identified as pet parents or engaged in pet parental caregiving practices (Owens and Grauerholz, 2018). In this sense, some guardians rejected the use of terms associated with the parental-child relationship when referring to their animals for various reasons; e.g., they considered it demeaning to the animals or did not perceive themselves to possess the maternal instincts or desires for motherhood. However, in all these cases, they acknowledged that their companion animals had specific personalities, preferences, and needs; that is, they ascribe agency to companion animals (Owens and

Grauerholz, 2018; Volsche, 2018a).

In the case of guardians using child-like terms for their companion animals and parent-like labels for themselves, they were clear that they chose companion animals (no children). Therefore, although they suggested that the care provided to companion animals mirrors that of parents toward their children, they conscientiously and spontaneously recognized that their animals are not their biological offspring. Moreover, they acknowledged distinctions between raising children and raising animals (Volsche, 2018a).

Summarizing, the use of familiar terminology to refer to guardians and companion animals was found to be widespread and was related to the level of familiarity with the interlocutor. Moreover, the presence of children (which reduces the use of parental terminology) and the culture could also influence the choice of terms. Not all guardians agreed with the use of parent-child terminology to describe their relationships with the companion animal. Lastly, those who used familiar terminology for their animals and themselves recognized the differences between pet parenting and traditional parenthood.

The influence of offspring, culture, and gender on the pet parenting

Offspring

The presence of children in the family nucleus can influence aspects of pet parenting, such as attachment. Authors indicated differences in attachment to companion animals (dogs or cats) between childfree guardians and those who have or would like to have children. Specifically, Volsche (2021) found that childfree guardians, compared to a group of guardians who “have/want children”, were more likely to agree with statements pertaining to *General Attachment* and *People substituting* from the Lexington Attachment to Pets Scale (LAPS²). Higher scores on those subscales suggest that one’s companion animal is viewed as an attachment figure in need of affection. The two groups did not differ in the third LAPS scale, i.e., *Animal Right/Welfare*, indicating that parental status did not influence caretaking behaviors. However, the results were more complex when comparing childfree guardians (who do not have and do not want children), parents (who already have children), and future parents (who do not have but want children). There were significant between-group differences for the *People substituting* scale and the total LAPS scores, with childfree and future parents scoring higher than parents (Volsche et al., 2022). Moreover, future parents seemed to be more likely than childfree guardians (in turn followed by parents) to agree with statements on each subscale of the LAPS (*General Attachment, People substituting, and Animal Right/Welfare*) (Volsche et al., 2023).

The presence of biological offspring also impacts on the care provided to companion animals. In this sense, childfree guardians (vs. the “have/want children” group) were more likely to agree with statements pertaining to *Affective responsiveness* and *General care* from the Companion Animal Relationship Scale (CARES³; Volsche et al., 2021). No between-group differences were found in the *Training and Play* subscale. Higher scores on those subscales indicate higher levels of direct (e.g., bathing, feeding) and indirect (e.g., providing social guidance) care provided to companion animals (*Affective responsiveness* also assesses bonding-type behaviors, in line with the LAPS [Volsche, 2021]). Likewise, childfree and future

parents scored higher in *Affective responsiveness* and *General care* than parents (though there were no between-group differences in *Training and Play*) (Volsche et al., 2022). Moreover, while future parents scored higher than childfree guardians (in turn followed by parents) in *Affective responsiveness*, childfree guardians scored higher than future parents (in turn followed by parents) in *General care* and *Training and Play* (Volsche et al., 2023).

The interspecies family form (childless guardians, parents of younger or older children) also shapes pet parenting experiences. Accordingly, Owens and Grauerholz (2018) showed that childfree guardians (vs. parents) constructed the parent-companion animal relationship based on larger overarching cultural narratives (emphasizing similarities between raising children and companion animals). For instance, childfree guardians prioritized the education and socialization of their animals (e.g., helping them learn to be with other people and animals), aspects that were less important for parents (who were more indulgent of their animals). Those pet parenting practices have been considered as a form of training and practice for potential future children. This study also highlighted differences according to children's age. Parents caring for their own younger children emphasized differences between parenting children and companion animals (e.g., in the time available for each and the established dynamics), which can be explained by the cultural pressures to parent intensively and the value placed on children in Western cultures. Freed from such pressures, parents of older children emphasized similarities between parenting children and cats/dogs (e.g., preparing elaborate meals, hygiene, etc.) but also hinted that parenting companion animals is, in many ways, more rewarding. In this vein, those with older human children construct a relationship with companion animals in similar ways to childless guardians. It is worth noting that while parents with older children tended to highlight the emotional benefits (e.g., joy in caring for another living being) derived from taking care of animals, parents with younger children highlighted more negative aspects of simultaneously caring for both animals and children, and expressed some guilt over not having as much time for their companion animals. In conclusion, this study indicates that having children *per se* is not necessarily linked to less concern for one's companion animal; thus, other variables (such as children's age) should be considered.

Another variable that interacts with having children is the presence of health problems in guardians. Kogan et al. (2023) studied women with breast cancer and found that the presence of children was the only significant (and positive) predictor of (pet) parental concerns related to companion animals. Authors speculated that women with children might experience increased concern about the impact of their cancer on their companion animals because they already have at least one dependent relying on them for care. Providing care for dependents, whether they are children or animals, can involve both direct (e.g., bathing/grooming, feeding, medical care) and indirect tasks (e.g., play and other activities that facilitate emotional and cognitive development) (Volsche, 2018a). Both forms of care can pose challenges for individuals undergoing breast cancer treatment (Johannsen et al., 2022). When patients were asked about their concerns regarding parenting their animals, the area of most concern pertained to finding a caretaker for their companion animal if something were to happen to them. The authors also found that all patients received a great deal of support from their animals, regardless of their parental status. However, in line with

Volsche (2021), patients without children reported a higher level of pet attachment than those with children.

Culture

Culture is a key aspect of pet parenting development and practices. Authors (e.g., Volsche, 2021) posited that pet parenting appears to occur in cultures experiencing the SDT. The characteristics of the SDT provide a demographic foundation for the phenomenon of investing in companion animals rather than children (Laurent-Simpson, 2017; Volsche, 2018a). In this sense, pet parenting was studied in countries displaying the SDT, such as United States (Laurent-Simpson, 2017; Volsche, 2018a), Australia (Power, 2008), the United Kingdom (Finka et al., 2019), and Finland (Volsche et al., 2023). Moreover, this phenomenon has recently emerged in countries that are currently displaying the SDT, such as India (Volsche et al., 2021) and Japan (Volsche et al., 2022). The SDT is therefore a common characteristic of cultures showing this phenomenon.

Despite this common factor among countries showing pet parenting, authors found variations across those societies. For instance, depending on the country, guardians differed in their use of familiar and unfamiliar terminology to refer to themselves and companion animals (see *Offspring* section) (Volsche et al., 2021, 2022, 2023). Further, authors described differences in attachment and caretaking behaviors among countries; e.g., Indians (vs. US respondents) scored higher on the LAPS scale and reported a higher frequency of behaviors related to *Affective Responsiveness* but a lower frequency of behaviors related to *General Care* (subscales of the CARES; Volsche et al., 2021). These results indicated that there are cultural variations in how these societies engage with companion animals, suggesting that philosophical disparities between countries shape pet parenting practices (Volsche et al., 2021).

Guardians' most proximal societal environment has also been found to influence factors characterizing pet parenting; e.g., the pet parent identity (developed by guardians due to their relationship with—and the “doing mind” for—their animals). In this sense, the social support provided by significant others (e.g., partners, their parents, or adult siblings) can positively or negatively affect the realization of the pet parent identity. Laurent-Simpson (2017) found that over half of the guardians who they interviewed identified some level of external validation of their pet parental identity from their significant others. This identity verification (provided by significant others) confirms one's perception of self, leading to continued, undisturbed enactment of the identity in relevant social situations.

Gender

Gender also affects the pet parent identity, where women are more likely to perceive themselves as pet parents (Owens and Grauerholz, 2018). The authors related these results to the traditional gender identities associated with parenthood, where women consistently exhibit more positive attitudes than men towards babies and show greater interest in care (Archer, 2019). In the same vein, Volsche et al. (2022)

found gender differences in LAPS and CARES scale scores in Japan, where the persistence of traditional gender roles has recently been documented (Kato, 2018). In this country, women had higher LAPS total scores, and higher scores in some subscales of the CARES (*General care* and *Affective responsiveness*), indicating that women showed higher levels of human-to-pet attachment, ascription of personhood, and parent-like behaviors and attitudes than men (Volsche et al., 2022). However, other studies (Cimarelli et al., 2016) did not find that gender clearly influenced their interaction style with their dogs (although women scored slightly higher in *Owner warmth*).

Summarizing, the presence of children affected the attachment with and care provided to companion animals; i.e., childfree guardians (vs. guardians that “have or want children”) seemed to have stronger attachments and invested more in their companion animals. When comparing childfree guardians, future parents, and parents, the first two groups scored higher in those variables than parents. However, having children *per se* is not necessarily linked to having less concern for the animal; other variables, such as children’s age, mediate this relationship. Authors found that parents with older children constructed their relationships in similar ways to childless guardians (e.g., highlighting similarities between raising companion animals and children). On the other hand, parents with younger children emphasized differences between parenting children and companion animals. Finally, the presence of children can increase concerns regarding companion animals when guardians are suffering from health problem (e.g., breast cancer). Culture is also a key aspect of pet parenting development and practices. In line with this, the SDT provides a demographic foundation for the emergence of pet parenting, being a common characteristic of all cultures showing this phenomenon. Despite this common characteristic, there were variations across societies in attachment and caregiving behaviors towards companion animals. More proximal societal environments (i.e., partner, parents, adult siblings) also influenced factors characterizing pet parenting, such as the development of pet parent identity (where the provision of identity verification leads to confirmation of one’s perception of self). The development of pet parent identity was also affected by guardians’ gender. Women were more likely to consider themselves as pet parents, to show stronger human-to-pet attachments, to ascribe personhood to their animals, and to display parent-like behaviors and attitudes than men; these findings suggest that pet parenting practices can follow culturally demarcated gender roles for parenthood.

Pet parenting styles

Characterization of child-oriented pet parenting styles

Some studies aimed to examine the presence of child-oriented parenting styles in the context of guardianship, especially of companion dogs. In this field, Cimarelli et al. (2016) recorded dog guardians’ interaction styles by means of objective observation and coding. For this purpose, they conducted an experiment including eight standardized situations in which dog guardians performed tasks, including both positive (e.g., teaching a new task, greeting after separation) and potentially distressing tasks (e.g., physical restriction during DNA sampling, putting a T-shirt onto the dog). Authors observed three interaction styles:

Owner Warmth (responses characterized by affection, warmth, and enthusiasm, as displayed by the guardian during positive interactions, such as playing), *Owner Social Support* (supportive responses displayed by the guardian in mildly stressful situations), and *Owner Control* (tendency for the guardian to use commands and attention calling [i.e., behavioral control] during play and in an obedience task). Moreover, those dimensions were associated with well-studied personality traits. Remarkably, guardians scoring higher in the personality trait of Openness scored lower in *Owner Control* and higher in *Owner Warmth*; these results were explained because parents that tend to score higher in Openness (vs. those with lower Openness) are more empathic with their children (Kochanska et al., 2004), show less negative control (Karreman et al., 2008), provide them with more autonomy support, and have a higher degree of positive parental control (i.e., setting an appropriate level of response and consistent/appropriate limits) (Prinz et al., 2009). Therefore, these relationships appear to have a comparable impact on how this personality dimension is associated with parental behavior (Cimarelli et al., 2016).

Owner Warmth, *Owner Social Support*, and *Owner Control* are also considered analogous to parenting style dimensions (Cimarelli et al., 2016). *Owner Warmth* can be compared to the parenting dimension labeled as “Warmth”, which involves parents showing care, acceptance, and support to their children. This dimension mirrors responsiveness but is restricted to positive situations (Maccoby and Martin, 1983; García and Gracia, 2009). *Owner Social Support* also relates to responsiveness but is restricted to negative situations (i.e., responsiveness to child distress). The last dimension, *Owner Control*, shows some similarities with parental control (i.e., parental psychological control that negatively affects the parent-child bond; Barber and Harmon, 2002; Kuppens et al., 2013; Cimarelli et al., 2016), which can in turn be related to the parental dimension of demandingness.

Questionnaires assessing the child-oriented parenting styles have also been used to assess pet parenting styles. For instance, van Herwijnen et al. (2018) adapted the Parenting Styles and Dimension Questionnaire (PSDQ; Robinson et al., 1995) to the parent-child relationship for dog guardians, creating the Dog-Directed Parenting Styles and Dimensions Questionnaire (DD-PSDQ). Authors observed the traditional authoritarian and authoritative styles in dog guardians, although with some differences. The authoritarian style incorporated varying degrees of demandingness and focus on verbally/physically correcting a dog’s behavior. Further, the authoritative style was divided into two subtypes: (1) the authoritative-intrinsic value-oriented style, reflecting variation mainly in responsiveness and oriented toward the assumed needs and emotions of the animal, and (2) the authoritative-training based style, oriented toward the need to teach behaviors and provide education in social relationship-related situations with a balance between the level of demand and affective responses. The authors did not identify dog guardians with the permissiveness and uninvolvedness styles.

The Pet Parenting Survey (Brubaker, 2019), another questionnaire used to assess dog-directed parenting, allows the classification of pet parenting style as authoritative, authoritarian, or permissive. For validation of the survey, dog guardians were asked to participate in two behavioral tests in addition to filling

out the survey. During the *Secure Base Test*⁴, authoritative guardians (vs. authoritarian and permissive guardians) laughed more during the attachment test. Further, during a *Solvable Task Test*⁵, a problem-solving paradigm, the authoritarian and permissive guardians tended to stay within 1 meter of their dogs while the animals performed the problem-solving task. Conversely, authoritative guardians maintained more distance and therefore did not exert physical control over the dog. Finally, authoritarian guardians tended to speak with a shorter, quicker cadence, using briefer phrases and commands compared to authoritative guardians (who employed complete sentences and longer affirmations).

Along with verbal communication, leash tension to guide the dog can also be particularly indicative of dog-directed parenting styles. To show this, van Herwijnen et al. (2020b) assessed verbal and physical (via the leash) guardian-dog interactions during a short course with distractions (which the dogs should ignore). Authoritative pet parenting was associated with the use of a friendly tone based on praise, fewer verbal corrections, and fewer leash snaps. Contrasting with this, guardians scoring high in the authoritarian style tended to verbally correct the dog instead of praising it and walked with higher leash tension. Hence, the behaviors characterizing pet parenting styles can affect the overarching emotional sphere in which guardian-dog interactions take place (van Herwijnen et al., 2018).

Considering the impact of dog-orientated parenting styles on dog-guardian interactions, some authors aimed to examine the factors that explain why dog guardians favor certain styles. In this vein, van Herwijnen et al. (2020b) found that a dominionistic perspective (in which the dog is valued for its utility) was associated with the authoritarian parenting style, indicating that the guardian's perceived need to dominate the dog leads to a combination of demandingness and non-responsiveness in dog-directed parenting. Conversely, the humanistic and protectionistic orientations (linked to humanization and the acknowledgement of animals' specific needs) were associated with the authoritative styles; therefore, humanizing dogs results in a combination of parenting responsiveness and relatively low demandingness.

Influence of pet parenting styles on dogs

Given the general emotional sphere created by the dog-oriented parenting dimensions and styles, and in which guardian-dog interactions take place, it is not surprising that different patterns of pet parenting influence dogs differently. In the above-mentioned study (Cimarelli et al., 2016) (see section *Characterization of the child-oriented pet parenting styles*), dogs whose guardians scored higher in the dimensions of *Owner Control* were more likely to show aggressive reactions during a threatening situation (in which an unfamiliar experimenter approached the guardians and dogs in a threatening manner). On the other hand, dogs that sought greater proximity to their guardians during the threatening situation had guardians who scored higher in the dimension of *Owner Warmth*. This latter dogs' behavior has been thought to reflect the "safe haven" effect of the guardians on their dogs (Gácsi et al., 2013), which has been linked to maternal sensitivity in human infants (Leerkes, 2011) and is a central feature of the parent-infant attachment (Bowlby, 1969). Relatedly, pet parenting styles impact on the quality of dogs' attachment (assessed by the Secure Base Attachment Test

created by Thielke and Udell, 2017); while dogs whose guardians practiced the authoritative style showed more secure attachment, dogs with guardians using the permissive and authoritarian styles were more likely to have an insecure attachment style (Brubaker and Udell, 2022).

The dogs' ability to solve problems is also affected by the pet parenting styles (Brubaker, 2019; Brubaker and Udell, 2022). When dogs had to solve a solvable task and guardians were in the room but providing no encouragement (i.e., in a neutral state), dogs from authoritative pet parents were generally more persistent (touching/persisting and gazing at the puzzle box) compared to the permissive group. Moreover, the former dogs spent less time gazing at the guardians than dogs with authoritarian pet parents. Overall, the results indicated that the authoritative group were more independently persistent and more confident regarding how to proceed in this human-neutral condition. When the guardians were allowed to encourage their dogs, dogs with authoritative pet parents were more engaged with the task (i.e., touching the box) than dogs in the authoritarian and permissive groups. Remarkable results emerged when comparing the time spent gazing at the guardian and/or the puzzle box during the neutral and encouragement conditions. While authoritative group dogs spent a greater proportion of time gazing at the guardian when encouraged (vs. neutral condition), the authoritarian group dogs spent the same amount of time in both conditions, indicating that input from humans may be less important in this group. Regarding the permissive group, these dogs spent more time gazing at the box puzzle during the encouragement condition (vs. neutral condition), suggesting some influence of guardian interactions. Finally, only dogs in the authoritative group successfully solved the problem-solving task (Brubaker and Udell, 2022).

In addition to their impact on attachments and problem-solving ability, pet parenting styles also appear to influence the sociability of dogs. In Brubaker and Udell's study (2022), the results of the *Sociability Test*⁶ showed that dogs with authoritative pet parents spent more time with their guardians (familiar person) than with an unfamiliar person during the inattentive phase; however, they followed social cues from an unfamiliar human and guardian. Conversely, dogs in the authoritarian and permissive groups spent similar amounts of time with guardians and the unfamiliar person during the inattentive phase, but the groups differed when a human got their attention; while the authoritarian group followed social cues from their guardian but not an unfamiliar person, the permissive group followed the social cues of the unfamiliar person but not their guardian. Authors associated the latter results with the lack of instruction or demands typically related to the permissive parenting style.

Permissive pet parenting has also been associated with dogs' health problems, such as overweight and obesity, problems that reduce quality of life in dogs by causing musculoskeletal disorders, neoplasia, and disturbances of normal endocrine functions (German et al., 2010; Loftus and Wakshlag, 2015). In this regard, van Herwijnen et al. (2020a) found that dog guardians reporting the use of strongly permissive dog-directed parenting were more likely to own a dog with overweight/obesity, in line with what was found in child-directed parenting (Shloim et al., 2015). The authors also found some evidence for an increased risk of

overweight/obese in authoritarian-parented dogs; however, they indicated that this latter result required further validation.

In summary, the ways of exercising parental practices towards dogs can be classified into different dimensions, analogous to those observed in child-oriented parenting, which are in turn linked to the personality traits of the guardians. Depending on the guardians' demands and responsiveness to the dogs' needs, pet parenting styles can be classified as authoritarian, permissive, or authoritative. The authoritative style was subdivided into the authoritative-evaluative/affectionate-based style and the authoritative-training-based style. Guardians scoring higher in authoritative parenting styles tended to exert less physical control over the dog and showed a gentler verbal communication style; this approach has been linked to a more anthropomorphic perspective and recognition of the animal's needs. On the other hand, authoritarian guardians (whose style is associated with a dominionistic perspective, which values the dog for its utility) showed a tendency to use shorter commands and leash tension. Hence, the behaviors characterizing pet parenting styles can affect the overarching emotional sphere in which guardian-dog interactions take place; therefore, it is not surprising that different patterns of pet parenting influence dogs differently. Dogs with pet parents scoring high in dimensions such as *Owner Warmth* and *Owner Control* were more likely to show greater proximity to their guardian and aggressive behaviors in threatening situations, respectively. Further, dogs with authoritarian and permissive pet parents showed insecure attachment. In problem-solving tasks, while the authoritative group was more independently persistent and confident over how to proceed, the authoritarian group seemed unresponsive to encouragement. Sociability also differed across pet parenting styles. Specifically, the authoritative group tended to follow social cues from both the guardian and an unfamiliar person, whereas the authoritarian group only followed social cues from the guardian (and not from the unfamiliar person), and the permissive group only followed cues from the unfamiliar person (and not from the guardian). Finally, there were consistent data indicating that the permissive pet parenting style was associated with higher rates of overweight/obesity in dogs, which could lead to important health problems.

Discussion

The current systematic review summarized 15 empiric studies on the pet parenting phenomenon. Across studies, three distinct approaches to addressing pet parenting were discerned. Studies belonging to the first approach focused on the use of terminology and identification with the parental role (e.g., Owens and Grauerholz, 2018). The second approach encompassed studies examining the factors affecting the pet parenting phenomenon, such as the presence of offspring in the family nucleus, the culture, and the guardian's gender (e.g., Laurent-Simpson, 2017; Volsche, 2021; Volsche et al., 2022). Lastly, the third approach was related to the pet parenting styles. This approach encompassed studies focusing on the characterization of pet parenting styles (e.g., those identifying the presence of child-orienting parenting styles in the context of guardianship; Cimarelli et al., 2016) and studies examining the impact of pet

parenting styles on companion dogs (e.g., on dogs' behavior while solving a solvable task; Brubaker, 2019; Brubaker and Udell, 2022).

Regarding studies emphasizing the terminology used by guardians (first approach), they indicated that parental terms (e.g., mother, father, children) are widely adopted in several countries (Owens and Grauerholz, 2018; Volsche et al., 2021, 2022, 2023), and their use reflects pet parent role identification (Owens and Grauerholz, 2018). The usage of terminology can be affected by different factors, such as familiarity with the interlocutor; while familiar terms tended to be used in closer relationships (e.g., family and friends), instrumental terms (e.g., owner, pet) were used in more formal or impersonal contexts (e.g., with strangers or coworkers). This alternation suggests that pet parenting practices are still relatively new, and the use of affiliative terms is less appropriate or acceptable in public or professional interactions. Alternatively, terms like children and mom/dad seem to be reserved for less formal contexts, similar to other terms applied to humans, such as beloved or hubby (Volsche et al., 2023).

Some guardians explicitly refused to use familial terminology, articulating their non-identification as parental figures for their companion animals. This rejection was either rooted in a broader disavowal of the parental role in their lives or was attributed to the distinctive nature of their bond with their animals. However, in all these cases, guardians acknowledged that their companion animals had specific personalities, preferences, and needs, and they provided care to them (Owens and Grauerholz, 2018; Volsche, 2018a), i.e., they ascribe agency to companion animals. Therefore, the rejection of this terminology should not be interpreted as a lack of positive practices in relation to companion animals (which are seen in pet parenting). In fact, ascribing agency to pets illustrates the "doing mind" for companion animals, which contributes to a better understanding of animals' needs (and encourages their fulfillment) and the development of empathy regarding how one's animal feels (Laurent-Simpson, 2017).

Likewise, the use of parental terminology and identification with pet parental roles should not be seen as role confusion or a judgment error. These guardians were aware of, and openly acknowledged, the fact that their companion animals were not literally their children (Volsche, 2018a). Referring to animals as *children* and adopting complementary parental labels is not a question of confusing animals with offspring; instead, it is a deliberate use of familiar language to symbolically integrate animals into the family unit. Terms like *father* for a mentor or *brother* for a friend are also used by people to express significant, enduring, and emotionally close social connections (Díaz Videla, 2020). Preferring parental terms over fraternal ones stems from recognizing animals as family members based on their behavior at home. Hence, guardians describing their animals as children is an expression of care rather than an attempt to restrict animals to specific roles akin to those of children (Cohen, 2002; Power, 2008).

Among the factors contributing to pet parenting (second approach), the presence of children has been widely studied. The pet parental role was developed by guardians both with and without children; in the latter case, the pet parental role emerged particularly through interactions with companion animals perceived to be akin to children, a role that might not have developed otherwise (Laurent-Simpson, 2017). The studies

identified differences between parents and childfree guardians: childfree guardians tended to use more parental terminology, exhibit higher levels of attachment, and invest more in their companion animals (Volsche, 2021; Volsche et al., 2021, 2022, 2023). Similarly, the lack of children (particularly young ones) encouraged guardians to prioritize education and socialization of their pets, thus contributing to improving family and social integration of companion animals. Additionally, as the absence of children is typically associated with more free time, childfree guardians spent more time focusing on their companion animals, thereby seeing them as individuals rather than as a species or part of the family collective.

Authors indicated differences between parents of younger and older children. Although both groups compared parenting between kids and animals, the narrative of the first group included talk of differences whereas the second group emphasized similarities. Moreover, the narrative of guardians with younger children also included comments about guilt over how their relationship has changed with their animals since their family grew to include children (Owens and Grauerholz, 2018). These feelings negatively impact on guardians and can predict lower quality of life (Kogan et al., 2023).

The differences in pet parenting across countries (Volsche et al., 2021, 2022, 2023) suggest the relevance of sociocultural aspects to this phenomenon. At the most proximal level, the social support provided by significant others (e.g., partners, their parents, etc.) for pet parenting practices reinforces them (Laurent-Simpson, 2017). The general social culture also impacts pet parenting (van Herwijnen et al., 2020c). For instance, this phenomenon tends to emerge in societies experiencing high rates of urbanization, declining fertility rates, and flexible life course orientations (collectively called the SDT; Lesthaeghe, 2014) (Volsche, 2018a, 2021; Volsche et al., 2021, 2022, 2023). Additionally, the degree of integration of pet parenting within prevailing social norms dictates the extent to which individuals align themselves with this role, fostering a network of support and normative validation at a cultural level conducive to its growth. Conversely, in the absence of social recognition or discreditation, pet parenting may exist, albeit in a more restricted and discreet manner.

The guardian's gender also affects pet parenting: women were more likely to see themselves as pet parents, showed stronger human-to-pet attachments, ascribed personhood to their pets, and conducted more parent-like behaviors than men (Owens and Grauerholz, 2018; Volsche et al., 2022). Traditional gender identities associated with parenthood may underlie this result. In this sense, women (vs. men) consistently exhibit more positive attitudes toward babies and have a greater interest in their care (Archer, 2019); moreover, gender differences in pet parenting were especially noticeable in societies where traditional gender roles still clearly persist (e.g., Japan; Kato, 2018). Therefore, the increased female involvement in pet parenting can be understood as a shift of gender mandates (which delineate the roles of women and men within a family system in normative models) from the parent-child relationship to that of guardian-companion animals (Pérez Carbonell et al., 2018).

The last (third) approach to addressing pet parenting found in the current systematic review relates to the examination of specific styles. Authors found that parental practices towards dogs could be classified

based on styles analogous to child-oriented parenting styles. Based on the guardian's demands and responsiveness to the needs of dogs, pet parenting styles were categorized as authoritative (high demand, high responsiveness), authoritarian (high demand, low responsiveness), or permissive (low demand, high responsiveness). The first style could be further subdivided into a more evaluative/affectionate and a more educative orientation (van Herwijnen et al., 2018; Brubaker, 2019); moreover, this style (authoritative) has been associated with better outcomes in terms of dog guardianship (van Herwijnen et al., 2020b). Authoritative guardians tended to exhibit friendlier communication styles (e.g., friendly tone based on praise and less verbal corrections), less leash snaps when guiding the dog, and increased eye contact (van Herwijnen et al., 2020b). This dog-oriented parenting style created an appropriate overarching emotional sphere for dogs' emotional and behavioral development. Therefore, dogs with authoritative pet parents tended to show a more secure attachment and were more independently persistent and confident in problem-solving tasks (Brubaker and Udell, 2022), as well as having a lower risk of overweight/obesity than dogs with authoritarian and permissive pet parents (van Herwijnen et al., 2020a). Considering these results, van Herwijnen et al. (2020b) stressed the potential value of creating canine educational programs to help guardians move from an authoritarian parenting dog style (based on leash-related guidance) towards a more authoritative dog-directed parenting style centered on praise-based guidance.

Limitations and future directions

The implications of this systematic review should be considered in light of some methodological limitations, primarily related to the sample characteristics of the reviewed articles. Most of these studies predominantly included female samples, with only a few addressing gender differences (e.g., Volsche et al., 2022). This female bias is a common phenomenon in research on human-animal bonds (see Herzog, 2007), potentially overlooking unique aspects of pet parenting expressed by men. Relatedly, all the reviewed articles focused on pet parenting in the context of dogs. While some aspects of pet parental bonds may be shared with cats—and potentially other species—species-specific elements could significantly differ (Burghardt, 2005; Archer and Monton, 2011). Consequently, forthcoming studies should consider the gender variable more systematically when analyzing pet parental practices and expand the scope of pet parenting research to include other species, such as cats.

Another drawback is that some reviewed articles tended to focus more on general attitudinal aspects or relational quality with companion dogs—such as attachment, often used synonymously with emotional closeness—rather than on specific aspects or practices of pet parenting (e.g., pet parenting styles, education, and care practices). Given the recent emphasis on pet parenting and the limited number of relevant published articles, we included such studies as long as they met the general inclusion criteria and contained the relevant search terms. However, future research should concentrate on central aspects of pet parenting and its consequences, as well as on characteristics that distinguish between bonding or emotional closeness and the specific construct of pet parenting.

Potentially, the most important aspect requiring future research is the impact of pet parenting on animal health. It is plausible that the authoritative parenting style may provide a route to appropriate dog-guardian attachment, protecting dogs from negative emotional states and impaired welfare (Bouma et al., 2018). However, beyond sociability and task-solving tests, the only study that specifically assessed the health status of dogs was limited to the obesity context (van Herwijnen et al., 2020a). As with the general literature on human-animal bond, it is often assumed that companion animals experience greater well-being when they are considered as family members, but this assumption is frequently not based on specific evidence regarding the animals' condition. Assessments of the welfare of companion animals often lack validated tools and rely on information provided by custodians, who may not accurately record or understand the situation. For example, they tend not to recognize when their dogs are overweight (Howell et al., 2016). At the same time, some practices linked to pet parenting, such as travelling with pets, pose a risk in terms of direct transmission of infectious diseases of dogs and cats, which can lead to health problems (Crozet et al., 2022).

Conclusions

Pet parenting is characterized by a high level of dedication and attention towards companion animals, involving the investment of time and resources in their care and well-being. Additionally, pet parents attribute companion animals with the capacity for judgment, desires, and emotions, leading guardians to act in accordance with their understanding of what the animal wants and needs.

The reviewed results indicate a fundamental shift in the cultural delineation of family in Western countries, transitioning from a definition centered around marriage, procreation, and the establishment of a nuclear family to a definition of family that emphasized choice and companionship. The multi-species family, along with various forms of parenting practices and identity, has emerged as a growing phenomenon that demands increased academic consideration.

Pet parenting, or parental practices towards companion animals, has captured the attention of professionals in human, social, and animal sciences, shedding light on how non-human agents can play a role in shaping (pet) parental role identity. Simultaneously, it underscores how these relationships impact home and societal interactions, thereby expanding academic understanding not only of identity formation but also of emerging family types and sociocultural dynamics.

Footnotes

¹We decided to use the term *guardian* or *guardianship* (vs. *owner* or *ownership*) in this work because it is linked with the consideration of companion animals as family members (Carlisle-Frank and Frank, 2006). Moreover, according to the American Society for the Prevention of Cruelty to Animals (ASPCA), the terms *guardian* better reflects the cultural and social relationship that humans have with animals, which clearly transcends that with property (ASPCA, 2024).

²The LAPS scale (Johnson et al., 1992) assesses attachment to companion animals. The LAPS consists of 23 items divided into three subscales (*General Attachment*, *People Substituting*, and *Animal Rights/Animal Welfare*). *General Attachment* measures the affective ties respondents have with their animals (e.g., *My pet means more to me than any of my friends*). *People Substituting* indicates the centrality of a companion animal within respondents' lives (e.g., *I often talk to other people about my pet*). *Animal Rights/Welfare* measures the extent to which a companion animal is incorporated into the household (*Pets deserve as much respect as humans do*).

³The CARES scale (Volsche, 2021) measures the frequency of engaging in certain caretaking and attachment behaviors with the companion animal. The CARES consists of the subscales Affective Responsiveness (*I consider my pet's preferences when interacting with them*), Training and Play (*I take my pet to socialize with others of their species*), and General Care (*I am the person who feeds my pet*).

⁴The Secure Base Test (Thielke and Udell, 2017) assesses the attachment security of dogs towards their primary caretaker. It consists of three phases, each lasting 2 min: a baseline phase (*the owner sat in the unfamiliar room and interacted whenever the dog came within 1 m*); an alone phase (*the owner leaves the room and the dog is left alone*), and a reunion phase (*the owner re-enters the room and freely interacts with the dog if the dog comes within 1 m*). Behaviors such as the owners' laugh are recorded.

⁵The Solvable Task Test (Udell, 2015; Brubaker, 2019) consists of a puzzle box containing food. At the start of each trial, the guardian presents the open box to the dog so that it can see and sniff the food inside. They then close the box. Each dog is tested twice: once in a human-neutral phase (owner remaining neutral) and again in an encouragement phase (owner encouraging the dog to solve the task). Each trial lasts 2 minutes or until the dog solves the problem (getting the food out of the box). Researchers assess whether the problem is solved and the type of behavior demonstrated.

⁶The Sociability Test (Bentosela et al., 2016) consists of four phases: unfamiliar inattentive, unfamiliar attentive, familiar inattentive, and familiar attentive. *Familiar* refers to the primary caretaker, and *unfamiliar* refers to a research assistant. The first 2 min is the phase in which the person (familiar or unfamiliar) remains *inattentive* and is allowed to pet the dog twice if it comes within 1 meter of them but otherwise remains silent. This is immediately followed by the 2-min *attentive* phase; the person (familiar or unfamiliar) is allowed to interact with the dog freely (call, pet, talk) if it comes within 1 meter of them. The order in which the familiar and unfamiliar person appears is counterbalanced across subjects.

Conflict of interest statement

No potential conflict of interest was reported by the authors.

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Mita Barina-Silvestri: Conceptualization, Methodology, Writing- Original draft, Writing- Review & Editing. **Rafael Delgado-Rodríguez:** Conceptualization, Methodology, Writing- Original draft, Supervision,

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Tables

Table 1.*Databases and search terms.*

Databases	Keywords and operators
Scopus	TITLE-ABS-KEY ("companion animal") OR TITLE-ABS-KEY (pet) OR TITLE-ABS-KEY (dog) OR TITLE-ABS-KEY (interspecies) OR TITLE-ABS-KEY ("human-animal") AND TITLE-ABS-KEY (parenting)
PubMed	((((("companion animals"[Title/Abstract]) OR (pet[Title/Abstract])) OR (dog[Title/Abstract])) OR (interspecies[Title/Abstract])) OR ("human-animals"[Title/Abstract])) AND (parenting[Title/Abstract])
WOS	((((AB=("companion animals")) OR AB=(pet)) OR OR AB=(dog) AB=(interspecies)) OR AB=("human-animals")) AND AB=(parenting)

Table 2.*Main results of empirical studies analyzing pet parenting and pet parenting styles.*

Authors	Year	Country	Sample	Design	Results
Cimarelli et al.	2016	Vienna, Austria	Guardian-dog dyads ($n = 220$)	Quasi-experimental, correlational	Guardians with higher <i>Openness</i> and <i>Conscientiousness</i> traits scored lower on <i>Owner Control</i> ($p < .01$) and <i>Owner Social Support</i> ($p < .05$), respectively. Dogs that sought greater proximity to their guardians during a threatening situation (in which an unfamiliar experimenter approached guardians and dogs in a threatening manner) had guardians scoring higher in <i>Owner Warmth</i> compared to dogs responding more autonomously ($p < .05$). Regarding guardians' gender, differences were only found in <i>Owner Warmth</i> , which was slightly higher in women ($p < .05$).
Laurent-Simpson	2017	USA	Pet guardians (dog or cat), without children ($n = 14$)	Qualitative (interview)	<i>Note: Owner Warmth</i> is associated with responses characterized by affection, warmth, and enthusiasm, as displayed by the guardian during positive interactions, such as playing. <i>Owner Social Support</i> is related to supportive responses displayed by the guardian in mildly stressful situations. <i>Owner Control</i> refers to the tendency of guardians to use commands and attention calling (i.e., behavioral control) during play and in an obedience task.
Owens and Grauerholz	2018	USA	Guardians who considered their dogs and cats as family members ($n = 39$)	Qualitative (interview)	Childfree guardians developed a parental identity that would not be present without their animals. This is shown by narratives that describe behaviors consistent with the cultural ideal of parenting. Significant others (e.g., partners, parents, adult siblings) supported this role identity. Guardians who desired to have children in the future described pet parenting as a form of training.
Volsche	2018a	USA	Pet guardians (dog or cat), without children ($n = 14$)	Qualitative (interview)	Not everyone considered themselves parents or engaged in pet parenting. Guardians with younger human children emphasized differences between parenting children and animals. Parents of older children emphasized similarities between parenting children and cats/dogs; moreover, they constructed the relationship with companion animals in similar ways to childless individuals.
van Herwijnen et al.	2018	Netherlands	Dog guardians with at least one child ($n = 518$).	Factorial (survey)	Childless pet parents used parental terms and strategies, although they are aware of the differences between raising children and animals. Pet parents attributed agency to their pets, identifying individual animal's desires and needs that they must fulfill.
Brubaker	2019	International	Study 1: Dog guardians who completed the survey ($n = 956$)	Factorial (survey) and Quasi-experimental	The construction of the Dog-Directed Parenting Styles and Dimensions Questionnaire allowed for the identification of a corrective authoritarian style (Cronbach's alpha = .80) and two authoritative styles: an authoritative-intrinsic value orientated style (oriented toward the assumed needs and emotions of the animal; Cronbach's alpha = .74) and an authoritative-training oriented style (oriented toward teaching a dog how to behave in social situations: Cronbach's alpha = .77).
					The Pet Parenting Survey allows for evaluation of the guardian's attachment style towards the dog in the following categories: authoritative (Cronbach's alpha = .816), authoritarian

			and tutor-dog dyads that participated in behavioral tests ($n = 38$). Study 2: Guardians-dog dyads ($n = 48$).		(Cronbach's alpha = .855), and permissive (Cronbach's alpha = .741). This three-factor questionnaire had an RMSEA of .065 and SRMR of .078. These styles prompted differences in dogs' behavior when performing attachment, sociability, and problem-solving tasks.
van Herwijnen et al.	2020a	Netherlands	Dog guardians ($n = 2303$)	Correlational	There was a positive association between dog body weight score and permissive parenting ($p < .001$). Moreover, the number of overweight/obese dogs was higher than expected (residual >2) in the highest (fourth) permissive style score quartile and lower than expected in the lowest (first) permissive style score quartile ($p < .001$).
van Herwijnen et al.	2020b	Netherlands	Guardian-dog dyads ($n = 41$)	Quasi-experimental	The authoritative pet parenting style was associated with the use of praise and a gentle tone towards the dog (authoritative-intrinsic value style; $p < .01$, authoritative-training style; $p < .05$). Additionally, dogs in the authoritative-training style group tended to look more at the guardian and less at distractions ($p < .01$) compared to dogs with authoritarian guardians, who tended to look less at the guardian ($p < .01$). The latter were more prone to verbal corrections ($p < .001$) and tightening the dog's leash ($p < .05$).
van Herwijnen et al.	2020c	Netherlands	Dog guardians ($n = 518$)	Correlational	The perception of dominance over dogs is associated with the authoritarian parenting style ($p < .001$). Humanistic and protective perceptions are associated with the authoritative-intrinsic value style ($p < .001$).
Volsche	2021	USA	Dog and cat guardians ($n = 917$)	Correlational	Childfree guardians (vs. the "have/want children" group) exhibited greater-intensity <i>Generalized attachment</i> ($p < .05$) and higher <i>Affective Responsiveness</i> ($p < .01$) towards their animals, as well as more dedication to <i>General Care</i> ($p < .01$). They also scored higher in the <i>People Substituting</i> dimension ($p < .01$). However, guardians with and without children did not differ in terms of <i>Animal Rights/Welfare</i> or <i>Training and Play</i> ($p = .056$ and $p = .710$, respectively).
Volsche et al.	2021	USA and India	Dog and cat guardians ($N = 1417$) from USA ($n = 991$) and India ($n = 426$)	Correlational	Pet parenting practices were similar between India and the USA. However, in the USA (vs. India), there was a greater tendency to change terminology (e.g., children, animals, pets) when speaking to more or less familiar people (p -values were not provided). Participants from India (vs. the USA) scored higher in the following two dimensions of LAPS: <i>General Attachment</i> ($p < .05$) and <i>People Substituting</i> ($p < .01$). However, they scored lower than individuals from the USA in the <i>Animal Rights/Animal Welfare</i> ($p < .01$) subscale of the LAPS. Participants from India (vs. the USA) also scored higher in the <i>Affective Responsiveness</i> ($p < .01$) and <i>General Care</i> dimensions of CARES
Brubaker and Udell	2022	USA	Guardian-dog dyads ($n = 48$)	Factorial (survey) and Quasi-experimental	Dogs with authoritative guardians (compared to authoritarian and permissive ones) exhibited higher levels of secure attachment ($p < .05$ and $p = .255$, respectively), were more sociable (being sensitive to social contexts; $p < .05$), and were more persistent (both $ps < .05$) in problem-solving tasks. Moreover, four and five dogs in the authoritative group solved the task within

					the human-neutral and encouragement conditions, respectively. None of the dogs in the authoritarian and permissive groups solved the task. However, the differences were not statistically significant in the human-neutral condition ($p = .370$) or the encouragement condition ($p = .204$).
Volsche et al.	2022	Japan	Dog and cat guardians ($n = 615$)	Correlational	Women (vs. men) scored higher in all LAPS dimensions (<i>General Attachment</i> , $p < .001$; <i>People Substituting</i> , $p < .01$; <i>Animal Rights/Welfare</i> ; $p < .001$) and in two dimensions of the CARES: <i>Affective Responsiveness</i> ($p < .001$) and <i>General Care</i> ($p < .01$). Childless guardians also scored higher than parents on <i>People Substituting</i> ($p < .01$) and had higher total LAPS scores ($p < .05$). There were differences between parents, future parents, and childfree guardians in <i>Affective Responsiveness</i> ($p = .053$) and <i>General Care</i> ($p < .05$), with future parents and childfree guardians scoring higher than parents.
Kogan et al.	2023	USA	Dog and cat guardians diagnosed with breast cancer ($n = 211$)	Correlational	Although 80% of women with breast cancer diagnoses received substantial support from their animals, only 50% considered this relationship had been taken into account by their medical team. Childless participants had greater attachment to their animals ($p < .01$); however, all guardians (regardless of whether or not they had children) received strong support from their animals regarding their oncological situation ($p < .001$). The only significant predictor of parental concerns towards companion animals was the presence of children ($p < .01$). Higher levels of guilt ($p < .001$) and parental concerns related to animals ($p < .01$), along with lower perceived support from their companion animal ($p < .01$), were important predictive factors of lower quality of life.
Volsche et al.	2023	Finland	Dog and cat guardians ($n = 857$)	Correlational	Future parents (i.e., guardians who do not have but want children in the future) obtained higher scores in all three dimensions of LAPS than childfree guardians (i.e., who does not have/want children), followed by parents: <i>General Attachment</i> , $p < .001$; <i>People Substituting</i> , $p < .001$; <i>Animal Rights/Welfare</i> ; $p < .001$. Future parents had the highest scores in <i>Affective Responsiveness</i> ($p < .001$), and childfree obtained the highest scores in the <i>Training and Play</i> ($p < .05$) and <i>General Care</i> ($p < .001$) dimensions of the CARES scale.

Note: All studies sampled humans aged 18 years and older, except for Cimarelli et al. (2016), whose sample included individuals aged 13 years and older.

Declaration of interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

Contributions

Mita Barina-Silvestri: Conceptualization, Methodology, Writing- Original draft, Writing- Review & Editing.

Marcos Díaz-Videla: Conceptualization, Methodology, Writing- Original draft, Supervision, Writing- Review & Editing.

Rafael Delgado-Rodríguez: Conceptualization, Methodology, Writing- Original draft, Supervision, Writing- Review & Editing.

Highlights

- A. Owners commonly use parent-child terms, especially when talking to familiar persons
- B. Parents show less resource investment and attachment to pets than childfree guardians
- C. Pet parenting arises in cultures facing deep changes in social and family dynamics
- D. Pet parenting styles are analogous to child-directed parenting styles
- E. Authoritative pet parents positively affect dogs' emotional well-being