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## Psychosocial Impact of Pet Keeping on Schoolchildren in China

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## Psychosocial Impact of Pet Keeping on Schoolchildren in China

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**Keywords:** attachment, empathy, pet keeping, schoolchildren, self-efficacy

**Abstract** Studies in Western countries have demonstrated the benefits of pets for humans. However, there are not many studies on human-pet relationships in different cultures and societies; for example, few in Asia. This questionnaire survey demonstrated that attachment to pets benefits the psychosocial development of schoolchildren aged 9 to 16 years ( $n = 599$ : 340 boys and 259 girls, 284 rural students and 315 urban students) in Hunan Province, central south China. Children with higher attachment to their pets scored higher on the scales of self-efficacy and empathy than those with lower attachment and those who had no pets. Moreover, girls scored higher than boys, and children living in urban areas scored higher than those who lived in rural areas. With regard to pet species (kinds), children's attachment to homeotherms (warm-blooded animals such as cats, dogs, rabbits, hamsters, and birds) was higher than their attachment to poikilotherms (cold-blooded animals such as fish and tortoises). The results are concomitant with previous studies in Western countries. Factors such as children's attachment to pets, gender, and living areas also affected the mental development and socialization of children in China. Therefore, this study demonstrated evidence that the psychosocial effects of pet keeping on children can be generalized even if the culture and society is different from those in Western countries. This study could contribute to better rearing and education of children worldwide. Practitioners, teachers, and parents should consider the choice of pet species and appropriate caring and interaction skills to help children build attachment with their pets. More factors affecting pet attachment should also be investigated further.

### Introduction

Studies in Western countries have demonstrated the benefits of pets for humans (Barker & Wolen, 2008; McNicholas et al., 2005; Taylor & Signal, 2005).

However, there are not many studies on human-pet relationships in different cultures and societies, for example, few in Asia. Although a few studies presented the importance of the bond between pets and their owners in psychological analysis in China

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(Zhang, Peng, Hu, & Zhang, 2015; Zhou, Zheng, & Fu, 2007), most studies have basically focused on the influence of pets on the physical and mental health or behaviors of specific groups (Fu & Zheng, 2003; Huang, Hu, Liu, Zou, & Sundell, 2013; Luo et al., 2018; Wang, 2011). According to these studies, pets can provide Chinese keepers with physical and emotional benefits despite the risks of allergies. However, human-animal relationships can be complicated in China. Some people keep animals like dogs and cats as pets, while other people kill and maltreat them, and even eat them. Due to the lack of scientific knowledge about relationships with pets, many people still buy a pet on a whim or keep pets just as toys, and when they do not have time and patience for their pets, they get rid of them or ban them outside. Therefore, helping people realize the benefits of pets and learn to consider human-pet relationships seriously is necessary and important in China. This education should start from childhood, and we need to know about the positive impact of keeping pets on children.

Pets have many benefits for children's psychosocial development (Vidovic, Stetic, & Bratko, 1999). Relationships between humans and pets can involve attachment, which is a fundamentally important human characteristic as described in the theoretical work of Bowlby (1969). Attachments with pets function to moderate children's socioemotional qualities (Melson, Peet, & Sparks, 1991). Childhood pet keeping was related to more positive attitudes toward pet animals and greater concerns about the welfare of nonpet animals and humans (Paul & Serpell, 1993). Children who are attached to pets were shown to be more empathic and more pro-socially oriented (Poresky & Hendrix, 1990; Vidovic et al., 1999). Human-animal bonds contribute to higher confidence, improvements in mood, and greater empathy (Serpell, 1996). Animal-assisted therapy with farm animals for humans with psychiatric disorders may reduce depression and anxiety, and increase self-efficacy (Berget & Braastad, 2011). Children frequently seek out animals for social support in emotionally stressful situations (McNicholas & Collis, 2006; Rost & Hartmann, 1994). Children who had

intimate relationships with pets felt less loneliness and had more positive socioemotions in Beijing, China (Zhou et al., 2007). It is evident that pets promote positive psychosocial development in children (Melson, 2001, 2003).

Factors such as children's gender and living environment can also influence their psychosocial development. Bryant (1982a) stated that intimate chats with grandparents and pets were important factors related to increased socioemotional functioning for children. Children can take sole or shared responsibility for pet care depending on their age (Rost & Hartmann, 1994). There are positive relationships between attachment to a pet and empathy for animals among young children (Melson et al., 1991; Poresky, 1996). Rost and Hartmann (1994) indicated that child-pet relationships also vary with the children's gender and pet type. Girls have stronger emotional relationships with their pets. Fish keepers showed fewer close emotional relationships with their pets compared with keepers of furry animals such as dogs and rabbits. People living in urban areas have more intense and intimate relationships with their dogs than people living in rural areas (Baranyiová, Holub, Tyrlik, Janáčková, & Ernstová, 2005).

Today, in line with the predominance of one-child-only couples in China, Chinese parents pay more attention to their children's material and mental development. Since the different characteristics of relationships with pets could affect children's psychosocial development, studies of the impacts of pets on children have begun to attract more attention in China.

Child development involves changes in physical, social, emotional, and intellectual functioning over time, from conception through adolescence (Martin & Fabes, 2008). During development of children's socioemotional resources, they interact with others, learn to process relationships and emotions, and shape their personality and morals. Based on the human psychosocial development theory of Erikson (1950, 1963), preadolescents and adolescents develop a sense of pride in their accomplishments and abilities. They are encouraged and commended and

develop a feeling of competence and belief in their skills. In this way, children explore their independence and develop a sense of self.

For child development, two important factors, self-efficacy and empathy, have often been discussed. Bandura (1985) wrote that individuals possess a self-system that enables them to control their thoughts, feelings, and behavior. This self-system includes the ability to symbolize, learn from others, plan alternative strategies, regulate one's own behavior, and engage in self-reflection. Self-efficacy is the extent or strength of one's belief in one's own ability to complete tasks and reach goals. High and low self-efficacy determines whether someone will choose to take on a challenging task or write it off as impossible. Empathy is the capacity to understand what another person is experiencing from within the other person's frame of reference. Empathy encompasses a broad range of emotional states, including caring for others and having a desire to help them, experiencing the emotions of others, and making less distinct the differences between the self and the other (Hodges & Klein, 2001).

In children's psychosocial development, self-efficacy is the mechanism with which they organize and regulate themselves. Children with higher self-efficacy show a stronger potential to achieve their aims and to persevere in facing difficulties. Children's perceived efficacy is the key determinant of their perceived occupational self-efficacy and preferred choice of work-life (Bandura, Barbaranelli, Caprara, & Pastorelli, et al., 2001). Moreover, empathy provides obvious benefits at both the individual and social level by allowing children to coordinate their behavior and prevent misunderstandings that lead to inefficiency and strife. Children who are unable to show any empathy are rare and striking in their inability to fit into normal social interactions (Hodges & Klein, 2001). Thus, these two psychological factors are significant in children's future adaptation to society. However, to the authors' knowledge, the previous studies that have shown that relationships with pets positively influenced children's psychosocial development were mostly based on Western studies, with little evidence from China.

## Research Question

This questionnaire study investigated the effects of pets on children in China and focused on the children's attachment to their pets that would presumably influence their two psychosocial assets, self-efficacy and empathy. Moreover, gender and living areas were expected to influence these psychosocial variables in children. Further, the impact of pet species was examined to see whether this would influence the strength of children's attachment to their pets. We hypothesized that, despite a different culture and society, Chinese children would show similar tendencies as those of Western children.

## Methods

### *Location of the Survey*

The research was conducted in Hunan Province, which is in the central south area of China. Hunan has a population of 67,753,800 in an area of 210,000 km<sup>2</sup>. Even though the real income per capita of Hunan is above the average of China (Hunan Provincial Bureau of Statistics, 2017), the province is not a highly developed area like other coastal areas in China, but is different from the most undeveloped areas in the western provinces. Therefore, we consider the research sample to be typical of a reasonably developed area in China.

Three separate schools in Hunan were selected for this research in the cities of Changsha and Xiangtan. Changsha is the largest and the capital city in Hunan Province, with a population of 7,411,600 (Hunan Provincial Bureau of Statistics, 2016) and a total regional output of 932 billion yuan (Hunan Provincial Bureau of Statistics, 2017). In Changsha, one elementary school and one middle school were chosen. The other school is in Paitou County of Xiangtan City. This school included elementary and middle education departments. Xiangtan is located to the south of Changsha. It has a population of 2,821,900 (Hunan Provincial Bureau of Statistics, 2016) and a total regional output of about 185 billion yuan (Hunan Provincial Bureau of Statistics, 2017).

This study refers to Changsha as an urban area and Xiangtan as a rural area. In recent years, the pet market has developed quickly in Hunan Province, especially in the big cities. However, according to school educators and community publicity, little about child-pet relationships and pet benefits to humans has been publicized or promoted in schools.

### Participants

One class of children from each grade was randomly chosen in each school. In total, 599 children (340 boys and 259 girls; 315 children in the urban area and 284 children in the rural area) of between 9 to 16 years of age (fourth to ninth grades, 308 children of elementary school age and 291 children of middle school age) participated in our questionnaire-based survey.

### Questionnaire

The questionnaire had four parts. The first part covered demographic information, which asked about the participants' school, grade, gender, age, and living area. It also questioned the status of their pet-keeping, such as whether they had pets and the favorite pet species they kept. The children who had not kept any pets were asked to imagine a favorite animal as a pet.

The second part employed the Children's Self-efficacy Scale (Bandura, 2006). The original scale was composed of nine parts, but the part on self-regulatory efficacy was not applicable to the Chinese situation and was therefore deleted. Thus, the scale in this study contained the other eight parts, covering 43 items in total. Each item was scored by the children according to their honest feeling. The degree of self-efficacy was rated by recording a number from 0 to 10. The final range of scores was between 0 and 430.

The third part used the Index of Empathy for Children and Adolescents (Bryant, 1982b). The scale uses 22 items to assess the dispositional affective empathy in preadolescents and adolescents. The items assess emotional responsiveness and contain a

range of affective reactions. A positive answer was recorded as 1 point and a negative answer as 0. The final range of scores was between 0 and 22.

The last part of our questionnaire used the Companion Animal Bonding Scale (Poresky, Hendrix, Mosier, & Samuelson, 1987). This scale is an 8-item, 5-point Likert scale, describing the extent of child-animal activities and self-determined behaviors. The final range of scores on this scale was between 8 and 40.

All of these scales were back-translated and completed as Chinese versions. Also, the number of valid datasets varied in each analysis of the questionnaire parts, since only completed data were used.

### Procedure

All children, teachers, and school authorities were asked for permission to carry out the questionnaire survey during class, and informed consent was obtained. As the children were not familiar with such questionnaires, before the distribution of the questionnaire sheets, a brief explanation about how to score items was given to them, without an explanation of the purpose of the study. Then, the questionnaire sheets were distributed to each child. The sheets were filled in anonymously, and about 30 minutes later when the children had completed the questionnaire, all sheets were collected. The survey was conducted in 2015. The procedure was in accordance with the Code of Ethics and Conduct of the Japanese Psychological Association and was approved by the schools.

### Results

Among the 599 children, 509 had experience of keeping pets (85%), and only 90 had never kept a pet (15%). Based on the Companion Animal Bonding Scale, the score of the children's attachment to pets was  $25.31 \pm 6.39$  ( $M \pm SD$ ) among the pet keepers. The children were divided into four groups, that is, high-attached, middle-attached, low-attached children and no-pet keepers. The score of high-attached

**Table 1.** Distribution of the Different Attachment Levels of Children by Gender and Living Area

	Attachment level				Total
	High	Middle	Low	No-pet	
Gender					
Boy	51	181	48	60	340
Girl	48	149	32	30	259
Area					
Urban	65	155	36	59	315
Rural	34	175	44	31	284

children ranged more than or equal to the mean score plus a *SD*. The score of low-attached children ranged less than or equal to the mean score minus a *SD*. The score of middle-attached children ranged between the two groups. The number of high-attached children was 99 (17%), middle-attached children numbered 330 (55%), low-attached children numbered 80 (13%) and there were 90 no-pet children (15%). The distribution of children with different pet-attachment levels in the different areas and genders is shown in Table 1. A  $X^2$  test was not significant in the distribution of children regarding their gender and attachment levels ( $X^2(3) = 5.55, p > .05$ ). However, the factor of area (urban or rural) influenced significantly the distribution of children in the attachment groupings ( $X^2(3) = 18.91, p < .001$ ). Residual analysis showed that more children were highly attached to their pets or had not kept pets in the urban area, whereas more children had mid-level attachment to their pets in the rural area (all  $p < .01$ ).

Since the data did not significantly differ between elementary and middle school children in the preliminary analysis, we combined these data and did not handle children's age factor in the subsequent analysis.

### Self-efficacy and Empathy

Table 2 shows the self-efficacy and empathy scores of children (*M* and *SD*) in terms of attachment levels

**Table 2.** Self-efficacy and Empathy Scores of Children by Attachment Level, Gender, and Living Area

	Self-efficacy		Empathy	
	Mean	SD	Mean	SD
Attachment level				
High	303.33	48.86	15.69	3.73
Middle	263.41	50.92	14.77	3.55
Low	238.32	55.33	12.77	4.17
No-pet	250.96	81.48	13.59	4.03
Gender				
Boy	255.66	64.90	13.60	4.00
Girl	275.19	50.48	15.47	3.38
Area				
Urban	289.35	50.55	15.36	3.76
Rural	242.74	57.79	13.71	3.73

to pets, gender, and living area. Three-way ANOVA (attachment level X gender X area) was separately used on self-efficacy and empathy scores.

The Children's Self-efficacy Scale used in this study contained eight parts. Preliminary analysis revealed that the tendency of score distribution was similar among the subscales. Then, the sum scores of each child were applied in this study. The data from the completed questionnaires of the Children's Self-efficacy Scale were analyzed ( $n = 529$ ). Pet-attachment level yielded significant differences on children's self-efficacy ( $F(3,513) = 19.42, p < .001$ ). A post-hoc Tukey's HSD test showed that the scores of high-attached keepers were significantly higher than those of low-attached keepers, middle-attached keepers, and no-pet keepers (all  $p < .001$ ); the scores of middle-attached keepers were higher than those of low-attached keepers ( $p < .01$ ) and no-pet keepers ( $p < .05$ ). The scores for girls were significantly higher than for boys ( $F(1,513) = 18.97, p < .001$ ). The scores of urban-area children were significantly higher than of rural-area children ( $F(1,513) = 68.62, p < .001$ ). Interaction effects between attachment

level and gender were significant ( $F(3,513) = 3.52, p < .05$ ). A post-hoc Tukey's HSD test showed that the scores for girls with high attachment were significantly higher than those for boys with middle and low attachment and without pets (all  $p < .001$ ) and girls with middle and low attachment (all  $p < .05$ ). The scores for boys with low attachment were significantly lower than those for girls with middle ( $p < .001$ ) and low ( $p < .01$ ) attachment and without pets (all  $p < .01$ ) and boys with high and middle attachment (all  $p < .001$ ). The scores for boys without pets were significantly lower than those for girls with middle attachment and boys with high (all  $p < .001$ ) and middle ( $p < .05$ ) attachment. The scores for boys with middle attachment were significantly lower than those for boys with high attachment ( $p < .001$ ).

The data revealed by the completed questionnaires of the Index of Empathy for Children and Adolescents Scale were analyzed ( $n = 540$ ). Pet-attachment level yielded significant differences on children's empathy ( $F(3,524) = 8.19, p < .001$ ). A post-hoc Tukey's HSD test showed that the scores of high-attached keepers were significantly higher than those of low-attached keepers ( $p < .001$ ) and no-pet keepers ( $p < .01$ ). The scores of middle-attached keepers were higher than those of low-attached keepers ( $p < .001$ ) and no-pet keepers ( $p < .05$ ). The scores for girls were significantly higher than for boys ( $F(1,524) = 33.02, p < .001$ ). The scores of urban-area children were significantly higher than for rural-area children ( $F(1,524) = 20.32, p < .001$ ). The interaction effects between attachment level and gender were significant ( $F(3,524) = 2.83, p < .05$ ). A post-hoc Tukey's HSD test showed that the scores for girls with high attachment were significantly higher than those for boys with middle ( $p < .05$ ) and low ( $p < .001$ ) attachment and without pets ( $p < .001$ ). The scores for boys with low attachment were significantly lower than those for girls with middle and low attachment (all  $p < .001$ ) and without pets ( $p < .01$ ), and boys with high and middle attachment (all  $p < .001$ ). The scores for boys without pets were significantly lower than those for girls with middle attachment ( $p < .001$ ).

### Attachment Scores to Different Animal Species

Table 3 shows the children's attachment scores to their favorite animal species.

One-way ANOVA showed that the scores of children's attachment were significantly different among the kinds of animal to which they were attached ( $F(7,499) = 7.00, p < .001$ ). A post-hoc Tukey's HSD test showed that the scores relating to fish were lower than those for cats, dogs (all  $p < .001$ ), rabbits ( $p < .01$ ), hamsters, and birds (all  $p < .05$ ). Furthermore, the scores for tortoises were lower than those for cats ( $p < .01$ ) and dogs ( $p < .05$ ).

### Discussion

The impact of child-pet relationships on cognitive and socioemotional development is concentrated in preadolescence and adolescence (Vidovic et al., 1999). Studies have also shown that children's attachment to pets influences aspects of their psychological development. For example, Levinson (1978) argued that closeness to animals can reduce alienation and that children's empathy, self-esteem, self-control, and autonomy could be promoted by raising pets. Children indicated that their pets provided learning opportunities, happiness, comfort, and

**Table 3.** Children's Attachment Scores by Species of Animal

	Mean	SD	n
Cat	27.76	6.91	33
Dog	25.98	6.09	303
Hamster	25.71	4.89	22
Bird	25.22	4.48	24
Rabbit	25.14	6.00	58
Tortoise	21.58	7.94	24
Fish	19.98	6.62	41
Other	28.00	7.07	4

unconditional love to them (Kidd & Kidd, 1985). Vidovic et al. (1999) stated that one of the main issues in this area was whether companionship with pets could also help children to achieve more satisfactory relationships with humans. One study showed that children with pets were better socially integrated, had wider social networks, and were more popular with their classmates (Endenburg & Baarda, 1995). Poresky (1996) reported that older children and children with closer relationships with their pets tended to have higher scores on empathy measures. These facts are consistent with the findings of this study in China. That is, the children with higher pet attachment scored progressively higher in both self-efficacy and empathy. That means that the impact of children's attachment to pets also affects children's psychosocial development in China.

In children's psychosocial development, girls were more empathetic than boys (Mestre, Samper, Frias, & Tur, 2009). Our data also revealed that the girls scored higher on both self-efficacy and empathy than the boys. Previous studies revealed many differences between women and men in aspects of behavior and socioemotional development. Women talked more to dogs than men (Prato-Previde, Fallani, & Valsecchi, 2006). Women were more attached to pets than men (Kidd & Kidd, 1989; Vidovic et al., 1999). Women value animals for different reasons than men do, and these gender contrasts in their interests and the satisfaction they derived from animals (Kellert & Berry, 1987). Gilligan (1982) concluded that varying socialization experiences produce major differences in the moral and ethical perceptions of men and women. Important aspects of the experiences of women, such as the role of nurturer and caretaker, have been stressed, in contrast to men's inclination to emphasize work, competition, and assertiveness. Consequently, women are more inclined to be intimate and care for others. In this study the number of children who were highly attached to their pets did not differ between genders. However, the combination of the factors of gender and attachment level to pets influenced the children psychosocially: the girls with high attachment should be aroused by a maternal inclination,

and this might lead to higher scores of self-efficacy and empathy.

The children in the urban area scored higher than the children in the rural area in self-efficacy and empathy. In China, rural and urban differences are apparent, especially in some provinces, like the most developed cities on the coast and the most undeveloped counties in the western inland provinces. This study site, Hunan Province, is in central south China, and its development level is at the middle. Basically, while the economic gap between the cities and counties in the province is not so wide (Hunan Provincial Bureau of Statistics, 2017), the living environment is different. Children living in rural areas have more chances for contact with nature. The way they raise animals like dogs and cats is to just leave them outside and give them space to live alone, except for preparing some food for them. Those animals are therefore more like a guard over the house for protection from strangers or other harmful animals, like rats, snakes, and so on. Further, in the rural areas the population is lower than in the cities, and the indoor space is also larger. In contrast, the urban areas with many high buildings provide only small apartments for a large proportion of the population. The space for people's exercise and activities is limited, not to mention the space for keeping pets. Pets are mostly kept in an apartment under the close care of people. Therefore, in this situation, closeness between pets and their keepers in the urban areas seem to be stronger than that in rural areas. This close relationship helps urban keepers treat their pets as family or friends, especially if they are children during the period of their psychosocial development. The close relationship to pets thus affects psychological factors. This speculation is supported by previous reports that urbanization has fostered intense relationships with pets in Western society (Baranyiová et al., 2005). Bryant (1982b) revealed that young keepers see pets as special friends who display consistency, constancy, empathy, gentleness, and warmth. Based on the results of this study, not as many children in rural areas showed high attachment to their pets as did children in urban areas. This may have been caused by the differences in

living environments and the methods of keeping animals. However, our combination of these factors, living area and attachment level, did not statistically influence psychosocial levels in children as much as the combination of gender and attachment level did. This implies the existence of other factors affecting the development of self-efficacy and empathy, such as different educational trends in these areas; but that would require future investigation.

Regarding the relation between pet species and attachment, Vidovic et al. (1999) indicated that dog keepers and cat keepers were more attached to their pets than the keepers of other kinds of pets. It is easier for a child to communicate with dogs and cats than, for instance, fish. Additionally, dog keepers in comparison to keepers of other pets have been shown to spend more time with their pets and feel that their pets are more important to them. Thus, dogs more than other pets provide their keepers with companionship and an object of attachment (Siegel, 1990). In this study, the attachment of children to poikilotherms (cold-blooded animals) was significantly lower than their attachment to homeotherms (warm-blooded animals). The living habits of poikilotherms are different from those of homeotherms, including their reproductive systems. Homeotherms also provide easier communication with their keepers. Their furs or feathers are soft and good for touching, as opposed to the surface of poikilotherms. Children can have close interactions with homeotherms, like petting, fondling, and kissing. Homeotherms, as more highly attached animals, should also be more interactive than poikilotherms.

The results of this questionnaire survey in China largely supported the statements concerning the positive relationship between attachment to pets and psychosocial development in schoolchildren with regard to self-efficacy and empathy. The factors of children's gender and living environment also influenced these patterns. The girls and the children in the urban area had higher self-efficacy and empathy than the boys and the children in the rural area. As for animal species, the children felt a stronger attachment to homeotherms than poikilotherms. The findings of this study

will contribute to a better understanding of the roles of pets in the psychosocial development of children and in human-animal relationships in general. The psychosocial assets, self-efficacy and empathy, could be the key characteristics for children starting and maintaining close relationship with others and the important conditions for social interaction and personal achievement in the future. Therefore, the strength of this study is to have demonstrated evidence that the psychosocial effects of pet keeping on children can be generalized even if the culture and society are different from those in Western countries. This fact could contribute to better rearing and education of children worldwide. Practitioners, teachers, and parents should consider the choice of pet species and appropriate caring and interaction skills to help children build attachment with their pets.

This study has, however, some weaknesses. More factors affecting pet attachment should be investigated in future studies. Furthermore, this study chose a typical province in China as the study site. However, China has tremendous regional diversity. Further studies will be valuable in clarifying the features of child-pet relationships in various regions in China.

### Summary for Practitioners

Studies in Western countries have demonstrated the benefits of pets for humans. However, there are not many analyses of human-pet relationships in different cultures and societies, for example, in Asia. In China, one of the rapidly developing countries, some people keep animals as pets, while others maltreat them, and even eat them, possibly related to a lack of scientific knowledge about relationships with pets. Therefore, helping people realize the benefits of pets and consider human-pet relationships seriously is necessary and important. This education should start from childhood, and we need to know more about the positive impact of keeping pets on children.

In Western countries, it has been demonstrated that pets have many benefits for children's psychosocial development. Children who are attached to

pets were found to be more empathic and had higher self-efficacy. Empathy and self-efficacy are significant psychological factors in the future adaptation of children to society. Factors such as children's gender and living environment can also influence their psychosocial development. Girls have stronger emotional relationships to their pets. Fish keepers have less close emotional relationships with their pets than keepers of furry animals such as dogs and rabbits. People living in urban areas have more intense and intimate relationships with their dogs than people living in rural areas.

Today, in line with the predominance of one-child-only couples in China, Chinese parents seem to pay more attention to their children's material and mental development. Since the different characteristics of relationships with pets could affect children's psychosocial development, studies of the impact of pets on children have begun to attract more attention in China. This study conducted a questionnaire survey about the effects of pets on children in China and focused on children's attachment to their pets, which might influence their two psychosocial assets, self-efficacy and empathy. Moreover, children's gender and living area in China might influence these psychosocial variables. Further, the impact of pet species was examined to see whether this would influence the strength of children's attachment to their animals.

The participants of the survey were 599 schoolchildren (340 boys and 259 girls; 315 children in the urban area and 284 children in the rural area) between 9 to 16 years of age in Hunan Province, central south China. The province is moderately developed in China. In recent years, the pet market has developed quickly in Hunan Province, especially in the big cities. However, according to school educators and community publicity, little information about children-pet relationships and pet benefits to humans has been publicized or promoted in schools. The children anonymously filled out three scales in Chinese versions as well as demographic information while in class. The scales were the Children's Self-efficacy Scale (Bandura, 2006), the Index of Empathy for Children and Adolescents (Bryant, 1982b),

and the Companion Animal Bonding Scale (Poresky et al., 1987).

Keeping of pets was common and 85% of the children had kept pets. Children with higher attachment to their pets scored higher on self-efficacy and empathy scales than those with lower attachment and those who had no pets. Moreover, girls scored higher than boys, and children living in urban areas scored higher than those who were living in rural areas. With regard to pet species, children's attachment to homeotherms (warm-blooded animals such as cats, dogs, rabbits, hamsters, and birds) was higher than their attachment to poikilotherms (cold-blooded animals such as fish and tortoises).

This study found a positive relationship between attachment to pets and psychosocial development in schoolchildren in China with regard to self-efficacy and empathy, which are crucial assets for children starting and maintaining close relationships with others and important conditions for social interaction and personal achievement in the future. This phenomenon was known in Western countries, but the possibility that this can also be applied in other cultures and societies, especially rapidly developing countries in Asia, is useful knowledge for practitioners of animal-assisted interventions, teachers, and parents in these regions. However, it is necessary to consider that children's gender, levels of urbanization, and pet species also influence psychosocial development. Generally, women are more inclined to be intimate and care for others because of their role of nurturer and caretaker, in contrast to men's inclination to emphasize work, competition, and assertiveness. Psychological closeness between pets and their keepers in urban areas seems to be stronger than that in rural areas. Homeotherms are more communicative with children than poikilotherms, which could lead children to foster more attachment to them.

Practitioners, teachers, and parents should consider the choice of pet species and appropriate caring and interaction skills to help children build attachment with their pets. More factors affecting pet attachment should also be investigated further.

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