

An Examination of Children's Behaviors toward Animals According to Various Variables

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Abstract: This study was conducted to examine children's behavior toward animals based on various variables. The study population consisted of primary and secondary schools located in the central Pendik district of Istanbul. The study sample included 667 children in the 4th, 5th, 6th, 7th, and 8th grades of these schools who volunteered to participate in the study. The data in the study were collected using a "General Information Form" and the "Animal Behavior Scale" developed by Aysu et al. (2021). SPSS was used to analyze the data collected in the study. An independent samples t-test was used to examine whether the total scores obtained from the Animal Behavior Scale showed significant differences according to various independent variables. The Bonferroni test was applied to determine differences between groups. The study found that the mean score of eighth-grade children was lower than the mean score of fourth-, fifth-, sixth-, and seventh-grade children; the mean score of fourth-grade primary school children with two or more siblings was higher than that of single children, and the mean score of children with pets was higher than that of children without pets; the mean score of sixth- and seventh-grade middle school girls was higher than that of boys, and the mean score of children with pets was higher than that of children without pets; the mean score of eighth-grade middle school children with pets was higher than that of children without pets. It was determined that the total score obtained on the Behavior Towards Animals Scale for fifth-grade middle school children did not differ according to any variable. Furthermore, analyses conducted on all children included in the study revealed that girls' average scores were higher than boys'; children with mothers who had a high school education or higher were higher than children with a middle school education or lower; children with working mothers were higher than children with unemployed mothers; and children with pets were higher than children without pets. These results are believed to form the basis for future studies on instilling positive behaviors in children toward living things within the context of environmental education.

Keywords: Animal, child, child - animal relationship, environmental education.

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Introduction

Humans are constantly interacting with their environment. As a result of this interaction, humans and their environment influence each other reciprocally (Enger et al., 2010). This reciprocal interaction has given rise to environmental science. Environmental science studies the world and the impact humans have on it. In doing so, it also seeks to find solutions to the negative effects humans have on the world (Cunningham and Cunningham, 2010). The work of environmental science also encompasses the

relationship between humans and the animals in their environment (Enger et al., 2010).

Since humans have had direct contact with nature since ancient times, animals have represented concepts such as danger, competition, labor, and food for humans. With industrialization, humans' relationship with nature and animals has changed. People began to live mostly in cities, and agriculture became highly industrialized. This situation resulted in people no longer being able to see most wild and domestic animals in their daily lives. In fact, some animals have become known through media such as books and the internet. The only animals that people can see and

touch are their own domestic animals. This situation has necessitated that people provide suitable living conditions for animals, and with the change in values towards animals, behaviors towards animals have become a subject of scientific research within the scope of environmental education (Bonafos et al., 2010). This also demonstrates that humans are key players in halting the threat to environmental sustainability (Suminar et al., 2024) and in animal behavior, as they possess the necessary knowledge and skills to adopt environmentally friendly behaviors.

Animals are part of environmental and nature education, which is directly related to daily life, and provide children with concrete experiences (Sobko, Jia, and Brown, 2018). Therefore, it is believed that studies in this area can increase children's social sensitivity and awareness of the environment, nature, and animals. In humans, love for animals and protecting and caring for them, as well as taking responsibility for them, contribute to psychological well-being, support social development, and facilitate being beneficial to society and the planet (Ekim, 2020). Living with a pet makes people feel good (Suna, 2019). It is known that animal-assisted therapies used in health sciences reduce anxiety in children, provide a comfortable and relaxing environment, and alleviate pain (Zhang et al., 2020). Based on these positive effects of animals on children's development, it is considered necessary to examine children's behavior towards animals. Determining children's behavior towards animals within the scope of environmental education and instilling desirable behaviors towards animals will contribute to the development of environmental education and raise generations with environmental awareness and consciousness.

Children struggle to acquire important life skills related to nature during their elementary school years (Erentay, 2013), so it can be argued that behavior towards animals should be studied from elementary school onwards as part of environmental education. However, it is known that thoughts and behaviors related to animals change as age progresses (Binngießer et al., 2013; Neldner and Wilks, 2022; Hirschenhauser et al., 2017). In addition, it is emphasized that children's behavior towards animals can be influenced by many factors, and that factors such as gender, age, family, other people in their environment, school/classes, which are effective in the positive or negative development of behavior towards animals, should be taken into consideration and interpreted from a developmental perspective (Aysu et al., 2021). In this sense, it is considered important to contribute to the literature by identifying child-animal relationships in a way that encourages positive developmental trajectories, particularly during primary school and adolescence (Mueller, 2014). Because examining children's behavior toward animals in relation to various variables can contribute significantly to the development of educational programs that aim to promote positive behavior toward animals by examining human-animal relationships, as well as to environmental education initiatives related to this topic, and can serve as an example for interdisciplinary studies. Based on these

considerations, this study aims to examine children's behavior toward animals in relation to various variables.

Method

This study, which aims to examine children's behavior towards animals in terms of various variables, adopts the descriptive survey model from quantitative research methods. Survey models are research approaches that aim to describe the existing situation as it is (Karasar, 2016), and the descriptive survey model enables the collection, analysis, and explanation of quantitative data related to research variables (Büyüköztürk et al., 2014). The study population consists of children attending the fourth grade of elementary schools and the fifth, sixth, seventh, and eighth grades of middle schools in the spring semester of the 2024-2025 academic year in the Pendik district of Istanbul Province, where animal services are provided, stray animals are rarely seen, and there is a high diversity of bird species in the coastal region. In the spring semester of the 2024-2025 academic year. In quantitative research, the population, which includes a larger number of individuals, events, or groups of phenomena, is converted into a smaller and more suitable sample for the study using specific methods (Neuman, 2007). Within this scope, a sample was selected for the study using simple random sampling. Simple random sampling is a sampling method in which each unit in the population has an equal and independent chance of being included in the sample (Yıldız, 2017).

Ethical approval for the study was obtained from the Health Sciences Ethics Committee of Ankara Yıldırım Beyazıt University Rectorate on September 27, 2024, with reference number E-84892257-300-292396. Following the ethical committee approval, permissions were obtained from the Istanbul Provincial Directorate of National Education for accessibility purposes, and interviews were conducted with primary and secondary school administrators and educators. Based on these interviews, the children's parents were contacted, and their consent was obtained.

A power analysis (G*Power) was performed to test the suitability of the sample group in the study. According to the analyses performed with the G*Power software, the minimum sample size required for statistical power to be 0.95 is 305.

Within this scope, the study included 119 children in the fourth grade of elementary school and 119 children in the fourth, fifth, sixth, seventh, and eighth grades of middle school who live in the Pendik district of Istanbul, exhibit typical development, voluntarily participated in the study, and obtained consent from their parents. and middle school students in grades five through eight, totaling 667 children. This number exceeds the previously determined minimum sample size. The data was collected by visiting the schools where the children attend between February 3, 2025, and March 13, 2025, without disrupting the education process, in the classes deemed appropriate for the children by their teachers.

Table 1. Distribution of Sociodemographic Characteristics of Children and Parents Included in the Study (n=667)

Variable	Group	Class Levels										Total	
		4 th grade		5 th grade		6 th grade		7 th grade		8 th grade			
		n	%	n	%	n	%	n	%	n	%	n	%
Gender	Girl	53	44.5	40	44.0	56	50.9	106	50.5	59	43.1	314	47.1
	Boy	66	55.5	51	56.0	54	49.1	104	49.5	78	56.9	353	52.9
Number of siblings	Only Child	60	50.4	60	65.9	68	61.8	127	60.5	58	42.3	373	55.9
	2 or more siblings	59	49.6	31	34.1	42	38.2	83	39.5	79	57.7	294	44.1
Birth Order	First child	52	43.7	48	52.8	50	45.5	89	42.4	49	35.8	288	43.2
	2nd and subsequent children	67	56.3	43	47.3	60	54.6	121	57.6	88	64.2	379	56.8
Mother's Educational Status	Middle school ⁻	46	38.7	28	30.8	32	29.1	103	49.1	81	59.1	290	43.5
	High school ⁺	73	61.3	63	69.2	78	70.9	107	51.0	56	40.9	377	56.5
Father's Educational Status	Middle school ⁻	26	21.9	14	15.4	26	23.6	87	41.4	61	44.5	214	32.1
	High school ⁺	93	78.2	77	84.6	84	76.4	123	58.6	76	55.5	453	67.9
Mother's Employment Status	Yes	42	35.3	41	45.1	40	36.4	84	41.0	46	34.1	253	38.3
	No	77	64.7	50	54.9	70	63.6	121	59.0	89	65.9	407	61.7
Pet Ownership Status	Yes	35	29.4	36	39.6	52	47.3	82	43.6	50	36.5	255	38.2
	No	84	70.6	55	60.4	58	52.7	106	56.4	87	63.5	412	61.8

According to Table 1, 52.9% of children are male, and 55.9% have only one sibling. Additionally, 56.8% of children are second or subsequent births. 56.5% of the children have mothers with a high school education or higher, and most of the mothers (n=407) are not employed. 38.2% of the children own a pet. Since nearly all of the fathers included in the study are employed, they were not included in the analysis.

The "General Information Form" was prepared to determine the characteristics of children and parents, and the "Behavior Towards Animals Scale" was used to determine children's behavior toward animals. The General Information Form consists of questions aimed at obtaining demographic information such as the children's grade level, gender, number of siblings, birth order, parents' educational status, employment status, and whether they own a pet. The Behavior Towards Animals Scale was developed by Aysu et al. (2021) to determine children's behavior towards animals. Exploratory (EFA) and confirmatory (CFA) factor analysis was conducted as part of the scale's validity studies. As a result of EFA, a single factor with a higher eigenvalue than other factors and explaining a higher variance (44.18%) was obtained, along with an 11-item scale. The scale is a five-point Likert-type scale, and respondents can answer the questions by selecting one of the following options: "I did it very often," "I did it often," "I did it occasionally," "I did it rarely," or "I never did it." As a result of CFA, it was determined that the previously determined structure of the scale was generally consistent with the collected data. The fit indices were found to be $\chi^2=483.12$, $X^2/sd= 4.06$, RMSEA=0.076, CFI=0.92, IFI=0.92, NNFI=0.91, and NFI=0.91. In terms of reliability, Cronbach's alpha internal consistency coefficient was calculated and found to be 0.90, indicating that the scale is reliable

(Cronbach, 1990). The results of the analysis show that the scale is a valid and reliable measurement tool for measuring children's Behavior Towards Animals. The items are scored from 5 to 1, ranging from "I did it very often" to "I never did it," and the higher the total score obtained from the scale, the more positive the Behavior Towards Animals. The reliability coefficient for this study was calculated and determined to be 0.88.

In the study, the data were transferred to the SPSS software package. Before analyzing the data, the Kolmogorov-Smirnov test and skewness-kurtosis values were used to assess whether the data were normally distributed. Although the Kolmogorov-Smirnov test was statistically significant ($p > 0.05$), it was determined that the distribution deviated significantly from normality due to the skewness value of 0.019 and the kurtosis value of -0.738 (Uysal and Kılıç, 2022). Therefore, the analysis continued using parametric statistics. The significance level for all analyses was set at .05. To determine whether the total scores obtained from the Children's Behavior Towards Animals Scale differed according to grade level, a one-way ANOVA was conducted for children in the fourth grade of elementary school and the fifth, sixth, seventh, and eighth grades of middle school. The Bonferroni test was used as a post-hoc test for intergroup differences. The total scores obtained from the Behavior Towards Animals Scale for children were examined with t-tests for independent samples to determine whether they differed according to gender, number of siblings, birth order, mother's and father's educational status, mother's employment status, and pet ownership status. These analyses were conducted separately for each grade level. To ensure sufficient sample size in these analyses, the variables of number of siblings,

birth order, and educational status of the mother and father were recoded into binary categories.

The research to determine children's behavior towards animals is limited to data obtained from fourth-grade elementary school students and fourth- to eighth-grade middle school students living in Pendik, Istanbul, who are developing typically,

volunteered to participate in the study, and obtained parental consent.

Findings

This section presents the findings of a study conducted to examine children's behavior towards animals according to various variables.

Table 2. Examination of the Total Scores Obtained by Children Included in the Study on the Behavior Towards Animals Scale According to Grade Level

Grade	n	\bar{X}	SS	F	p	Meaningful Differences
4 th Grade	119	32.63	9.66	4.81	.001	4-8
5 th Grade	91	33.74	9.45			5-8
6 th Grade	110	33.60	10.03			6-8
7 th Grade	210	32.93	10.39			7-8
8 th Grade	137	29.09	9.50			
Total	667	32.31	10.01			

According to Table 2, the average score for children's Behavior Towards Animals was determined to be 32.31. Considering that the highest score that can be obtained from the scale is 55 and the lowest score is 11, it can be said that children's Behavior Towards Animals is at a moderate level. Additionally, the average score for eighth-grade students ($X = 29.09$) is lower than that of fourth-grade students ($X = 32.63$), fifth grade ($X = 33.74$), sixth grade ($X = 33.60$), and seventh grade ($X = 32.93$) students.

Table 3. Examination of the Total Scores Obtained by Fourth Grade Elementary School Students on the Behavior Towards Animals Scale According to Various Variables

Points	Vocation	n	\bar{X}	SS	t	sd	p
Gender	Girl	53	33.98	8.95	1.37	117	.173
	Boy	66	31.55	10.13			
Number of Siblings	Single	60	30.38	9.98	-2.62	117	.010
	2+	59	34.92	8.83			
Birth Order	First	52	31.52	9.81	-1.11	117	.271
	2+	67	33.49	9.53			
Mother's education	Middle school and below	46	33.48	8.40	0.76	117	.450
	High school and above	73	32.10	10.40			
Father's education	Middle school and below	26	34.58	9.00	1.16	117	.247
	High school and above	93	32.09	9.82			
Working Mother	Works	42	32.79	10.61	0.13	117	.898
	Doesn't Work	77	32.55	9.17			
Pet	Yes	35	36.03	8.98	2.53	117	.013
	No	84	31.21	9.63			

According to Table 3, children with two or more siblings and children who own pets were found to have more positive attitudes toward animals.

Table 4. Examination of the Total Scores Obtained by Fifth Grade Middle School Students on the Behavior Towards Animals Scale According to Various Variables

Points	Vocation	n	\bar{X}	SS	t	sd	p
Gender	Girl	40	34.90	9.15	1.04	89	.301
	Boy	51	32.82	9.67			
Number of Siblings	Single	60	32.98	9.28	-1.06	89	.293
	2+	31	35.19	9.76			
Birth Order	First	48	34.31	10.03	0.61	89	.542
	2+	43	33.09	8.83			
Mother's education	Middle school and below	28	32.54	8.85	-0.81	89	.422
	High school and above	63	34.27	9.73			
Father's education	Middle school and below	14	31.29	9.66	-1.06	89	.294
	High school and above	77	34.18	9.41			
Working Mother	Works	41	34.85	9.60	1.02	89	.310
	Doesn't Work	50	32.82	9.33			
Pet	Yes	36	35.72	8.15	1.64	89	.105
	No	55	32.44	10.07			

When the table 4 is examined, it is determined that the total scores obtained by children in the fifth grade of middle school on the Behavior Towards Animals Scale do not differ according to any variable.

Table 5. Examination of the Total Scores Obtained by Sixth Grade Middle School Students on the Behavior Towards Animals Scale According to Various Variables

Points	Vocation	n	\bar{X}	SS	t	sd	p
Gender	Girl	56	37.46	8.45	4.44	108	.000
	Boy	54	29.61	10.05			
Number of Siblings	Single	68	33.71	9.96	0.13	108	.898
	2+	42	33.45	10.27			
Birth Order	First	50	35.24	9.56	-1.68	208	.094
	2+	60	32.25	10.29			
Mother's education	Middle school and below	32	30.84	9.93	-1.87	108	.064
	High school and above	78	34.74	9.91			
Father's education	Middle school and below	26	33.73	10.22	0.07	108	.944
	High school and above	84	33.57	10.04			
Working Mother	Works	40	35.00	10.95	1.10	108	.274
	Doesn't Work	70	32.81	9.46			
Pet	Yes	52	36.40	9.68	2.86	108	.005
	No	58	31.10	9.75			

Table 5 shows that the average score of girls in the sixth grade of middle school is higher than that of boys, and the average score of children with pets is higher than that of children without pets.

Table 6. Examination of the Total Scores Obtained by Seventh Grade Middle School Students on the Behavior Towards Animals Scale According to Various Variables

Points	Vocation	n	\bar{X}	SS	t	sd	p
Gender	Girl	106	36.70	9.16	5.69	208	.000
	Boy	104	29.09	10.21			
Number of Siblings	Single	127	32.48	10.49	-0.77	208	.441
	2+	83	33.61	10.27			
Birth Order	First	89	31.53	10.63	-1.68	208	.094
	2+	121	33.96	10.14			
Mother's education	Middle school and below	103	32.22	10.29	-0.96	208	.336
	High school and above	107	33.61	10.49			
Father's education	Middle school and below	87	32.72	10.74	-0.24	208	.811
	High school and above	123	33.07	10.18			
Working Mother	Works	84	34.29	11.34	1.46	203	.145
	Doesn't Work	121	32.14	9.56			
Pet	Yes	82	37.28	9.96	5.14	208	.000
	No						

Table 6 shows that the average score of girls in the seventh grade of middle school is higher than that of boys, and the average score of children with pets is higher than that of children without pets.

Table 7. Examination of the Scores Obtained by Eighth Grade Middle School Students on the Behavior Towards Animals Scale According to Various Variables

Points	Vocation	n	\bar{X}	SS	t	sd	p
Gender	Girl	59	30.58	9.57	1.04	89	.301
	Boy	78	27.96	9.35			
Number of Siblings	Single	58	30.21	10.36	1.18	135	.239
	2+	79	28.27	8.79			
Birth Order	First	49	28.82	10.31	-0.25	135	.804
	2+	88	29.24	9.07			
Mother's education	Middle school and below	81	28.79	8.75	-0.44	135	.661
	High school and above	56	29.52	10.56			
Father's education	Middle school and below	61	28.43	8.99	-0.73	135	.467
	High school and above	76	29.62	9.91			
Working Mother	Works	46	30.11	9.92	0.93	133	.354
	Doesn't Work	89	28.49	9.36			
Pet	Yes	50	32.52	10.65	3.32	135	.001
	No	87	27.11	8.20			

Table 7 shows that the average score of eighth-grade students who have pets is higher than that of students who do not have pets.

Table 8. Examination of the Scores Obtained by Children Included in the Study on the Behavior Towards Animals Scale According to Various Variables

Points	Vocation	n	\bar{X}	SS	t	sd	p
Gender	Girl	314	35.00	9.35	6.76	665	.000
	Boy	353	29.92	9.99			
Number of Siblings	Single	373	32.09	10.14	-0.62	665	.533
	2+	294	32.58	9.86			
Birth Order	First	288	32.17	10.30	-0.30	665	.761
	2+	379	32.41	9.80			
Mother's education	Middle school and below	290	31.34	9.51	-2.20	665	.028
	High school and above	377	33.05	10.33			
Father's education	Middle school and below	214	31.75	10.09	-0.99	665	.324
	High school and above	453	32.57	9.97			
Working Mother	Works	253	33.48	10.70	2.33	658	.020
	Doesn't Work	407	31.62	9.50			
Pet	Yes	255	35.78	9.76	7.31	665	.000
	No	412	30.16	9.57			

When Table 8 is examined, it is observed that in the analyses conducted on all children included in the study, the average scores of girls are higher than those of boys, the average scores of children whose mothers have a high school education or higher are higher than those of children whose mothers have a middle school education or lower; the average scores of children whose mothers work are higher than those of children whose mothers do not work, and the average scores of children who own pets are higher than those of children who do not own pets. In other words, it can be said that girls, children whose mothers have a high school education or higher, children whose mothers work, and children who own pets exhibit more positive behaviors toward animals.

Discussion and Conclusion

The findings that eighth-grade students scored lower than fourth-grade elementary school students and fifth-, sixth-, and seventh-grade middle school students can be explained by the fact that younger children tend to exhibit more appropriate behavior toward animals than older children. In a study conducted by Artemiou and others (2017), elementary school children in the Caribbean reported more reasons for liking cats and fewer reasons for disliking them. The decline in children's Behavior Towards Animals scores is consistent with the literature. Pro-animal attitudes decrease with age from childhood onwards (Binngießer et al., 2013). One of the reasons for this finding is thought to be children's experiences with nature. Providing children with positive experiences with living beings in their environment from early childhood onward influences their attitudes and behaviors in later years (Fonseca et al., 2014).

It is important to involve children in nature-related activities and increase their knowledge about various animal species. Therefore, children's participation in nature-related activities and

strengthening their connection with nature can help them become environmentally conscious and contribute to the conservation of wildlife (Xu and Jiang, 2022). However, as people spend more time indoors in their daily lives and spend less time in natural areas, their familiarity with and perspectives on living creatures in nature are changing (Schuttler et al., 2019). Children may be more inclined to protect virtual, i.e., invisible or exotic species rather than animal species they can always see in their environment (Kos et al., 2023). From another perspective, in order to promote more positive behavior toward animals, it is necessary to identify animals that may be perceived as frightening or not cute by children while providing them with direct experiences with nature. It is also important to assess the impact of these interactive experiences with animals on reducing children's fear of animals (Jerger et al., 2022).

Based on this difference in children's behavior towards animals between grade levels, it is believed that conducting a detailed examination at each grade level will contribute to the literature. In the fourth grade, children with two or more siblings had a higher average score than those with only one child, and children with pets had a higher average score than those without pets. Children with two or more siblings and children who own pets have been found to exhibit more positive attitudes toward animals. On the other hand, no significant differences were found in variables such as gender, sibling order, parents' educational status, and mother's employment status. This situation indicates that sibling relationships and pet ownership stand out in Behavior Towards Animals at the fourth grade level. This situation can also be explained by familiarity with living with another living being. Previous studies have also supported that pet ownership is a determining factor in the behavior towards animals of children in the fourth grade. In Artemiou and others' (2017) study, more than half of elementary school children reported owning a cat,

associating this ownership with feelings of happiness and comfort. Calderón-Amor and others (2023) also found that fourth-grade students in Chile who scored high on empathy and were better at recognizing happiness on animals' faces had more positive attitudes toward animals.

Regarding the terms "sisterhood" and 'brotherhood' in relation to having siblings, it is assumed that there is a valid reason for using the term "sibling" to express harmony and support even among individuals who are not biologically related. The time siblings spend together, along with their family identity and shared experiences, often leads to lifelong bonds (Feinberg et al., 2012). It is well known that sibling relationships, which are potentially the longest relationships an individual can have with any family member, offer countless opportunities to influence each other's lives. The ability to fully understand and utilize sibling effects is not only essential for developing effective prevention and intervention strategies that support successful sibling relationships, but also has the potential to improve individual well-being throughout life (Kramer & Conger, 2009). At this point, it can be argued that sibling relationships not only benefit individual well-being but also have the potential to improve animal welfare within the context of environmental education, as we share this planet with animals.

In terms of social development, it is thought that individuals with social competence skills are more likely to reinforce these skills through their relationships with pets and expand their social networks (Charmaraman et al., 2020). Therefore, children with siblings may exhibit more positive behaviors toward animals during elementary school, a period when peer relationships and social skills are important.

Children observe and learn behaviors, skills, and attitudes from their siblings that may be quite different from what they learn from their parents (Kramer & Conger, 2009). For example, they may see that their sibling needs help, learn to cooperate, or teach their sibling to cooperate. He/she can help his/her mother in caring for his/her siblings. He/she can also help in caring for pets, even if they do not live in the same house. The presence of siblings and pets can be used as facilitating factors in improving Behavior Towards Animals within the scope of environmental education, and can help in determining the target audience of intervention programs and creating sibling- or peer-focused interventions.

The results of the analysis show that the total scores obtained by fifth-grade middle school students on the Behavior Towards Animals Scale do not show a significant difference according to demographic variables, indicating that the children's Behavior Towards Animals is largely similar and that the social demographic factors examined are not decisive in this behavior. Although the scores of children with pets at home were slightly higher, this difference was not statistically significant. It can be said that this is due to the fact that the children have moved up to a higher grade after elementary school, as well as changes in teachers, the level of lessons, and perhaps the school itself. Menor-Campos and others (2019) also found no difference between the attitudes of Spanish children toward animals and their gender up to sixth grade. Since it is considered important to discover how and when gender differences emerge (Menor-Campos et al., 2019), this study is expected to contribute to this gap in the literature. At this point, it has been determined that the average score of girls in sixth

grade is higher than that of boys, and the average score of children with pets is higher than that of children without pets. This situation can be explained by the fact that, in addition to growth, the developmental characteristics of adolescence come to the fore in sixth and seventh grades, with gender characteristics becoming more prominent. At the same time, pet ownership has also come back into focus and gained new meaning. During adolescence, interests change along with developmental differences, including personal, physical, and social development. Adolescents begin to show more interest in their peers than in what is happening in their family environment (Marsa-Sambola et al., 2016). This reduces the sibling effect. Although the effects of age on personality are small until late adolescence, there are age differences in some characteristics. Examining these characteristics on an annual basis highlights distinct developmental trajectories, and in this context, age-related differences in some child and adolescent characteristics may vary according to gender. For example, until the end of adolescence, girls tend to show an increase in conscientiousness and agreeableness, while the maturation of responsibility-taking behaviors in girls begins at an earlier age than in boys (Slobodskaya and Kornienko, 2021). The fact that girls' Behavior Towards Animals scores are higher than boys' at the sixth and seventh grade levels, in other words, this finding in favor of girls continuing in sixth and seventh grade, is consistent with the findings of Slobodskaya and Kornienko (2021), who also identified an increasing trend in terms of taking responsibility and being conscientious, it is thought that girls in sixth and seventh grade have more positive Behavior Towards Animals scores. While boys do not differ from girls in terms of their belief that animals experience basic emotions such as distress, fear, happiness, anger, and sadness, boys are significantly less likely than girls to believe that animals experience complex emotions such as depression, anxiety, love, and grief (Walker et al., 2014).

Randler et al. (2021) found that adolescent girls in Colombia, France, Germany, and India had more positive attitudes toward animals than boys. Gül and Köse (2019) found that girls initially showed higher levels of empathy toward animals, but after empathy training, boys also showed a significant increase in their empathy levels. This situation shows that gender-based negative attitudes can be reduced through education. Assessing attitudes toward animal welfare is considered important during adolescence (Randler et al., 2021). In the current study, no difference was found between girls and boys in terms of Behavior Towards Animals when they reached eighth grade. This situation may be a result of eighth graders focusing their exam preparation and knowledge acquisition on academic skills, as this is their common goal for the year. This finding once again highlights the importance of examining differences at the class level. Mihelič Oražem and Tomažič (2025) also found a correlation between having more knowledge about animal species and more positive attitudes toward animals among adolescents. For example, in Slovenia, children in sixth and seventh grades had the least knowledge about the Eurasian eagle due to the fact that the topics covered in their biology lessons were plants and humans, respectively. Seventh graders, on the other hand, had more knowledge about the Eurasian eagle, as expected, due to the fact that the main topic covered in their science lessons was animals. At this point, it is emphasized that the amount of species-specific knowledge among children in Slovenia is related to the amount of content covered in lessons rather than the influence of age (Mihelič Oražem and Tomažič,

2025). In Turkey, however, the curriculum has been revised, but the research data were collected before this revision. It is thought that the fact that the data on Behavior Towards Animals remain up-to-date could provide a basis for further studies examining the effects of curriculum changes. On the other hand, considering that adolescents become more independent and focus on other attachment figures such as peers and romantic partners, adolescence is an important developmental period for exploring the trajectory of human-pet relationships and social competence in adolescents.

Despite the benefits of animal interactions on adolescents' social and emotional development (Charmaraman et al., 2020), they have not been given much attention in child development research within the scope of environmental education. Further research is needed on the effects of social interactions with pets kept by families, both inside and outside the home, on adolescents, including their role in seeking social support and promoting social-emotional development. For these reasons, understanding that factors affecting the pubertal development of pets may be part of the picture (Charmaraman et al., 2020) is critical information for the field of child development. Adolescents' relationships with animals can result in different outcomes depending on individual characteristics and specific social behaviors of the adolescent. For example, if an adolescent has a large peer group, they may not rely as much on their pets for socio-emotional connection. Therefore, it is also important to investigate how the size of the peer group aligns with both social behavior and peer interactions, and whether pet ownership is associated with these patterns (Halbreich et al., 2023).

It was found that owning a pet resulted in a significant difference in favor of pet ownership on the total scores of children in grades six, seven, and eight who were included in the study. In other words, children who owned pets exhibited more positive behaviors toward animals than those who did not. This finding suggests that the emotional bond formed with pets may also positively influence children's behavior toward animals. Hawkins and Williams (2017) found that bonding with pets generally facilitates children's behavior in showing affection and forming friendships and predicts positive attitudes toward animals. Peker and Ceylan (2020) found that children who own pets have significantly higher environmental attitudes than children who do not own pets. In another study, having a pet in adolescence was found to be negatively associated with online social support and social isolation. Those who spend a lot of time with pets also tend to browse animal content online, indicating that their love for animals persists even when using technology for socializing (Charmaraman et al., 2020). At this point, it is believed that more research needs to be done on the impact of pets on technology addiction and the proper use of technology, especially during adolescence.

It is believed that owning a pet stimulates children's interest in animal-related issues, develops a positive attitude toward ownership, and raises awareness of the concept of living space. Wensley (2008) also emphasizes that the strong human-animal bonds resulting from pet ownership play an important role in shaping general behavior toward animals. When considering childhood, a child who cares for a pet is constantly interacting with animals. According to Aysu et al. (2025), this interaction can

naturally arouse children's curiosity about animals and help them develop a positive attitude toward caring for animals.

It was determined that the total scores obtained from the Behavior Towards Animals Scale for children included in the study differed according to gender, mother's education status, and mother's employment status. It was determined that girls had higher average scores than boys; children whose mothers had high school and above education had higher average scores than children whose mothers had middle school and below education; and children whose mothers were employed had higher average scores than children whose mothers were unemployed. With regard to gender, the reason why women are less supportive of the use of animals in various jobs can be explained by their mental disposition to empathize with animals and their belief that the use of animals in various jobs causes them pain or distress, which makes them more likely to respond sympathetically (Knight et al., 2004).

A study examining the relationship between children's attachment to pets and their well-being emphasized the importance of considering gender, finding that girls had higher levels of attachment to pets (Iqbal et al., 2025). Additionally, a common characteristic observed in children aged 6–14 was that girls had higher pet attachment scores than boys (Hirschenhauser et al., 2017). Research conducted by Chanvin et al. (2023) found that girls exhibit more positive behaviors toward wildlife than boys. Mihelič Oražem and Tomažič (2025) found that girls in Slovenia are more likely than boys to be afraid of animals, but also more willing to protect them.

Analyses conducted on children included in the study revealed that children whose mothers had a high school education or higher exhibited more positive behavior toward animals than children whose mothers had a middle school education or lower, and children whose mothers were employed exhibited more positive behavior than children whose mothers were unemployed. Based on this finding, it can be said that mothers' characteristics have an effect on children's behavior towards animals within the scope of environmental education. Therefore, parents should respond appropriately to their children's interest and desire for pets and provide opportunities for this interaction. For example, children who cannot have pets can visit animal shelters or be encouraged to interact closely with street animals while protecting themselves. Therefore, mothers should be aware that protective and preventive strategies that encourage behavioral and emotional competence during childhood are important for children to develop a healthy psychology in later years (Gözün Kahraman et al., 2023). Evans et al. (2018) found that children raised by mothers who behaved in a sustainable manner and had stronger environmental attitudes grew up to be more environmentally conscious adults. Findings based on pet ownership were consistent with previous results, revealing that children with pets exhibited more positive behavior toward animals. All these studies show that individuals' values, behaviors, and attitudes toward the environment can be instilled at home and need to be continuously applied everywhere (Noor et al., 2024), highlighting the influence of mothers and showing that mothers with higher educational attainment can provide their children with comprehensive information about the needs, feelings, and rights of animals.

Based on the results obtained from the research, it can be recommended;

- Planning studies that consider other variables in the formation of children's behavior towards animals within the scope of environmental education,
- Research into other variables that may influence changes at the class level,
- Planning longitudinal studies that provide the developmental trajectory of children's behavior towards animals throughout their developmental stages,
- Preparing and implementing environmental education programs that increase children's contact with nature,
- Support from animals in educational settings for children who cannot have pets for various reasons,
- Taking into account children's developmental characteristics and family structures such as the number of siblings in the preparation of environmental education programs,
- Utilizing peer learning and sibling influence in environmental education programs designed for animals,
- Conducting awareness campaigns and organizing educational programs for mothers with low educational attainment to improve their behavior towards animals.,
- Planning qualitative research that provides observation-based and more in-depth knowledge about children's behavior towards animals.

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