

Pet Attachment and Its Relevant Factors Among Undergraduates

HOU Yongmei

¹Department of Psychology, School of Humanity and Administration
Guangdong Medical University, Dongguan 523808
Guangdong Province, China

HUANG Wanhui

¹Department of Psychology, School of Humanity and Administration
Guangdong Medical University, Dongguan 523808
Guangdong Province, China

LIANG Yongxin

Biology Science and Major, College of Life Science and Biopharmaceutical
Guangdong Pharmaceutical University, Guangzhou 512017

ABSTRACT

Objective: To explore the characteristics of pet attachment and its relevant factors among undergraduates. **Methods** 547 undergraduate pet owners were selected by stratified random sampling from 7 universities in Guangzhou City. They were investigated with Lexington Attachment to Pets Scale (LAPS), College Students Interpersonal Comprehensive Diagnostic Scale (ICDSCS), Revised UCLA Loneliness Scale-Version 3 (UCLALS), Simplified Coping Style Questionnaire (SCSQ) and a self-edited questionnaire on the general personal information. **Results** (1) The total score of LAPS, ICDSCS and UCLALS, as well as score of coping style disposition were (41.71 ± 10.05) , (9.12 ± 5.62) , (44.51 ± 7.87) and $(-.22 \pm 1.50)$, respectively. (2) 20.9% of undergraduates were moderate to severe pet attachment. (3) Multiple stepwise linear regression analysis showed that the total score of LAPS was positively correlated with 7 factors such as total score of UCLALS and ICDSCS, school category, how many pets have you kept, origin, gender and monthly family income ($\beta = .119$ to $.668$, all $P < 0.05$), while the reasons for keeping pets and coping style disposition were negatively correlated with the total score of LAPS ($\beta = -.537$ and $-.621$, $P < 0.05$). **Conclusion** College students' pet attachment is a common behavioral problem, which is closely related to such factors as family rearing, community cultural atmosphere, school education and the personality of the undergraduates.

Keyword: Undergraduates, Pet attachment, Loneliness, Coping style, Interpersonal Relationship, Relevant Factors.

In recent years, domestic college students have become popular in keeping pets. It is understood that more than 12% of college students raise pets in collective dormitories. Pets bring about life joy, and inevitably bring negative effects on the maintenance of environment and lives of students [1-2].

There is no consensus on the reasons for keeping pets. Many scholars believe that the behavior of owners to their pets is actually parental behavior to a child of another species [3]. Pets can provide owners with a special and multi-level attachment, that is, pet attachment, which is similar to parent-child attachment and intimate attachment, and is conducive to physical and mental health at all stages of life [4-6].

Pet attachment is a lasting emotional connection between owners and pets, that is, in daily care of and interaction with pets, pet owners feel unconditional love, warmth or comfort, and get psychological satisfaction and support. Its operation definition is in daily life, the owner's treasure of pets, the frequency of interaction with pets, the tacit understanding with pets in action, the frequency and depth of sharing privacy with pets, the status of pets in owners and their families, and the extent to which pets can replace real friends[4].

As for the attachment between different species, the early basic hypothesis is homology theory, which holds that in order to produce attachment, two species must have some similar behavior structure to share their common function [7]. Therefore, pet attachment is easy to occur between human and mammals. However, in recent years, it has been found that pet attachment can also occur between human and many other species [8]. Therefore, the related factors of pet attachment are complex.

There are few researches on the related factors of pet attachment. Huang Qin found that family background such as family economic status, only child or not, interpersonal relationship, loneliness, emotional release needs were significantly related to adolescents' pet attachment [9]. Wu Xiaomin found that junior high school students' pet attachment was significantly correlated with gender, only child or not, attachment style, pet types and coping styles [10].

Previous studies mostly focused on special groups, such as juveniles, single women, middle-aged and elderly people, patients with chronic, severe diseases or mental diseases. College students are in the "golden age" of physical and mental development, full of energy, and have colorful life and various social communication channels. What are the related factors of college students' attachment to pets? This paper aims to answer this question.

OBJECTS AND METHODS

Objects

A total of 900 undergraduates from Guangdong Pharmaceutical University, Jinan University, Guangzhou Academy of Fine Arts, Guangdong University of Technology, Xinghai Conservatory of Music, Guangdong Institute of Physical Education and Guangdong University of Foreign Studies were selected by stratified random sampling. First, the use of their spare time was investigated and 819 questionnaires were collected. A total of 600 undergraduates who answered the question of "do you keep pets by yourself or at home?" in the affirmative way were selected to participate in this study. 547 valid questionnaires were collected, with an effective rate of 91.2%. The age ranged from 17 to 24 years old, with average age of (19.82±1.51) years old. There are 247 boys and 300 girls; 373 only children and 174 non only children; 342 urban students and 205 rural students; 163 freshmen, 141 sophomores, 120 juniors and 123 seniors.

Tools

Lexington Attachment to Pets Scale (LAPS)

It is compiled by Lexington (1992) [4] and revised into Chinese version by Wu Xiaomin [10], which is used to evaluate the intimacy between owners and pets. LAPS has 23 items, which are divided into three factors: general attachment (GA), interpersonal substitution (IS) and pet status (PS). The 4-point scoring method is used to score from 1 to 4 points corresponding to “very disagree” to “very agree”. The higher the score, the higher the pet attachment. The total score of LAPS ≤ 45 indicates that the subject is in low pet attachment, $46 \leq$ total score of LAPS ≤ 69 indicates that the subject is in moderate pet attachment, and the total score of LAPS > 69 indicates that the subject is in high pet attachment. In this study, *Cronbach's* α coefficient of total scale is 0.854, and *Cronbach's* α coefficient of the three factors is 0.754 to 0.804.

Revised UCLA Loneliness Scale-Version 3 (UCLALS)

It is compiled by Russell et al. (1978) and revised into Chinese version by Liu Ping [11]. UCLALS has 20 items. The 4-point scoring method is used to score from 1 to 4 points corresponding to “I've never felt this way” to “I often feel this way”. Total score < 28 indicates that the subject is in low loneliness, total score > 44 indicates that the subject is in high loneliness, $28 \leq$ total score ≤ 44 indicates that the subject is in moderate loneliness. In this study, *Cronbach's* α coefficient of the scale is 0.914.

Simplified Coping Style Questionnaire (SCSQ)

It is a self-evaluation scale compiled by Xie Yaning (1998) [12]. SCSQ has 20 items, involving different attitudes and measures that may be taken in daily life, which are divided into two subscales: positive coping (PC) and negative coping (NC). The score of positive coping minus the score of negative coping is equal to the coping style disposition (CSD). The 4-point scoring method is used to score from 1 to 4 points corresponding to “do not use” to “often use”. In this study, *Cronbach's* α coefficient of the total scale is 0.889, and *Cronbach's* α coefficient of subscales of positive coping and negative coping are 0.828 and 0.785, respectively.

Interpersonal Comprehensive Diagnostic scale for College Students (ICDSCS)

It is compiled by Zheng Richang et al. (1998) [13] to measure the interpersonal relationship and behavioral distress. There are 28 questions, which are divided into four dimensions: conversation (CON), communication (COM), the way to people (WP) and heterosexual communication (HC). The 2-point scoring method is used to score from 0 to 1 point corresponding to “no” to “yes”. The higher the total score, the more serious the interpersonal distress. The total score can be divided into three grades: 0 to 8 points means no or little interpersonal distress, 9 to 14 points means some interpersonal distress, and 15 to 28 points means serious interpersonal distress. In this study, *Cronbach's* α coefficient of the total scale is 0.847, and *Cronbach's* α coefficients of four dimensions are 0.754 to 0.791.

Self-Compiled Personal General Information Questionnaire

The CNKI, Wanfang database, VIP database, Baidu, google, Pubmed and other search engines are used to search the literatures about college students' pet attachment (107 in Chinese and 1361 in foreign languages). Based on that, the basic content of the questionnaire are constructed, with a total of 21 items. Combined with the results of 3 collective discussions with 10 representatives of undergraduate pet owners, 5 experts in the field of higher education, and 5 representatives in pet industry practitioners, 5 items were deleted and 1 item was added. The

final questionnaire for general personal information involves 17 items, which includes age, gender, grade, school category, major category, academic achievement, only child or not, family monthly income, place of origin, have you ever kept pets in the past, how many pets have you kept in total, how long have you kept pets in total, what kind of pet do you like best, the reason for keeping pets, are you or have you been in love, family attitude towards pet keeping, and lovers' attitude towards pet keeping.

Data Manipulation

SPSS 20.0 is used for statistical analysis. Descriptive statistics are used to calculate the average score and standard deviation of each scale; Pearson product correlation is used to explore the correlation between variables; multiple stepwise linear regression is used to analyze the related factors of LAPS total score.

RESULTS

Descriptive Statistics

Pet keeping in this group

There are 547 pet keepers, accounting for 66.8% of the sample. 12 students (LAPS score > 69) have serious pet attachment, accounting for 2.1% of pet owners and 1.5% of college students; 159 students ($46 \leq \text{laps} \leq 69$) have moderate pet attachment, accounting for 29.1% of pet owners and 19.4% of college students; 376 students (LAPS score ≤ 45) have mild pet attachment, accounting for 68.7% of pet owners and 45.9% of college students.

Descriptive Statistics of the Total Score and Score of Each factor (or dimension)

It can be seen from table 1 that the overall level of pet attachment of college students in this group is low (LAPS score = 41.71 ± 10.0) [4, 10], the coping style is basically intermediate, with high loneliness and obvious interpersonal distress [11-13].

Table 1 Descriptive statistics of total score and factor (dimension) scores of each scale

Dimension	Min	Max	M	SD	Item number	M of Item	SD of item
UCLALS	24	72	44.51	7.87	20	2.23	.39
PC	6	36	23.44	5.52	12	1.95	.46
NC	0	22	10.26	4.16	8	1.28	.52
CSD	-5.32	2.55	-.22	1.50	20		
CON	0	7	2.53	1.81	7	.36	.26
COM	0	7	3.32	2.05	7	.47	.29
WP	0	7	1.51	1.44	7	.22	.21
HC	0	7	1.77	1.69	7	.25	.24
Total score of ICDSCS	0	27	9.12	5.62	28	.33	.20
GA	3	33	20.71	5.61	11	1.88	.51
IS	1	20	10.43	3.38	7	1.49	.48
PS	3	15	10.56	2.43	5	2.11	.49
Total score of LAPS	8	67	41.71	10.0	23	1.81	.44
				5			

Correlation Analysis of Each Scale

It can be seen from table 2 that there is a pairwise correlation between the total score of LAPS, UCLALS, ICDSCS and CSD (all $P < 0.05$).

Table 2 Correlation Analysis of Total Score and Factor Score of Each Scale

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.PC													
2.NC	-.238**												
3. CSD	.788**	-.786**											
4.UCLALS score	-.572**	.684**	-.799**										
5. CON	-.395**	.349**	-.473**	.576**									
6. COM	-.235**	.379**	-.390**	.500**	.628**								
7.WP	-.295**	.319**	-.390**	.432**	.479**	.478**							
8.HC	-.270**	.323**	-.376**	.398**	.531**	.565**	.426**						
9.ICDSCS score	-.369**	.429**	-.508**	.598**	.833**	.859**	.712**	.786**					
10.GA	-.049	.045	-.060	.059	.033	.141**	.075	.072	.103*				
11.IS	-.193**	.222**	-.264**	.224**	.108*	.131**	.143**	.114**	.153**	.065**			
12.PS	-.007	.108*	-.073	.047	.017	.146**	.063	.020	.081*	.733**	.472**		
13.LAP score	-.094*	.126**	-.140**	.120**	.058	.158**	.105*	.083*	.128**	.953**	.813**	.809**	

notes : * $P < .05$, ** $P < .01$, *** $P < .01$

Single Factor Analysis of Demographic Variables of Pet Attachment of College Students Variable assignment

First, the possible situations (alternative answers) of the demographic classification variables that may affect the total score of LAPS are assigned, and the results are shown in Table 3.

Table 3 Variable Assignment

item	Options and assignment
1. Grade	0 = freshman, 1 = sophomore, 2 = junior, 3 = senior
2. Gender	0 = male, 1 = female
3. Major categories:	0 = Engineering, 1 = science, 2 = economics and trade, 3 = management, 4 = linguistics, 5 = medicine and pharmacy, 6 = art and design
4. School categories	0 = science and engineering, 1 = liberal arts, 2 = agriculture 3 = medicine, 4 = sports, 5 = art, 6 = comprehensive
5. Only child or not	0 = No, 1 = Yes
6. family monthly income	0 = 0 to 4000 yuan, 1 = 4001 to 8000 yuan, 2 = 8001 to 12000 yuan, 3 = more than 12001 yuan
7. Origin	0 = countryside, 1 = city or town
8. Have you ever had a pet in the past?	0 = no, 1 = yes
9. What kind of pet do you like best	0 = dog, 1 = cat, 2 = rodent (rabbit, mouse), 3 = bird, 4 = Aquarium (fish, turtle), 5 = others
10. Reasons for keeping pets	0 = personality of animals such as cute and lively, 1 = personality of oneself (such as loneliness, boredom, timidity and curiosity), 2 = need of others, 3 = playmates, 4 = useful pets, 5 = unknown reasons
11. Are you or have you ever in love?	0 = never in love, 1 = in love, 2 = ever in love
12. Family attitude towards pet keeping	0 = disagree, 1 = no opinion, 2 = agree
13. Lover's attitude toward pet keeping	0 =, disagree 1 = no opinion, 2 = agree

Univariate Analysis of Demographic Variables of College Students' Pet Attachment

Univariate analysis is performed on the demographic variables that may affect the total score of LAPS. The results are shown in Table 4.

It can be seen from table 4 that except age, only child or not, the total time of pet keeping, what kind of pet do you like best, being in love or ever in love, the other nine factors had significant effects on the total score of LAPS ($r = .123 \sim .197$, $t / F = 3.575 \sim 11.462$, all $P < 0.01$).

Table 4 Univariate Analysis of Demographic Variables That May Affect Total Score of LAPS

Item	r/t/F	P
1.age	-.068	.113
2.grade	-3.575	<.001
3.gender	9.151	<.001
4.Major category	-7.321	<.001
5.School category	-7.239	<.001
6.Only child or not	-.929	.354
7.Monthly household income	-4.503	.004
8.Origin	-4.749	.000
9. Have you ever had a pet in the past?	-8.161	<.001
10. How many pets have you kept?	.197	<.001
11.How many kinds of pets have you kept in total?	.123	.004
12. How long have you keep pets in total?	.011	.801
13.What kind of pet do you like best?	6.771	<.001
14. Reasons for keeping pets	4.356	<.001
15.Are you or have you ever been in love	-1.025	.360
16.Family attitude towards pets	11.462	<.001
17.Lovers' attitude towards pets	6.096	.002

Multiple Stepwise Linear Regression Analysis of Main Related Factors of College Students' Pet Attachment

Taking the total score of LAPS as the dependent variable and the factors that may be related to the total score of LAPS (including demographic variables, total score of UCLALS and ICDSCS, as well as score of CSD) as the independent variables, a multiple stepwise linear regression analysis is carried out within the 95% confidence interval, the results are shown in Table 5.

It can be seen from table 5 that 7 factors such as total score of UCLALS, the total score of ICDSCS, school category, how many pets have you kept, origin, gender and monthly family income are positively correlated with the total score of LAPS ($\beta=.119$ to $.668$, all $P<.05$). Two factors such as the reasons for keeping pets and coping style disposition are negatively correlated with the total score of LAPS ($\beta=-.537$ to $-.621$, all $P < 0.05$).

Table 5 Multiple Stepwise Linear Regression Analysis of Main Influencing Factors of LAPS Total Score

		Score						
Dependent variable	Independent variable	Nonstandard coefficient	β	t	P	R^2	R_{adj}^2	
		B Standard error						
Total score of LAPS	School Category	.362	.078	.260	3.989	<.001	.542	.546
	The reasons for keeping pets	-.619	.129	-.537	-4.020	<.001		
	CSICDS total score	.609	.085	.558	5.634	<.001		
	UCLALS total score	.729	.103	.668	9.491	<.001		
	Rigin	.173	.062	.119	2.891	.004		
	How many pets have you kept.	.048	.272	.164	3.084	<.002		
	Coping style disposition	-.685	.089	-.621	-3.445	.001		
	Gender	.229	.068	.124	3.095	.002		
	Family monthly income	.374	.067	.293	2.278	.023		

DISCUSSION

This study finds that the pet attachment of undergraduate pet owners is at low level, with 20.9% of them belonging to moderate to severe pet attachment. On the other hand, they basically have intermediate coping style, high loneliness, and a certain degree of interpersonal distress, which is consistent with the results of previous studies [14-17], suggesting that pet attachment is a common problem among college students. Although some college students keep pets, their feelings for pets are not deep enough. At the same time, they also have some psychological problems, such as less positive coping style, more obvious interpersonal problems and more serious loneliness.

Multiple stepwise linear regression shows that UCLALS total score, ICDSCS total score, school category, total number of pets, origin, gender and monthly family income are positively correlated with LAPS total score; The reason for keeping pets and coping style disposition are negatively correlated with the total score of LAPS.

ICDSCS total score, UCLALS total score are positively correlated with LAPS total score, coping style disposition are negatively correlated with LAPS total score, which is consistent with the results of previous studies [9,10], suggesting that psychological distress is the risk factor of pet attachment, and good coping style is the protective factor of pet attachment. In other words, when college students encounter greater psychological distress (such as serious interpersonal distress or loneliness), it is easy to encourage them to keep pets and get emotional support from pets [4-5, 14-16], so as to enhance their sense of security [18], reduce their loneliness [14, 19-20], and maintain their mental health. Even if college students encounter greater psychological distress, as long as their coping styles are positive and effective, such as correct attribution, actively solving interpersonal problems, or diverting attention through learning or entertainment, they can effectively solve mental problems or overcome the influence of loneliness, and will not lead to strong pet attachment.

We also find that the total score of LAPS is significantly correlated with a variety of demographic variables.

Family economic status is the material basis of keeping pets. First, According to Maslow's hierarchy of needs theory, only when material (physiological) needs are satisfied, can spiritual needs be produced. The same is true of pet keeping. Only when the material life of an individual is stable and sufficient, will there be further demand for spiritual enjoyment, including the release of emotion. Second, keeping pets costs a lot, and students with better family economic conditions are easier to afford. Third, many students from poor families need to take part-time jobs in their spare time and have no time to take care of pets.

Previous studies have pointed out that pets can be used as a special social support force to compensate for the lack of interpersonal support [5, 14]. Compared with boys, girls are more willing to seek social support than boys [21], and the social support (including objective and perceived social support) they get is higher [22-23], but as girls have richer and warmer, higher sensitive and more changeable emotions, lower frustration resistance ability and emotion regulation ability than boys, more passive interpersonal communication, more narrow life circle, more instantaneity, interactive and directive in expression of psychological needs, girls has a stronger tendency to seek emotional catharsis and support. While boys are more calm, rational and patient when dealing with psychological pressure, more willing to seek professional help or rely on themselves to adjust [21]. In this way, when encountering life events, girls are more eager to find a reliable object and release their emotions on it (or him or her). But the help or support of relatives or friends often can't meet the immediate needs of girls. At the same time, because girls are generally more introverted than boys, more reluctant to open their hearts to others, pets become their most reliable objects to talk to.

School category reflects the influence of educational management mode on college students' personality and behavior. China's school management model is based on the nature of disciplines (majors) and adapts to the training objectives of majors [24]. Generally speaking, the management in art colleges tends to be more innovative. There are many practical teaching links, including computer operation, hands-on production and landscape sketching. The class time is flexible and the place is often scattered. In this way, students will be given more free time and space to keep pets. Other schools (including comprehensive universities, engineering colleges, normal universities, finance and economics colleges, medical colleges, language colleges and agricultural colleges, etc.) pay more attention to strictness and scientificity in management. Most of them follow the traditional apprenticeship educational management mode. They have a relatively fixed place and time for classes, and students do not have much free time and space. It's not easy to keep pets [25]. On the other hand, most art students' are willing to promote their personalities and pursue unique personal images [26], And pets around them just cater to this demand. In their own words, they are "so handsome" and "so cool". Moreover, art students can understand and tolerate each other's hobbies. However, students of other majors pay more attention to "tidiness and unity", and pets around them are easy to make themselves "different", which can not be understood and welcomed by their classmates.

Urban students' pet attachment is significantly higher than that of rural students. Compared with urban students, rural students are more socially withdrawn, self abased, introverted, and get less social support [26-27]. However, because they are more introverted, cautious, modest and less able to afford, they are more able to abide by school discipline and not keep pets. At the same time, rural students have been exposed to all kinds of animals since childhood.

Animals are not as novel in their minds as in the minds of urban students. In addition, most of urban parents have higher expectations for their children's academic performance, so urban students have higher anxiety and learning pressure, and need to release bad emotions and reduce psychological pressure.

The number of pets students have kept in total and reasons for keeping pets have direct impact on pet attachment. Generally speaking, the more pets students have kept in total, the higher pet attachment. The reason is that the more pets students have kept in total, the more willing students are to get along with pets, the more chance they have to improve their understanding of pets and cultivate a deeper attachment to them. Keeping pets due to the personality of animals or as playmate can satisfy the psychological needs of owners. The former indicates breeders will naturally pour more emotion and attachment into pets because the animals are lovely and amiable. The latter indicates pets often accompany owners to relieve their anxiety, stress and loneliness. As time goes by, owners will feel more and more attached to their pets, even inseparable from them. Keeping pets because of the usage of pets, other people's needs, or for unknown reasons indicates keeping pets is not out of owner's willing. So the interaction between owners with pets is often not enough, the understanding of pets is not deep, and pet attachment is relatively low.

This study explored the main related factors of College Students' pet attachment, and preliminarily revealed the relationship between College Students' pet attachment and family rearing, community cultural atmosphere, school education and management, and college students' own characteristics (such as personality, etc.). The conclusion of this study provides a useful reference for the management of students in colleges and universities. Although the survey method can better understand the common mentality of college students on the issue of pet attachment, it can not be well understood its deep, personalized characteristics. In the future, we need to combine quantitative research (e.g. questionnaire survey) with qualitative research (e.g Structural interview of typical cases) to fully understand the related psychological problems.

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