

Research on the Influence Mechanism of Pet Companionship on Academic Stress and Emotional Well-being of Chinese Adolescents

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Abstract: Academic stress has become an increasingly important concern among Chinese adolescents, while the psychological benefits of pet companionship remain inconclusive. This study explored the relationships among pet attachment, academic stress, and perceived effects of pets to investigate the mechanisms by which pets may influence adolescents' psychological experiences. A mixed-methods design was adopted, involving semi-structured interviews with 15 middle and high school students in Hangzhou, China. Data were analyzed using thematic analysis, Spearman's rank correlation, and cross-analysis. The results showed a significant moderate positive correlation between pet attachment and perceived pet effects ($\rho = 0.546$, $p = 0.035$), indicating that stronger attachment was associated with greater perceived emotional benefits. No significant relationships were found between attachment and academic stress or between academic stress and perceived pet effects. These findings suggest that pet companionship may benefit adolescents primarily through emotional attachment rather than by directly reducing academic stress, highlighting attachment as a potential mechanism underlying the psychological benefits of companion animals.

1. Introduction

Multiple studies have shown that older Chinese adolescents have a higher risk of suicide, and experiencing high academic stress in high school is one of the reasons ^[1]. Therefore, researching how to effectively alleviate academic stress is an important topic.

The calming and stress-relieving effects of pets have always been a topic of great interest. Muldoon J.C. et al. found that the relationship with pets provides emotional support for teenagers ^[2] and it also improves self-esteem, reduces loneliness, increases trust, and enhances resilience to symptoms of depression and anxiety ^[3].

However, there was inconsistent evidence. Fraser et al. claimed that contrary to routine tests, pet owners reported higher levels of depression than non-pet owners ^[4], probably because people with problems get pets or more financial pressure from pets ^[2]. Among older Canadians, pet owners have

lower life satisfaction than non-pet owners^[5]. The discrepancy between these results might be due to profound changes in the methods used to assess health and well-being^[4].

In these studies, one variable that has often been overlooked is the level of attachment between owners and their pets. Fraser et al. point out that researchers may fail to take into account the influence of pet type or the length of time owners have lived with their pets^[4]. Furthermore, evidence from Wu et al. in China suggests that individuals who report stronger attachment to their pets tend to experience lower levels of perceived stress^[6]. This finding highlights the possibility that attachment may serve as a significant mechanism in explaining the relationship between pets and stress outcomes.

Nevertheless, research on the mechanisms underlying academic stress in the Chinese context over the past five years remains limited. In particular, there is a lack of studies focusing on the relationship between pets and academic stress among Chinese adolescents, as most existing research has primarily concentrated on adult populations. Therefore, this study aims to investigate the influence mechanism of pet companionship on academic stress and emotional well-being among Chinese adolescents.

2. Method

2.1. Participants

The participants were 15 middle and high school students who had at least one pet in Hangzhou, China. All participants reported their age, yielding a mean of 16 years old ($SD = 1.4$). In addition, five participants attended international high schools, while ten attended traditional Chinese high schools. Each participant was interviewed individually, and the conversation was recorded voice-only with permission. All participants were fluent in Mandarin.

2.2. Material and design

The study used both qualitative and quantitative research methods to investigate how pets influence academic stress among Chinese high school students. It was conducted from the perspective of dialectical materialist ontology, which serves as a semantic foundation for communication among respondents within a specific domain by establishing a shared conceptual consensus. The study aimed to examine the relationships among ‘Pets Attachment’, ‘Academic Stress’, and the ‘Perceived Pet Effects’. The interview protocol was informed by the Short Attachment to Pets Scale (SAPS)^[2]. Several attachment-related dimensions, including friendship, mutual understanding, shared activities, and emotional support, were incorporated into the interview questions and later used to guide the coding process. In addition, this study explored the different sources of academic stress to identify the most common and influential stressors experienced by Chinese adolescents. Based on the framework proposed by Lin and Yang^[7], the identified stressors were categorized into internal factors, such as perfectionism and self-esteem, and external factors, including academic performance, peer competition, and anxiety about the future.

2.3. Procedure

The study used a semi-structured interview schedule. Firstly, a draft of the interview protocol was developed. There are three main parts involving the attachment strength between pets and participants, the different academic stressors participants experienced, and the effect of pets on participants’ academic pressure. Recruitment advertisements were posted on social media and on high school boards to recruit participants. After consulting with one high school student who has a pet, the interview protocol was revised. This student also helped me to test if there were any problems or defects in an audio recording that was used during the interview to ensure the accuracy of the

transcription and translation later.

Secondly, all the audio recordings were transcribed and translated into notes. Before arriving at the initial theme, many codes were collated from notes, then connected to form the new themes. Then the themes were reviewed, organized, and simplified into a thematic map.

2.4. Data analysis

For analysis, the study used thematic analysis, which extracted codes from interviews and created a code map to show the relationships between the codes, and Spearman's rank correlation analysis was used to examine the relationships among the three key variables: attachment strength to pets, academic stress, and perceived pet effects. The coding process generated three overarching themes and several related sub-themes. These relationships are illustrated in Figure 1.

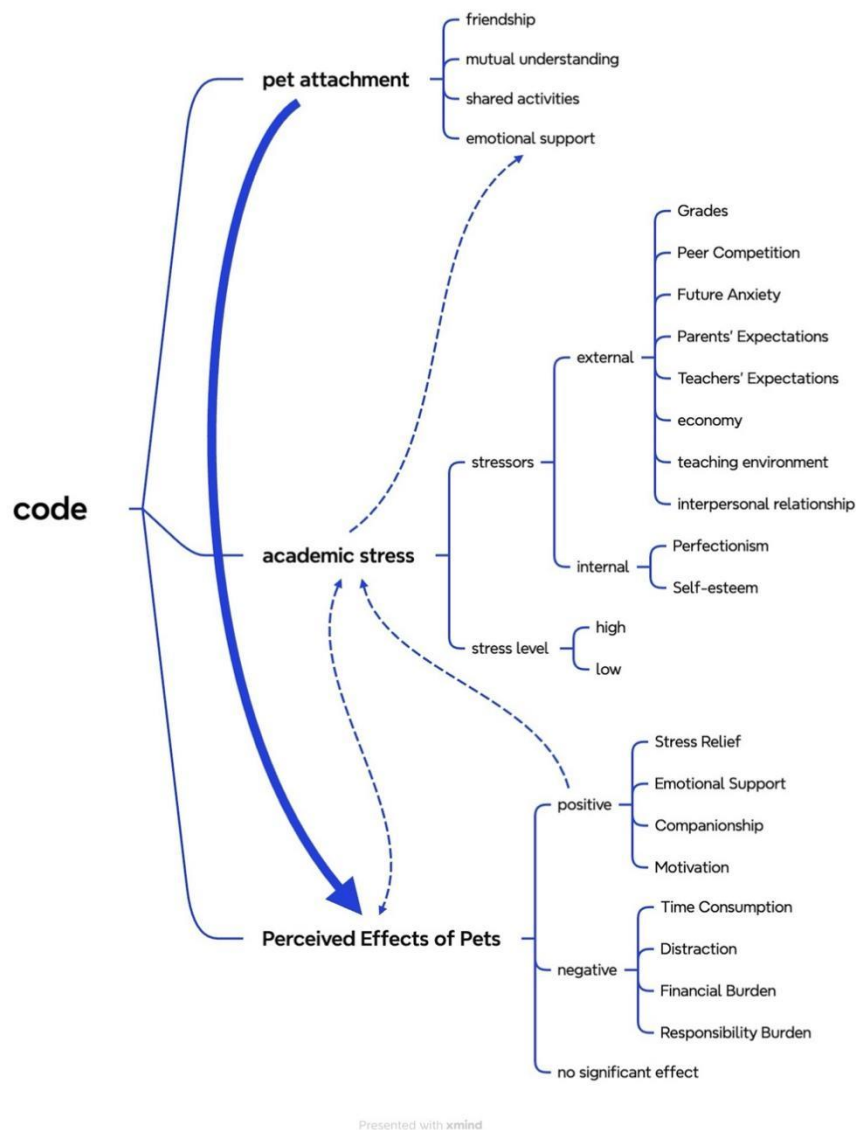


Figure 1. Thematic Map of Pet Attachment, Academic Stress, and Perceived Effects of Pets.

The number of times each code was mentioned was counted and formed a frequency table. To quantify the different variables, this study adopted an integrated scoring model and tiered scoring that

considered both the variety of codes mentioned and the frequency of codes. Specifically, respondents received 1 point for mentioning a distinct code related to the research topic. For repeated references to the same code, a frequency-based scoring system was applied: mentions occurring 1–2 times were assigned 1 point, 3–4 times were assigned 2 points, and 5 or more times were assigned 3 points. In addition to the perceived effects, positive codes were assigned a value of +1, negative codes were assigned -1, and codes indicating no observable effect were assigned a value of 0. Spearman's correlation analysis and cross-analysis were then conducted to examine the relationships among the three variables. To further examine the relationship between attachment and perceived pet effects, participants were categorized into weak (scores 1–2), moderate (scores 3–4), and strong (scores 5–6) attachment groups. Given the small sample size and ordinal scoring system, Spearman's rank correlation was selected as a non-parametric method to assess associations among variables.

2.5. Ethical Considerations

Not all my participants reached the legal adult age (18 years old) in China. Before conducting interviews, we obtained permission from the participants' guardians and the participants themselves. In addition, the interviews were conducted anonymously, the respondents' personal information was not recorded, the demographic questions were not audio-recorded, and did not include any sensitive information such as names or addresses. All recordings were deleted two weeks after the interviews were completed.

3. Result

To explore the relationship between pet attachment, academic pressure, and perceived pet effects, Spearman's rank correlation analysis was conducted (Table 1). The results showed a statistically significant moderate positive correlation between attachment and perceived pet effects ($\rho = 0.546$, $p = 0.035$). This indicates that students who reported stronger attachment to their pets tended to experience greater positive effects from pet ownership.

However, attachment was not significantly associated with academic pressure ($\rho = -0.004$, $p = 0.989$). Likewise, the correlation between academic pressure and perceived pet effects was weak and non-significant ($\rho = -0.253$, $p = 0.364$). These findings indicate that attachment was associated with perceived pet effects but not with academic pressure.

Table 1: Spearman Correlation Analysis of Attachment, Academic Pressure, and Perceived Pet Effects.

Variables	Spearman's ρ	P-value	Interpretation
Attachment ↔ Academic Pressure	-0.004	0.989	Almost no correlation
Attachment ↔ Perceived Pet Effects	0.546	0.035	Moderate positive correlation
Academic Pressure ↔ Perceived Pet Effects	-0.253	0.364	Weak negative correlation

As shown in Table 2, the average reported pet-effect score increased across attachment levels, from 0.50 in the weak attachment group to 1.43 in the moderate group and 1.75 in the strong attachment group.

Table 2: Average Reported Pet Effect by Attachment Level.

Attachment level	Number of participants	Effect mean
Weak	4	0.50
Moderate	7	1.43
Strong	4	1.75

4. Discussion

The study found that pet attachment was significantly associated with perceived positive effects of pets, but not with academic stress levels. No significant relationship was found between pet ownership and academic stress. In particular, pet companionship does not directly reduce academic stress, but influences how adolescents emotionally experience and cope with stress through attachment.

The findings suggest that pets do not directly reduce academic stress among Chinese adolescents. One possible explanation is that the sources of academic stress are largely structural and external. Academic stress is mainly generated by factors such as academic performance, competition with peers, and expectations from parents and teachers. Because pets cannot alter these external stressors, they are unlikely to reduce the level of academic stress itself. Instead, pets may provide emotional comfort and companionship, helping adolescents cope with or regulate their emotional responses to stress rather than eliminating the stressors.

This interpretation also supports the present study's assumption that attachment is a crucial factor in understanding the relationship between pets and stress. Since pets cannot directly change the sources of academic stress, the psychological benefits of pet ownership are likely to depend on the strength of the emotional bond between the owner and the pet. This may help explain the inconsistent findings reported in previous studies. Research that considers pet ownership alone, while overlooking the degree of attachment, may fail to detect the psychological benefits of pets because not all pet owners benefit equally. These findings suggest that attachment, rather than pet ownership itself, may be the key mechanism underlying the stress-buffering effects of companion animals.

Nevertheless, this study has several limitations. First, the sample size was relatively small ($n = 15$), which limits the generalizability of the findings. Second, all data were collected through self-report measures, making the results susceptible to response bias. Third, no standardized clinical measure of mental health was included, limiting the ability to examine broader psychological outcomes. Future research should recruit larger and more diverse samples, employ validated psychological assessment tools, and use quantitative or longitudinal designs to further investigate the mechanisms through which pet attachment influences adolescents' academic stress and psychological well-being.

5. Conclusion

This study investigated the relationships among pet attachment, academic stress, and perceived pet effects among Chinese adolescents through a mixed-methods approach. The results showed that stronger attachment to pets was associated with greater perceived emotional benefits from pet companionship. However, attachment was not significantly associated with adolescents' overall academic stress levels. The influence of pet companionship was analyzed by thematic analysis, which may operate through emotional support rather than directly reducing academic stress. These findings contribute to the existing literature by suggesting that attachment, rather than pet ownership alone, may be an important factor in understanding the psychological benefits of companion animals. This study also extends previous research by focusing on Chinese adolescents, a population that has received relatively little attention in this field.

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