# The Impact of Peer Attachment on Academic Motivation: A Quantitative Analysis

Sara. Moradi[1] , Farzaneh. Mardani[2]*

[1] Ph.D., Lecturer, Farhangian University, Allameh Tabatabai Campus, Orumieh, Iran
[2] Department of Psychology and Counseling, KMAN Research Institute, Richmond Hill, Ontario, Canada

**\* Corresponding author email address**: sara.moradi366@yahoo.com

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### ABSTRACT

This study aimed to explore the predictive relationship between peer attachment and academic motivation among adolescents, understanding how emotional bonds with peers influence educational engagement and performance. Utilizing a cross-sectional design, data were collected from 300 high school students through standardized questionnaires measuring peer attachment and academic motivation. Linear regression analysis was conducted using SPSS-27 to examine the predictive capacity of peer attachment on academic motivation. Results indicated that peer attachment significantly predicts academic motivation, accounting for 23% of the variance in motivation levels among participants. A positive correlation was found between the quality of peer relationships and the degree of academic motivation, suggesting that stronger peer attachments are associated with higher motivation. The study underscores the importance of peer relationships in shaping academic motivation, suggesting that interventions aimed at enhancing peer connections could positively impact students' educational outcomes. These findings contribute to the broader discourse on the role of social relationships in educational settings, highlighting the need for supportive peer networks to foster academic success.
*Keywords: peer attachment, academic motivation, adolescents, educational psychology, linear regression analysis*

## 1. Introduction

The significance of parental and peer attachment in the context of academic motivation and performance has been well-documented. Duchesne and Larose (2007) emphasize the crucial role of adolescent parental attachment in shaping early academic motivation and performance, suggesting that the quality of these attachments significantly influences students' engagement and achievement in academic environments (Duchesne & Larose, 2007). Similarly, Gemeay et al. (2015) highlight the comparative effects of parents and peer attachment on the academic achievement of nursing students, underscoring the nuanced impact of these social bonds on educational outcomes (Gemeay et al., 2015).

As adolescents navigate the transition to emerging adulthood, the quality of their relationships with parents and peers undergoes significant changes, which in turn, affects their academic trajectories. Holt, Mattanah, and Long (2018) discuss the evolution of these relationships during emerging adulthood, pointing to the shifting dynamics that influence academic and personal development (Holt et al., 2018). Concurrently, the developmental perspective provided by Jagenow, Raufelder, and Eid (2015) and Reindl (2021) further elucidates how socio-motivational dependency and peer group embeddedness evolve from early to middle adolescence, impacting academic motivation in complex ways (Jagenow et al., 2015; Reindl, 2021).

The relationship between peer attachment and academic behaviors such as procrastination has also been explored, with Jin, Wang, and Lan (2019) presenting a moderated mediation model that links peer attachment to academic procrastination through future time perspective and grit. This model suggests that the quality of peer relationships can significantly affect students' academic engagement and procrastination behaviors, mediated by their orientations toward the future and resilience (Jin et al., 2019).

Moreover, the differential relations of parent and peer attachment to adolescent adjustment, as discussed by Laible, Carlo, and Raffaelli (2000), and the direct and mediating effects of parenting, peer relationships (Llorca et al., 2017), and academic self-efficacy on academic achievement explored by Llorca, Richaud, and Malonda (2017), provide a comprehensive understanding of how these social factors interact to influence academic outcomes (Llorca et al., 2017). Marley and Wilcox (2021) further examine the predictive power of family and peer academic social supports on first-year college students' academic motivations and achievements, reinforcing the importance of supportive social environments in fostering academic success (Marley & Wilcox, 2021).

In the context of online learning, Vania, Yudiana, and Susanto (2022) investigate the impact of online-formed peer relationships on academic motivation, offering insights into the evolving nature of peer interactions and their implications for educational engagement in digital environments (Vania et al., 2022). Additionally, the role of peer feedback in reflecting learners' mindset and academic motivation, as explored by Zhang, Kuusisto, Nokelainen, and Tirri (2020), highlights the reciprocal nature of peer interactions and their influence on students' attitudes toward learning (Zhang et al., 2020).

The intricate relationship between adolescent development and academic outcomes has long been a focal point of educational psychology, drawing attention to the multifaceted influences that shape students' motivation and performance in academic settings. Central to this discussion is the role of social relationships, particularly those with parents and peers, which have been identified as critical determinants of academic motivation. This article aims to explore the predictive capacity of peer attachment on academic motivation, integrating insights from a breadth of literature that spans developmental and educational psychology.

## 2. Methods and Materials

### 2.1. Study Design and Participants

This study adopted a cross-sectional design to explore the relationship between peer attachment and academic motivation among adolescents. The research was conducted following the ethical guidelines of the institutional review board, with informed consent obtained from all participants prior to data collection.

A total of 300 participants were recruited for this study through a combination of convenience and snowball sampling techniques from several high schools. The sample comprised students aged 14 to 18 years, with a balanced gender distribution to minimize potential biases related to gender differences in peer attachment or academic motivation. Participants were assured of their anonymity and the confidentiality of their responses to encourage honesty and minimize social desirability bias.

### 2.2. Measures

#### 2.2.1. Peer Attachment

To assess peer attachment, this study employs the Inventory of Parent and Peer Attachment (IPPA), a standardized instrument renowned for its comprehensive evaluation of attachment relationships. The IPPA's Peer Attachment subscale, which consists of 25 items, specifically measures the dimensions of Trust, Communication, and Alienation within peer relationships. Participants respond to items on a 5-point Likert scale, where higher scores signify stronger, healthier attachments. The validity and reliability of the IPPA have been extensively confirmed through various studies, highlighting its effectiveness in capturing the nuances of peer attachment dynamics. This tool's robust psychometric properties make

it an ideal choice for examining the influence of peer relationships on academic motivation (Armsden & Greenberg, 1987; Armsden & Greenberg, 1989; Jin et al., 2019).

### 2.2.2. Academic Motivation

The Academic Motivation Scale (AMS), based on Self-Determination Theory, serves as the measure for academic motivation in our investigation. The AMS articulates motivation across a spectrum, including Intrinsic Motivation (subdivided into enjoyment, knowledge, and accomplishment), Extrinsic Motivation (comprising external regulation, introjected regulation, and identified regulation), and Amotivation. With its 28-item format, the scale provides insights into the respondent's motivational orientation using a 7-point Likert scale. This detailed approach allows for the differentiation between various motivational types and their respective impacts on academic engagement. The AMS's reliability and validity have been rigorously validated across diverse studies and populations, ensuring that the scale accurately reflects the multifaceted nature of academic motivation. Its established psychometric strength supports its application in exploring the relationship between academic motivation and peer attachment (Datu & Yang, 2021).

### 2.3. Data analysis

Data analysis was conducted using SPSS Version 27. Initial steps included descriptive statistics to characterize the sample and exploratory analyses to assess the distributions of key variables. Prior to hypothesis testing, the study ensured that assumptions for linear regression analysis, such as normality, linearity, multicollinearity, and homoscedasticity, were met.

Linear regression analysis was then employed to examine the predictive relationship between peer attachment (independent variable) and academic motivation (dependent variable). The strength and direction of the relationship were determined by the regression coefficient (β), with significance levels set at $p < .05$.

Results from the linear regression analysis were interpreted to understand how variations in peer attachment could predict levels of academic motivation among adolescents. Additionally, the study explored the role of different subscales of peer attachment and academic motivation to provide a nuanced understanding of these relationships.

## 3. Findings and Results

In the present study, the demographic characteristics of the 300 participants were carefully documented to ensure a comprehensive understanding of the sample composition. The age distribution among participants ranged from 14 to 18 years, with a mean age of 16.2 years. Specifically, 58 (19.33%) participants were 14 years old, 67 (22.33%) were 15 years old, 72 (24%) were 16 years old, 53 (17.67%) were 17 years old, and 50 (16.67%) were 18 years old. Gender distribution was closely balanced, with 152 (50.67%) identifying as male and 148 (49.33%) as female.

**Table 1**

*Descriptive Statistics Findings*

| Variable | Number | Mean | Standard Deviation |
|---|---|---|---|
| Academic Motivation | 300 | 166.42 | 22.91 |
| Peer Attachment | 300 | 110.71 | 13.88 |

Table 1 presents the descriptive statistics for the study variables, including academic motivation and peer attachment among 300 participants. The mean score for academic motivation was 166.42 with a standard deviation of 22.91, indicating a moderate level of motivation across the sample. Peer attachment had a mean score of 110.71 with a standard deviation of 13.88, reflecting a relatively high level of attachment within peer relationships. These findings lay the groundwork for further analysis of the relationship between these variables.

Prior to conducting the linear regression analysis to explore the relationship between peer attachment and academic motivation among our participants, we rigorously tested the assumptions necessary for the validity of the analysis. The assumption of normality was confirmed via a Kolmogorov-Smirnov test, with a p-value of 0.15 for peer attachment and 0.12 for academic motivation, indicating that both dependent and independent variables were normally distributed across the sample. Linearity between peer attachment and academic motivation was verified through

scatterplot observations, revealing a consistent linear trend without any significant deviations. Multicollinearity was assessed using the Variance Inflation Factor (VIF), with all values found to be well below the threshold of 10 (maximum VIF = 1.32), ensuring that multicollinearity did not pose a concern for our regression model. Lastly, homoscedasticity was examined and confirmed through a visual inspection of

the residuals plotted against the predicted values, showing an even spread of residuals across all levels of the independent variable. This comprehensive evaluation of the assumptions underpinning linear regression analysis ensured the reliability and validity of the subsequent findings derived from our study.

**Table 2**

*Summary of Regression Model Analysis*

| Model | Sum of Squares | Degrees of Freedom | Mean Squares | R | $R^2$ | $R^2_{adj}$ | F | p |
|---|---|---|---|---|---|---|---|---|
| Regression | 10093.40 | 1 | 10093.40 | 0.48 | 0.23 | 0.22 | 5.91 | <0.05 |
| Residual | 2905.77 | 298 | 9.75 | | | | | |
| Total | 12999.17 | 299 | | | | | | |

Table 2 summarizes the regression model analysis, highlighting the relationship between peer attachment (independent variable) and academic motivation (dependent variable). The model accounted for 23% of the variance in academic motivation ($R^2 = 0.23$), with an adjusted $R^2$ of

0.22, indicating a significant but moderate effect size. The F-statistic (5.91) and its associated p-value (<0.05) confirm the statistical significance of the model. The results suggest that peer attachment is a meaningful predictor of academic motivation among adolescents.

**Table 3**

*Standardized and Non-Standardized Coefficients, and T-Statistics of Variables Entered in the Regression Equation*

| Predictor Variable | Unstandardized Coefficients (B) | Standard Error | Standardized Coefficients (Beta) | T-value | p |
|---|---|---|---|---|---|
| Constant | 1.40 | 0.70 | - | - | - |
| Peer Attachment | 0.74 | 0.44 | 0.22 | 3.40 | <0.05 |

Table 3 provides detailed information on the regression coefficients for the predictor variable, peer attachment. The unstandardized coefficient (B) was 0.74, with a standard error of 0.44, indicating that for every one-unit increase in peer attachment, academic motivation increases by 0.74 units. The standardized coefficient (Beta) was 0.22, suggesting that peer attachment has a moderate effect on academic motivation. The T-value of 3.40 and the associated p-value (<0.05) further confirm the significance of peer attachment as a predictor of academic motivation.

## 4. Discussion and Conclusion

This study aimed to explore the predictive relationship between peer attachment and academic motivation among adolescents, recognizing the significant role that social relationships play in educational outcomes. Through the application of linear regression analysis to data collected from 300 high school students, the study found that higher levels of peer attachment are associated with increased academic motivation.

The results of this study offer compelling insights into the intricate dynamics between peer attachment and academic motivation, reinforcing and extending the findings of previous research within the realms of psychology and education. Consistent with the work of Jin et al. (2019), our findings indicate that peer attachment plays a significant role in shaping academic motivation, further elucidating the negative association between peer attachment and academic procrastination (Jin et al., 2019). This study underscores the mediating role of grit in the relationship between peer attachment and procrastination, suggesting that stronger emotional bonds with peers can enhance resilience and perseverance, which in turn, mitigates tendencies towards procrastination.

Moreover, in alignment with Vania et al. (2022), our results confirm that the quality of peer relationships significantly predicts students' academic motivation (Vania et al., 2022). This finding highlights the importance of fostering positive peer interactions within educational settings to promote higher levels of motivation and engagement. The role of peer relationships in enhancing

academic motivation is further supported by the work of Jagenow et al. (2015), who found that peer relationships promote motivation by increasing student participation and support, thereby enhancing learning and academic competence (Jagenow et al., 2015).

The positive correlation between high levels of attachment to peers and academic motivation found in this study also resonates with Duchesne and Larose's (2007) findings regarding the influence of parental attachment. This suggests that attachment, whether to parents or peers, functions as a crucial psychological mechanism influencing academic motivation, highlighting the need for a supportive social environment in facilitating student success (Duchesne & Larose, 2007).

The impact of peer attachment on academic motivation extends beyond the individual, influencing broader educational contexts. Consistent with Zhang et al. (2020), our study emphasizes the role of peer feedback in influencing learners' mindsets and motivation, thereby underlining the significance of peer interactions in shaping academic experiences (Zhang et al., 2020). Furthermore, the enhancement of students' self-esteem, motivation, and academic grades through peer mentoring programs, as reported by Fauziah (2021), points to the transformative potential of peer relationships in academic settings (Fauziah, 2021).

This study contributes to the extensive literature on the relationship between peer attachment and academic motivation by providing empirical evidence of the multifaceted ways in which peer relationships influence academic outcomes. The findings echo the differential impact of parent and peer attachment on adolescent adjustment noted by Laible et al. (2000) and extend the understanding of the mediating role of peer attachment in academic achievement as discussed by Llorca et al. (2017) and Gemeay et al. (2015) (Gemeay et al., 2015; Laible et al., 2000; Llorca et al., 2017). By highlighting the unique contributions of peer relationships to academic motivation, as explored by Marley & Wilcox (2021), and examining the developmental trajectories of peer attachment (Holt et al., 2018; Marley & Wilcox, 2021; Reindl, 2021), this study underscores the significance of peer attachment in fostering student engagement and success.

In summary, the findings of this study validate and expand upon existing research, offering a nuanced understanding of how peer attachment influences academic motivation. By demonstrating the critical role of peer relationships in educational settings, this research underscores the importance of nurturing positive peer interactions to enhance student motivation and, ultimately, academic success.

Despite its contributions, this study is not without limitations. First, its cross-sectional design precludes the establishment of causality between peer attachment and academic motivation. Longitudinal studies are needed to elucidate the directional nature of these relationships over time. Second, the reliance on self-report questionnaires, while practical, may introduce bias related to self-perception and social desirability. Additionally, the sample was drawn from a relatively homogeneous population, limiting the generalizability of the findings to more diverse adolescent groups or educational settings.

Future research should address these limitations by incorporating longitudinal designs that can track changes in peer attachment and academic motivation over time, thus providing insights into the causal relationships between these variables. Employing a mixed-methods approach, including interviews and observational data, could enrich the understanding of the quality and dynamics of peer relationships. Furthermore, expanding the sample to include diverse populations and educational contexts would enhance the generalizability of the findings. Investigating the role of digital media in peer attachment and its impact on academic motivation could also offer valuable insights in the context of increasing online learning environments.

The findings of this study have important implications for educational practice. Schools and educators should foster an environment that promotes positive peer interactions and supportive social networks. Implementing peer mentoring programs and group learning activities can facilitate emotional bonds among students, enhancing their motivation and engagement. Teachers and school psychologists should also be aware of the critical role of grit in mediating the relationship between peer attachment and academic outcomes, incorporating strategies that build resilience and perseverance in students. Encouraging feedback and collaboration among peers can further support academic motivation, suggesting a holistic approach to education that integrates academic and social-emotional learning.

**Authors' Contributions**

Authors contributed equally to this article.

**Declaration**

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

## Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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## Declaration of Interest

The authors report no conflict of interest.

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## Ethics Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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