

# Family Educational Inputs and Adolescent Academic Stress: The Mediating Role of Self-educational Expectations

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**Abstract:** The country pays more and more attention to the youth group, and reform measures continue to be taken, and the research on adolescents is also gradually increasing. This paper takes the influence of family education on adolescents as the core, and explores in depth the influence mechanism of each factor on academic pursuits of teenagers stress. The study's findings indicate that family education input and self-education expectations have an impact on adolescents' academic stress.

**Keywords:** Family Education, Academic Pressures, Self-expectations, Mediating Roles.

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## 1. Introduction

At present, China's education system faces new challenges and opportunities. On the one hand, problems like the substandard educational quality in impoverished areas and the widening gap between urban and rural education still exist, affecting the quality of education for young people and children. In contrast, with the increasing advancement in technological fields, information technology and social media, competitive skill requirements and learning environments, China's education model is undergoing dramatic changes. 2021 In July 2021, the General Office of the Central Committee of the Communist Party of China (CPC) and the General Office of the State Council issued the latest "Opinions on Further Reducing the Burden of Homework for Compulsory Education Students and the Burden of Out-of-School Training" document. Reacting to the state's efforts to lessen the strain on students, the amount of time students spend at school in various schools began to decrease, and the amount of homework began to decrease sharply. [1] As we all know, a strong youth is a strong nation, and young people have always been the focus of society. In addition, adolescents are burdened with the high expectations of their parents and elders, as well as considerable investment in education for families, and for this group, the learning task has begun to intensify in terms of difficulty and tension, and they are also in the most distinctive psychological characteristics of adolescence, with prospects for their own futures, and adolescents may be sensitive to and anxious about their academics, and may feel the pressure of academics.

## 2. Literature Review

### 2.1. Family Investment in Education and Academic Stress among Adolescents

Funding in family education is categorized into two types: one focusing narrowly on family education and another encompassing a wider scope.

Education for families investment in a limited context refers to the expenditures made by families to improve the human capital of their children, which are mainly used for their children's education and cultivation [2], which includes

not only in-school education inputs such as tuition fees, books, activities, meals, and accommodations paid to schools, but also out-of-school education inputs such as children's participation in extracurricular tutorial classes and interest classes. Wei Xin and Qiu Liqiang (1998) defined the concept of family education input economically in their study, and regarded it as the expenses paid by families in their children's schooling process, which is also known as family education expenditures [3]. Wang Hui (2002) regarded children as an object of economic investment, and the family education input is an investment of an economic nature made by the family in their education for kids, which is aimed at investing in their education for kids in order to promote their overall physical and mental growth [4].

Learning stress refers to the mental strain and negative feelings experienced during the educational process, such as anxiety and tension, and it is believed that learning stress mainly comes from both external (the examination that determines the future) and internal (the gap between the individual's expectations and the reality) [5]. Some other scholars believe that learning stress is caused by factors such as the learning task, the process of learning, the results of learning, the stipulations and anticipations set forth by the school, the household, and the community, the self-knowledge and self-anticipation of students about their learning ability, and so on. Some academics argue that the psychological strain of learning stems from the nature of the learning activity, the educational procedure, outcomes, expectations from schools, families, and society, along with students' self-awareness and self-perceived learning capabilities. etc. [6] Xu Jiabao et al. believe that learning stress is a psychological strain and tension caused by students' cognition and evaluation of events related to their educational pursuits and demands from the external environment in their learning [7].

Parental expectations are often manifested through family education, and when adolescents perceive the high investment of their families in education, they may feel similar pressure to achieve good grades in order to repay their parents.

### 2.2. Family Educational Inputs and Self-educational Expectations

Family education inputs include not only monetary inputs

such as educational expenditures and material resources, but also non-monetary resources such as educational concepts, rearing time and energy, i.e., family education inputs refer to both economic inputs and time inputs. [8]

Self-educational expectations are students' expectations of their own academic achievement and future educational attainment based on their past experiences and self-situations. Good self-educational expectations can enhance students' academic motivation and academic engagement and enable them to better focus on their studies, thus promoting long-term academic development. [9]

Family investment in education significantly affects adolescents' self-education expectations. Adolescents who feel loved and supported by their families are more motivated to pursue their goals and dreams.

### 2.3. Self-education Expectations and Adolescent Academic Stress

Self-education expectations have an impact on academic stress in adolescents.

Spenner and other scholars (1978) defined educational expectation/aspiration from a sociological point of view as a student's prediction of the highest level of education that he or she can achieve in the future, and Spenner pointed out that educational expectation has an impact on students' academic achievement and choice of further education. [10]

### 2.4. Review of the Study

In summary, the following hypotheses were formulated for this study:

Family investment in education significantly affects academic stress

Self-Education Expectations Mediate the Effect of Family Educational Input on Adolescents' Academic Stress

## 3. Objects and Methods

### 3.1. Objects of Study

It is expected that a total of 300 students spanning from the initial to the third year of a middle school in Shenzhen will be selected by whole cluster sampling and the questionnaire will be distributed online.

### 3.2. Tools

#### 3.2.1. Investment in Family Education

Parenting Involvement Scale

The Parenting Involvement Scale developed by Song Bing was selected, which includes three aspects: engagement in emotional, intellectual, and behavioral management aspects [11]. The parenting subscales were combined into a 21-question, student-reported, 5-point scale. The scale's internal consistency coefficient in this research stood at 0.89.

#### 3.2.2. Self-education Expectations

The Students' Self-Education Expectations Scale refers to and revises the Learning Self-Expectations Questionnaire for Junior High School Students compiled by Meiling Wang, which draws upon the current scholarly works, and is formed on the basis of interviews, several trial tests and modifications, with the overall reliability coefficient of the questionnaire being 0.913, and the reliability coefficients on the dimensions being 0.70 or above, which is good in terms of reliability as well as content validity and structural validity.

The questionnaire consists of 16 questions with three dimensions, namely, learning attitude expectations, learning

achievement expectations, and learning behaviour expectations. To evaluate behavioral adherence, a five-tier Likert scale was employed, ranging from "fully compliant" to "not at all compliant".

#### 3.2.3. Academic Stress among Adolescents

In this paper, we choose the "Questionnaire on Learning Stressors of Elementary School Students" which was adapted by Xu Ruiqi in 2023 based on the "Questionnaire on Learning Stress of Elementary School Students" prepared by Long Anbang, which classified the dimensions of learning stress as: self stressor, peer stressor, family stressor, learning content stressor, teacher stressor, time stressor, and future stressor.

Subjects rated the degree of stress they felt according to the events described in the questions on a scale of 1 to 5 from "strongly disagree" to "strongly agree," with 1 indicating "strongly disagree," 2 indicating "disagree," 3 indicating "fair," 4 indicating "agree," 5 indicating "strongly agree," and 5 indicating "strongly agree. 1 means "strongly disagree", 2 means "disagree", 3 means "fair", 4 means "agree" and 5 means "strongly agree". As scores increase, so does the level of learning stress. With an internal consistency coefficient of 0.732, the scale demonstrates substantial reliability.

research programme

The study was conducted by a professionally trained graduate student in psychology who served as the main examiner. Prior to administering the test, authorization was secured from both the educational institution and its educators., and students were introduced to the project to ensure that they understood the purpose of the test, the test method, and so on, followed by completing a form indicating informed consent. The test was administered to all students as a class, and the surveys were gathered immediately at the location by the main test taker after the responses were completed.

data processing

The data collected from the questionnaire was collated using SPSS 21.0 Amos 24.0 software was used to do the formula for structure modelling and fit the mediated effect model.

#### 3.2.4. Reliability Analysis

Table 1. Cronbach's reliability analysis

dimension (math.)	Cronbach's alpha coefficient	Number of projects
Investment in family education	0.927	21
Academic stress among adolescents	0.978	28
Self-education expectations	0.955	15

With an alpha coefficient of 0.927 for family education input exceeding 0.8, it signifies a high level of data reliability in this area;

the alpha coefficient of adolescent academic pressure is 0.978, this exceeds 0.8, signifying a high level of data reliability in this particular aspect; the alpha coefficient of self-education expectation is 0.955, exceeding 0.8, this suggests a high level of data reliability in this particular aspect; In summary, the reliability of the research data meets the required standards and is suitable for additional examination.

### 3.2.5. Validity Analysis

**Table 2.** KMO and Bartlett's test

KMO Number of Sample Suitability Measures.		0.967
Bartlett's test of sphericity	approximate chi-square (math.)	15077.455
	(number of) degrees of freedom (physics)	2016.000
	significance	0.000

**Table 3.** Descriptive statistics

	sample size	minimum value	maximum values	average value	(statistics) standard deviation	skewness	kurtosis
Investment in family education	301	1.857	4.905	3.298	0.757	0.363	-0.960
Academic stress among adolescents	301	1.750	4.964	3.339	0.966	-0.003	-1.230
Self-education expectations	301	1.333	5	3.273	0.947	0.184	-1.009

The preceding table clearly shows that: The legitimate sample size for family education investment stands at 301, with the lowest peak values being 1.857 and 4.905, the average and variability being 3.298 and 0.757, the asymmetry in family education investment at 0.363, and the kurtosis at -0.960. For validating adolescent academic stress, the sample size stands at 301, with the lowest peak values being 1.750 and 4.964, and the average and standard deviation being 3.339 and 0.966, respectively. The figure stands at 4.964, with an average of 3.339 and a variation of 0.966. The academic stress experienced by adolescents shows a skewness value of -0.003 and a kurtosis value of -1.230. For assessing self-educational expectations, the appropriate sample size is 301, with the lowest values being 1.333 and 5, and the average and standard deviation being 3.273 and 0.947, respectively. The skewness of self-educational expectations is 0.184 and the kurtosis is -1.009.

### 3.2.7. Relevance Analysis

**Table 4.** Results of correlation analysis of variables (N=301)

	Investment in family education	Academic stress among adolescents	Self-education expectations
Investment in family education	1.000		
Academic stress among adolescents	.593**	1.000	
Self-education expectations	.615**	.457**	1.000

\*\* Significant correlation at the 0.01 level (two-tailed). \* Significant at the 0.05 level (two-tailed).

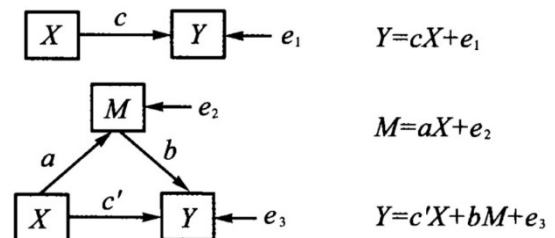
The table above illustrates that Pearson correlation analysis was employed to examine the interrelations among three elements, namely, family educational input, adolescent academic stress, and self-educational expectations. Detailed examinations are observable: The correlation coefficients are 0.593 and 0.615, which exceed 0, meaning that a positive association exists between family education investment, adolescent academic pressure and self-education expectation.

With a correlation coefficient of 0.457, exceeding 0, it indicates a direct link between the academic stress experienced by adolescents and their anticipations of self-education.

The test outcomes in the preceding table reveal that the research data's KMO test value stands at 0.967, exceeding 0.9, signifying its high suitability for factor analysis. Bartlett's sphericity test, having a significance p-value under 0.05, suggests significant variable correlations, rendering the factor analysis suitable for later stages.

### 3.2.6. Descriptive Statistics

### 3.2.8. Analysis of Intermediation Effects



**Figure 1.** The relationship between variables

A mediation effect test using family education input serving as the independent variable, adolescent academic stress as the dependent variable, and self-expectation of education as the mediating variable.

**Table 5.** tests for intermediation effects

variant	Dependent variable: academic stress among adolescents	Dependent variable: self-education expectations	Dependent variable: academic stress among adolescents
	Model 1	Model 2	Model 3
(Constant)	0.927** (3.263)	0.930** (3.407)	0.788** (2.746)
Your gender	0.051 (0.563)	-0.031 (-0.364)	0.055 (0.620)
Your age	-0.056 (-1.069)	-0.054 (-1.067)	-0.048 (-0.922)
Investment in family education	0.755** (12.698)	0.770** (13.468)	0.641** (8.558)
Self-education expectations			0.149* (2.491)
R <sup>2</sup>	0.355	0.381	0.368
Adjusted R <sup>2</sup>	0.349	0.375	0.360
F	F=54.502 p=0.000	F=60.979 p=0.000	F=43.144 p=0.000

\* p<0.05 \*\* p<0.01 t-values in parentheses.

The preceding table reveals the involvement of three distinct models in analyzing the mediation effect, detailed as follows:

Model 1, identified as the independent variable X and the dependent variable Y for regression model:

Adolescent academic stress = 0.927 + 0.051 x your gender - 0.056 x your age + 0.755 x family educational inputs

Model 2, the development of a regression model for independent variable X alongside mediator variable M:

Self-education expectations = 0.930 - 0.031 x your gender - 0.054 x your age + 0.770 x home education inputs

In constructing the regression model, Model 3 incorporates independent variable X, mediator variable M, and dependent variable Y:

Adolescent academic stress = 0.788 + 0.055 x your gender - 0.048 x your age + 0.641 x family educational input + 0.149 x self-educational expectations

**Table 6.** Summary results of the mediation effect test

term (in a mathematical formula)	c Total effect	a	b	a*b mediating effect	c 'Direct effect'	Test Conclusion	Efficacy as a percentage of
Family educational inputs -> self-educational expectations -> adolescent academic pressure	0.756**	0.770**	0.149*	0.115	0.641**	Partial intermediation	15.181 per cent

\* p<0.05 \*\* p<0.01

As shown in the above table: a and b are significant and c' is significant and a\*b with the same sign as c' is partially mediated and the effect share is 15.181 per cent.

#### 4. Key Issues to Be Addressed Mechanisms and Pathways

How do family educational inputs affect adolescents' academic stress?

Self-teaching This study used an open-ended questionnaire and literature analysis to

In what ways are parenting expectations mediated?

How can we effectively reduce academic stress among young people?

#### 5. Conclusion

The subsequent inferences were made based on the survey and statistical analysis of 300 junior secondary school students within the scope of this research:

There is a significant positive correlation between family educational inputs and adolescents' academic stress and self-educational expectations.

#### 6. Research Shortcomings and Prospects

This study used the method of questionnaire survey and literature analysis to statistically examine secondary school students' investment in family education, self-education expectations, and academic pressure, and although the whole research process has been relatively complete, there are still some shortcomings. Although the whole research process is complete, there are still some shortcomings. The sample size is limited, the research method is relatively single, etc., which needs to be improved in the follow-up research.

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