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Teacher-student Relationships and Adolescent Academic Burnout: The Moderating Role of General Self-concept

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Abstract: Academic burnout is a common problem among teenagers. Previous studies have explored the influence of teacher-student relationships and general self-concept on adolescent academic burnout; however, studies on their interactive influence on adolescent academic burnout are lacking. Thus, based on social cognitive theory, this study aimed to explore the interactive influence of teacher-student relationships and general self-concept on adolescents' academic burnout. In total, 1,214 adolescents responded to the Teacher-student Relationships Questionnaire, Self-Description Questionnaire II, and Maslach Burnout Inventory-Student Survey. The results showed that both teacher-student relationships and general self-concept negatively predicted academic burnout ($p < 0.01$). Linear regression analysis showed that the main effects of teacher-student relationships ($p < 0.001$) and of general self-concept ($p < 0.001$) on academic burnout were significant. Moreover, the interactive effect of teacher-student relationships and general self-concept on adolescent academic burnout was significant ($p < 0.01$). High general self-concept reduced the influence of poor teacher-student relationships on adolescents' academic burnout. Adolescents with high general self-concept experienced the least academic burnout in the presence of good teacher-student relationships, while adolescents with low general self-concept experienced the most academic burnout in the presence of poor teacher-student relationships. The results of this study indicated methods to reduce the academic burnout of adolescents, suggesting not only the importance of the external environment of adolescents but also the need to improve students' internal resources to help them achieve better self-concept.

Keywords: Teenagers, Teacher-Student Relationships, General Self-concept, Academic Burnout

1. Introduction

Teenagers are in an important period of their lives, one which is generally marked by their ingress in junior high school and great academic pressure. Specifically, studies show that Chinese teenagers face high academic pressure, which directly leads to academic burnout among this population [1, 2]. This concept of academic burnout has originated from the concept of job burnout. On the topic, Maslach posited that that there are three manifestations of "burnout": inefficiency, fatigue, and apathy [3, 4]. Accordingly, if we consider that academic burnout can lead to such manifestations among students, it may be important to study the psychological mechanism of adolescents' academic burnout; the information this type of research yield may prove helpful to developing measures for relieving adolescents' academic pressure [5].

Studies show that adolescents' learning environments can not only significantly positively predict academic achievement but also negatively predict academic pressure [2, 6]. In addition, with good interpersonal relationships in the daily learning environment, students are more likely to be satisfied with school life. In the students' learning environment, teachers can often be deemed as "important others," and studies show that the relationship between teachers and students has a great influence on the latter's learning behaviors. Particularly, teacher-student relationships have been shown to have a significant positive predictive effect on primary school students' creative thinking and

innovative efficacy [7, 8]. Moreover, positive teacher-student relationships were shown to positively predict students' daily academic flexibility and academic achievement, and to protect them from academic burnout [9]. Another research shows that, when students suffer from excessive schoolwork pressure, they may end up developing academic burnout [10]; however, this cited research also shows that, when students perceive that their teachers are supporting them in their academic endeavors, this perceived support can help reduce the academic burnout evoked by high schoolwork pressure [10]. Although these studies have shown that teacher-student relationships can affect adolescents' academic burnout, a question may still be posited: what is the underlying mechanism for the influence of teacher-student relationships on students' academic burnout? This question remains to be answered.

According to Bandura's [11] social cognitive theory, individual behavior is influenced by environmental and individual factors, and the relationships between environmental factors, individual factors, and behaviors are bidirectional. That is, according to this theory, students' academic burnout and the related individual behaviors are not only influenced by the external environment (e.g., teacher-student relationships) but also by individual factors.

In the school context, the development of students' self-concept is an issue worthy of attention. Self-concept is defined as the perception of oneself, including the understanding of one's physiological and psychological state, interpersonal relationships, and social roles. In Shavelson's self-concept hierarchy model [12], general self-concept is at the highest level of the model and is a relatively stable construct.

Considering that teenagers are still developing their self-concept, both individual temperament and external factors are likely to affect this development. A study showed that adolescents' general self-concept was positively correlated with their coping style, and influenced their learning, interpersonal relationships, and subjective well-being [13]. Two other research depicted how self-concept has an important influence on individual psychology and behavior [14, 15]. Now, regarding self-concept and burnout, studies have shown that the first is a major individual factor affecting the latter; indeed, one research demonstrated that individuals with high self-concept show lower burnout levels [16]. Therefore, predicting general self-concept has an impact on adolescent academic burnout.

In summary, researchers have analyzed the individual impact of teacher-student relationships and of general self-concept on adolescents' academic burnout, but no study has delved into how these two variables interact to influence this type of burnout. Therefore, following Bandura's social cognitive theory, this study aimed to explore the interactive influence of teacher-student relationships and general self-concept on adolescents' academic burnout. We hypothesized, based on the aforementioned literature, that teacher-student relationships and general self-concept would individually and interactively impact adolescents' academic burnout.

2. Method

2.1. Participants

This study adopted the cluster sampling method. Students from 8 classes of Grade One, Grade Two and 5 classes of Grade One in a junior high school in Xi'an were selected to take part in the test. We used the test method of assessment for the online questionnaires. In total, 1,218 students responded to the questionnaire; however, we excluded data from four participants, who provided invalid questionnaires. Finally, 1,214 participants provided valid data, which were used for the analyses.

In our sample, the average age was 13.5 years old. The participants included 633 male and 581 female students.

2.2. Measures

2.2.1. Teacher-student Relationship Questionnaire

To assess teacher-student relationships, we used the 18-item questionnaire revised by Chu in an unpublished Master's thesis [17]. This questionnaire is divided into three dimensions, each with 6 items: teacher-student relationships, difficulty in approaching the teachers, and status difference between teachers and students. This questionnaire comprises only yes-or-no items (1 = yes; 2 = no). The Cronbach's α for the dimensions in this questionnaire were as follows (in the order of the description above): 0.766, 0.881, and 0.882, respectively.

Specifically, the "teacher-student relationships" dimension includes items on the mutual relationships and attitudes between teachers and students; an example item is "The teachers do not attract your attention in class." The "difficulty in approaching the teachers" dimension includes items about students' perceptions about the distance between teachers and students; an example item is "You sense that teachers dislike you, or you dislike your teachers." The "status difference between teachers and students" dimension includes items on the degree to which teachers treat students unequally; an example item is "Teachers often oppose and do not consider your opinions." In this study, we used the three-dimensional total score to calculate

2.2.2. Self-description Questionnaire

To assess general self-concept, we used the revised Self-Description Questionnaire II [18]. This 102-item questionnaire comprises 11 subscales: general self-concept, mathematics, speech, general school, physical fitness, appearance, relationship with opposite sex, relationship with same sex, relationship with parents, honesty and credibility, and emotional stability dimensions. The questionnaire is answered on a 6-point scale, as follows: 1 stands for "complete conformity," 2 for "conformity," 3 for "basic conformity," 4 for "basic non-conformity," 5 for "non-conformity," and 6 for "complete non-conformity." In this study, we used only the general self-concept dimension; an example item is "Generally speaking, I feel terrible." The higher the score, the higher the self-concept. The Cronbach's α for this questionnaire was 0.95.

2.2.3. Maslach Burnout Inventory-Student Survey

For assessing academic burnout, we used the Maslach Burnout Inventory-Student Survey [19], as translated and revised by Luo et al. [2]. This 15-item questionnaire comprises three dimensions: emotional exhaustion, low sense of accomplishment, and depersonalization. Example items include "I feel exhausted because of my study duties" and "I feel excited when I achieve my goals." The questionnaire responses are on a 7-point scale, ranging from 1–7 (not at all consistent–very consistent). We used the total scores for this questionnaire as academic burnout scores. The Cronbach's α coefficients for each subscale (in the aforementioned order) and the total scale were 0.77, 0.76, 0.73, and 0.84, respectively.

2.3. Questionnaire Application Procedures

First, we contacted the teacher of an ordinary full-time junior high school in China and confirmed the students that were willing to participate. Second, the teacher was trained to guide students to take the computer test. Third, the students were organized to complete the questionnaire in batches.

3. Results

Table 1. *Descriptive statistics and correlation coefficients of the key study variables (n = 1,214)*

Variable	1	2	3
1. General self-concept	_		
2. Academic burnout	-0.60***	_	
3. Teacher-student relationships	0.35***	-0.52***	_
M	45.02	48.03	5.32
SD	8.12	15.56	9.18

Note: *** $p < 0.001$.

Table 1 lists the correlation coefficients among six variables: general self-concept, teacher-student relationships, academic burnout, and its dimensions of emotional exhaustion, depersonalization, and low sense of accomplishment.

After conducting a correlation analysis among the study variables, we observed the following significant correlations: general self-concept was positively correlated with teacher-student relationships ($r = 0.35$, $p < 0.001$), and negatively correlated with academic burnout ($-r = 0.60$, $p < 0.001$). We also observed negative correlations between teacher-student relationships and academic burnout and its dimensions ($r = -0.52$, $p < 0.001$).

Similar to prior research, we chose to use the hierarchical regression method for testing the influence of teacher-student relationships and general self-concept on students' academic pressure. We used three steps, including one variable in the regression equation at each step. In the first step, we used sex as a control variable and academic burnout as the dependent variable. In the second step, we included teacher-student relationships (independent variable) and general self-concept (moderating variable) into the equation. In the third step, we included the interactive terms of teacher-student relationships and general self-concept into the regression equation.

In these regression analyses, we introduced the interpretation quantity (R) increased by the equation after identifying the interaction term of the independent and moderating variables; namely, the degree of the moderating effect of the moderating variable in the relationship between the independent and dependent variables. Here, we assumed that if this effect was significant, the influence would also be significant. Following prior research, in order to avoid potential multicollinearity problems, we have centralized the control, independent, and moderating variables.

The results of the hierarchical regression analyses showed (see Table 2) that the main effect of teacher-student relationships on academic burnout was significant ($\beta = -0.35$, $p < 0.001$); namely, teacher-student relationships significantly negatively predicted academic burnout. Moreover, the main effect of general self-concept on academic burnout was also significant ($\beta = -0.47$, $p < 0.001$); hence, general self-concept significantly negatively predicted academic burnout. Additionally, the interaction term of teacher-student relationships and general self-concept was significant ($\beta = -0.08$, $p < 0.001$); thus, general self-concept significantly regulated the relationship between teacher-student relationship and academic burnout.

Table 2. *Main and interactive effects of teacher-student relationships and general self-concept on academic burnout (n = 1,214)*

	Academic Stress					
	b	***SE***	***95%CI***	***β***	ΔR^2	***ΔF***
Step 1					0.00	1.09
Sex	−0.93	0.89	[−2.69,0.82]	−0.03		
Step 2					0.46	520.36***
Teacher-student relationships (TSR)	−5.48***	0.35	[−6.18, −4.80]	0.35		
General self-concept (GSC)	−7.30***	0.35	[−7.99, - 6.62]	−0.47		
Step 3					0.01	14.16***
TSR × GSC	−1.26***	0.33	[−1.92, −0.60]	−0.08		

Note: b = unstandardized coefficients. β = standardized coefficients, *SE* = standard error. *** $p < 0.001$.

Based on prior research [20], to more comprehensively understand how the interaction between teacher-student relationships and general self-concept affects academic burnout, we conducted a simple slope analysis on variables that showed significant interactions. In this additional analysis, we divided participants into three groups: those with a total score for general self-concept that was higher than the average by one standard deviation were defined as

the high general self-concept group; those with a total score lower than the average by one standard deviation were defined as the low general self-concept group. After this division, we calculated the simple slopes for the influence of teacher-student relationships on academic burnout across the three groups.

The results showed that teacher-student relationships could significantly negatively predict academic burnout (*simple slope* = -0.37, t (1209) = -11.88, $p < 0.001$). In the low general self-concept group, the teacher-student relationships significantly negatively predicted academic burnout (*simple slope* =-0.26, t (1209) =-9.56, $p < 0.001$), as shown in Figure 1.

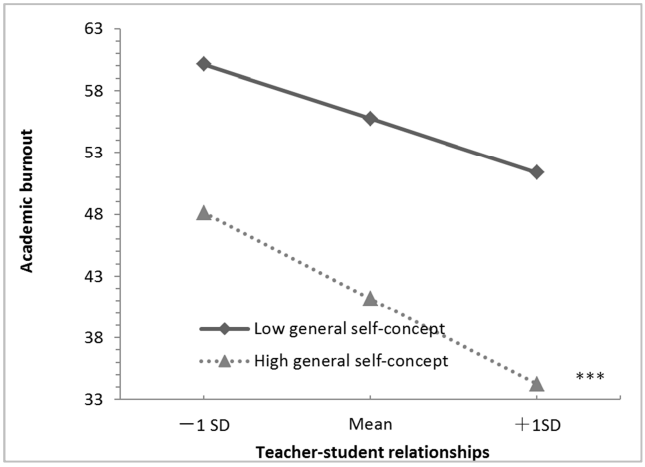

Figure 1. *Plot of the interactive effect of teacher-student relationships and general self-concept on academic burnout.*

4. Discussion

This study explored the influence of the interaction between teacher-student relationships and general self-concept on adolescents' academic burnout. The results showed that the main effect of teacher-student relationships on academic burnout was significant; namely, regardless of students' levels of general self-concept, students with poor teacher-student relationships showed significantly higher levels of academic burnout than students with good teacher-student relationships. This result is consistent with the existing evidence on the topic [9].

Generally, the social environment of the school is where students spend a great portion of their daily lives; hence, this environment is likely to affect variables such as students' behavior, physical and mental health, among others. Within the social environment of schools, teacher-student relationships are an important element, so such relationships are likely to play an important role in students' learning. This is because teachers are generally the leaders during the teaching activities. Within this context, and according to social cognitive theory, teachers have high expectations for students, and students have strong achievement motivation and high academic performance [21]. A previous study has also shown that intimate teacher-student relationships are negatively correlated with students' internalization of the learning contents. Moreover, academic burnout has been shown to be a common factor hindering this internalization. Teachers are an important social support system for students in learning, and good teacher-student relationships can provide students with sufficient social support and good learning strategies [22].

That is, when teachers provide social support to their students, the latter may be able to perceive their teachers' respect and understanding toward them, which may help improve students' self-efficacy; this environment can be conducive to effectively alleviating academic burnout. Now, when the teacher-student relationship is poor, students may not be able to interact with their teachers and to believe in their teaching methods; namely, the external stimuli related to poor teacher-student relationships may lead students to develop negative coping styles (e.g., rejecting the teacher, or even the subject taught by the teacher), which may subsequently hinder students' motivations to learn. In addition, within this poor relationship scenario, when students incur in learning problems, the lower their optimistic tendency, the more negative their mentality will be in dealing with the academic burnout that they may be experiencing. Therefore, compared to students with good teacher-student relationships, students with poor teacher-student relationships are more likely to experience less academic investment. Then, the lower their academic investment, the lower their academic achievement, and the higher their academic burnout.

Consistent with our initial expectations for our study findings, we observed that general self-concept moderated the relationship between teacher-student relationships and adolescents' academic burnout. This is also consistent with the findings of prior research. First, we observed that general self-concept could adjust the relationship between teacher-student relationships and academic burnout; specifically, within both poor and good teacher-student relationship scenarios, the level of academic burnout was higher among students with low general self-concept than in those with high general self-concept.

According to social cognition theory, the relationship between one's behavior and the social environment is interactive, and there are two influence pathways in this relationship: first, the social environment can directly influence individual behavior; second, one's internal cognition can influence the social environment, which then affects individual behaviors. Considering that general self-concept is an important component of the human cognition, it may be that, within a poor teacher-student relationship scenario, students with a low general self-concept may not be able to efficiently or sufficiently adjust their own psychological state, leading them to negative emotional states and feelings of uselessness; meanwhile, their teachers may perceive the students as only having negative self-expectations, leading teachers to avoid taking measures to deal with the students' behaviors. Accordingly, in such a scenario, students with low general self-concept may come to experience the highest levels of academic burnout.

Now, within this scenario of a poor teacher-student

relationships, students with a high general self-concept may be more capable of adjusting to the experience of academic burnout. This is because those with a high self-concept may also have a high self-awareness, self-evaluation, and may adopt problem-solving or help-seeking behaviors to deal with this academic burnout, as described in prior research [23]. That is, even amid the lack of social support from teachers, students with high self-concept may believe that there are peers who may be willing to provide them with the support they need. Indeed, a study shows how students can create an environment of mutual social support and encouragement among peers, which thereby improves students' learning efforts and self-efficacy [24]. Concomitantly, individuals with high self-concept generally have higher self-esteem, which is an individual-level factor that can play a protective role against academic burnout. After being adjusted by themselves and with the help of peers, students' academic burnout levels decreased significantly. Therefore, even in the case of poor teacher-student relationships, the level of academic burnout of students with good general self-concept will be lower than that of students with poor general self-concept.

Limitations and Implications

Regarding the implications of our study, first, we believe that teachers need to consider the fact that adolescents are in a stage of unbalanced physical and mental development. According to Erickson's view, adolescents still need to establish a sense of unity for their self-concept, which is still under development. Accordingly, teachers of junior high school students in China should pay closer attention to the psychological development of each student, establish a relationship with the students that denote an equal status between the two parties, and enhance their relationship with students. Second, as described by the ecosystem development theory, individual development and behavior is not exempt from the influence of the interactions between internal and external factors. Therefore, students should endeavor to cultivate positive general self-concepts, learn to see the positive side of things in life, strive to be good at discovering the things in which they are good at, and cultivate positive emotions. This is because a positive general self-concept was shown to be associated with positive experiences, which can therefore protect against academic burnout.

Now, regarding limitations, since this study used a cross-sectional design, we could not longitudinally observe the changes in students' academic burnout levels; future research should use longitudinal designs to explore the time-related changes in Chinese adolescents' academic burnout. Furthermore, our data collection procedures involved only the application of questionnaires, and they were applied only to students, despite the fact that we analyzed teacher-student relationship. Future research exploring such relationship should expand the interview methods, collect data on participants' processes, and collect data from teachers; these procedures may enable for the research conclusions to be more reliable.

5. Conclusions

The results of this study supported the hypothesis that teacher-student relationships and general self-concept individually and interactively impact adolescents' academic burnout and demonstrated that high general self-concept reduced the influence of poor teacher-student relationships on adolescents' academic burnout. Adolescents with high general self-concept experienced the least academic burnout when teacher-student relationships were good, while adolescents with low general self-concept experienced the most academic burnout when teacher-student relationships were poor. This indicates that in order to reduce the academic burnout of adolescents, the external environment of adolescents as well as students' internal resources should be considered to help students improve their self-concept.

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