Social Support and Academic Achievement of Chinese Low-Income Children: A Mediation Effect of Academic Resilience

Apoyo social y logro académico de niños chinos de bajos ingresos: un efecto de mediación de la resistencia académica

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Abstract.

Using nation-wide survey data (N=2328) from China, this study investigates how social support from family, peers, and teachers influence low-income household children's (from 13 to 15 years old) academic resilience, as well as how academic resilience mediates the relationship between social support and children's academic achievement. Structural equation modelling was adopted to analyse the data. The results reveal that (1) low-income household children's family, peer, and teacher support are associated with their academic resilience; (2) peer support and academic resilience of low-income household children significantly relate with their academic achievements; (3) academic resilience plays a full mediation role in teacher support and a partial mediation role in peer support on children's academic achievement. The implications of this study on theory and practice, the limitations, and future research directions are discussed.

Resumen.

Utilizando datos de encuestas a nivel nacional (N = 2328) de China, este estudio investiga cómo el apoyo social de la familia, los compañeros y los maestros influyen en la resiliencia académica de los niños de bajos ingresos (de 13 a 15 años), así como la resiliencia académica interviene en la relación entre el apoyo social y el rendimiento académico de los niños. Se adoptó el modelo de ecuaciones estructurales para analizar los datos. Los resultados revelan que (1) el apoyo familiar, de pares y de maestros de niños de bajos ingresos en el hogar está asociado con su capacidad de resiliencia académica; (2) el apoyo entre pares y la resiliencia académica de los niños de hogares de bajos ingresos se relacionan significativamente con sus logros académicos; (3) la capacidad de resiliencia académica desempeña un papel de mediación total en el apoyo del maestro y un papel de mediación parcial en el apoyo de los compañeros en el rendimiento académico de los niños. Se discuten las implicaciones de este estudio en la teoría y la práctica, además de las limitaciones y las futuras direcciones de investigación.

1. Introduction

According to the survey of National Bureau of Statistics of China (NBSC), as to 2017, there were millions of children living in poverty in mainland China (NBSC, 2018). In addition, many studies reported that family's social economic status (SES) has significant impacts on children academic performance. For example, two meta-analysis studies proved that a family's SES positively influences academic outcomes of children (Sirin, 2005; White, 1982). This may infer that compared with children who are not at risk, children in economically disadvantaged households may have a lower academic performance. In the Chinese public education system, the junior middle school (Grade 7 to Grade 9) is a transit period between primary school and high middle school. Grade 7 and Grade 9 are therefore extremely important, because in these two grades, students need to learn the adaptation to the new period of learning. Thus, understanding how to improve the academic performance of children in low-income households in Grades 7 and 9 is critically significant.

Resilience offers us a new perspective to understand this problem, because it relates to risk and protective factors (Luthar, 1991), such as an individual's traumatic experiences, challenges, and ability to cope with difficulties (Masten, 2001). The present study adopts the social-ecological framework of academic resilience, investigating how social support influences academic achievement, including test scores in mathematics, science, and language and whether or not the academic resilience mediated this effect.

Recently, the concept of resilience was defined in a holistic approach by introducing the ecological theory of human development (Bronfenbrenner, 1979). Based on the social-ecological theory, resilience was defined as the way individuals gain the capacity to cope with internal and external resources and risks (Ungar, Ghazinour, & Richter, 2013). Similarly, academic resilience refers to "a capacity to overcome acute or chronic adversity that is seen as a major threat to a student's educational development" (Martin, 2013, p. 488). In this study, we adopt the definition of Martin (2013) and extend its meaning by adding the resilience in a school context. Masten and Coatsworth (1998) suggested that context may influence resilience development, and this point is further explained by Theron (2008), as the context includes individuals, families, and environmental capacities. In line with resilience, academic resilience may also be influenced by factors from individuals, families, peers, and schools (Garmezy, 1991).

Peer support in school plays an essential role when children face adverse circumstances (Werner & Ruth, 1982). Felsman (1989) found the positive effect of peer support on students' resilience and this effect existed regardless of students' age, gender, and their family SES

(Stewart & Sun, 2004). In China, six important functions of peers were identified among high school students (age 16-18 year old), including caring and support in everyday life, academic expectations and involvement, spiritual encouragement, behavioural discipline, and guidance, providing opportunities for meaningful involvement and role modelling (H. Li, Bottrell, & Armstrong, 2017). In contrast, an Indian study found that when young men experienced a high level of peer bullying, this leads to a low level of resilience (Narayanan & Betts, 2014). To summarise, a high level of peer support may lead to a high level of academic resilience (Robinson, Raine, Robertson, Steen, & Day, 2015).

The research also notes that teacher support is a vital factor of academic resilience development (Werner, 1990). Theron (2016) indicated four key processes of teachers facilitating students' resilience: 1) building warm, respectful relationships with students; 2) communicating achievable and consistent expectations of students; 3) regarding students as active and capable agents; 4) developing resilience-supporting classroom practice and environments. By interviewing students, teachers actively participate in regular 'little things' in classroom, such as listening to students' views or making themselves accessible to students, which could also promote students' resilience (Johnson, 2008).

However, when primary students suffered teachers' verbal abuse, they were more likely to have negative learning experiences toward teachers and react in covert ways, such as keeping silent or withdrawing from school (Geiger, 2017). Similarly, if students have a negative sense of school safety and low engagement in the classroom, they are more likely to have lower resilience (Sanders, Munford, & Liebenberg, 2016; Sanders, Munford, Thimasarn-Anwar, Liebenberg, & Ungar, 2015). Students who were bullied by teachers or other school staff were more likely to report low school engagement and negative experiences toward school climate (Datta, Cornell, & Huang, 2017). Thus, teacher support influences positively students' academic resilience in schools.

Family support is another vital factor in proving child's academic resilience. By interviewing 26 children and their parents, Taket, Nolan, and Stagnitti (2014) figured out four strategies parents used to develop children's resilience capacity, including cultivating children's independence ability, promoting children's competence in socio-emotional learning, building supportive relationships with adults, and using community resources. H. Li (2017) suggested that students who obtained more parental supervision in the family and more active engagement in school could change their situations of low school commitment and their personal conflict attitude, improving their academic achievements. In contrast, young people who lack effective parental monitoring and support have lower resilience (Sanders et al., 2016, 2015).

Academic resilience was found to positively correlate with female students' academic outcomes (Allan, McKenna, & Dominey, 2014). This finding is echoed by Ayala and Manzano (2018), as the impacts of resilience on academic performance varies on students' gender and their learning motivations. By conducting longitudinal research, Sattler and Gershoff (2019) compared the differences in the impact of three levels of resilience on mathematics and literacy achievement among children from kindergarten to the 5th grade in primary school. Compared with high-resilient children, non-resilience and low-resilience children have significantly lower mathematical and literacy achievement (Sattler & Gershoff, 2019). Among Chinese rural-to-urban migrant adolescents, self-resilience significantly predicted youths' positive academic emotions (D. Wang, Hu, & Yin, 2017). Based on protection theory of resilience, H. Li (2017) found students' academic resilience positively predicted their academic performance. These findings suggest that children's academic resilience may improve their academic outcomes.

Peer support, family support and teacher support also play important roles in improving students' academic outcomes. Exemplifying the former, by using a longitudinal social network design, one study found that positive peer influence could improve students' writing and mathematics performance (DeLay et al., 2016). In a very recent study, peers were found having a positive impact on their friends' school engagement, such as emotional, behavioural, and cognitive engagement in the classroom (Liu et al., 2018; M. Wang, Kiuru, Degol, & Salmela-Aro, 2018). In contrast, peer victimization and peer depression were negatively correlated with children's academic achievement (Liu et al., 2018). In early childhood research, parental rearing beliefs and parental practices could act as precursors to and have a positive impact on the academic outcomes of children from families living in poverty (Liew, Carlo, Streit, & Ispa, 2018). While both parent support and peer support have a significant positive effect on academic self-efficacy of children who are from a low-income family, the effect of parent support, especially parental emotional support, is larger than the effect of peer support (Ramirez, Machida, Kline, & Huang, 2014). However, parental engagement in schools has no significant impact on students' academic outcomes (Ramirez et al., 2014). Further, researchers found peer support, which measured as peer threat, has no significant effect on school performance of students who live in a low-income family, whereas teacher support has a medium effect on their academic achievement (Elias & Haynes, 2008).

From the above review, we find some research gaps that exist in the current research. Firstly, most research focus on the influential factors of academic resilience and ignore its mediation effect between social support and students' academic performance. Secondly, previous studies were conducted in Western contexts, and research seldom focused on the Chinese economically disadvantaged household children. Thus, this study could contribute in two ways, by: 1) analysing the impacts of multidimensional social support on the academic resilience of children in low-income household; 2) assessing the academic resilience mediation effect between social support and academic outcomes of Chinese low-income household children.

To clearly describe the whole framework, the following research hypotheses are proposed:

H_{1a}: Family support may directly impact academic achievement of economically disadvantaged children.

H_{1b}: Family support may directly impact academic resilience of economically disadvantaged children.

H_{1c}: Academic resilience mediates the relationship of family support and academic achievement.

H_{2a}: Peer support may directly impact academic achievement of economically disadvantaged children.

H_{2b}: Peer support may directly impact academic resilience of economically disadvantaged children.

H_{2c}: Academic resilience mediates the relationship of peer support and academic achievement.

H_{3a}: Teacher support may directly impact academic achievement of economically disadvantaged children.

H_{3b}: Teacher support may directly impact academic resilience of economically disadvantaged children.

H_{3c}: Academic resilience mediates the relationship of teacher support and academic achievement.

H_4: Resilience may directly impact the academic achievement of economically disadvantaged children.

2. Method

2.1 Data Resource: China Education Panel Survey

The present study adopted the data of Chinese Education Panel Survey (CEPS) (2013-2014), accessing from (https://ceps.ruc.edu.cn/), which focuses on Chinese secondary school students who are in grade 7 and grade 9 (year 13-15), including 1216 male (52.2%), 1068 female (45.9%), while 44 students did not provide their gender information. This survey aims at obtaining relatively comprehensive information on Chinese secondary education from multiple perspectives, such as students, parents, homeroom teachers, subject teachers, and school administrators. The CEPS uses a stratified, multi-stage sampling technique wherein 28 districts from a population of 2870 districts were chosen. From each of these 28 districts, four schools were selected, and four classes of grade 7 and grade 9 were randomly selected from each school. As a result, approximately 20,000 students in 448 classrooms of 112 schools were selected in the CEPS.

This study adopts data from the student perspective. Based on the question of 'What is your family's current economic situation?' Economically disadvantaged stu-

dents (N=2328) were confirmed as those who answered: "very poor" or "poor". This study is conducted based on these students' information.

2.2 Key Measures and Variable Definitions

Academic achievements: all students need to report their most recent test scores for mid-term exams in Chinese, English, and mathematics. Originally a 150-point score in total, each students' raw score is changed into a standard score with standard deviation=70 and mean=10. The sampling students' standardized scores in three subjects are the dependent variable of this study.

Metheny, McWhirter, and O'Neil (2008) reviewed the existed 17 tools on measuring teacher support on students' perspective and proposed a four-dimensional structure of teacher support, which included teachers' investment in students' learning, teachers' emotional support, teachers' expectations, and teachers' accessibility of students. In CEPS (2013-2014), teacher support was assessed on two aspects: how often teachers ask questions on subject content and how often teachers praise students. Based on Chinese teaching culture, teachers asking questions is regarded as one of the strategies teachers concerning students' learning use and could be regarded as teachers' investment in students' learning. Thus, teacher support was assessed on two aspects: investment and emotions. In addition, considering the differences of subjects, teacher support was measured using six items. Students are required to rate both descriptions on a 4- Likert scale ranging from 1=strongly disagree to 4=strongly agree.

According to Pitzer and Skinner (2017), peer support was regarded as the component of supportive classroom interactions among peers, including warm relations, structural classroom context and supporting autonomy. Consistent with this definition, in the CEPS (2013-2014), peer support was examined on two aspects: warm relations and structural classroom context using two items. It was measured on a 4-Likert scale ranging from 1= strongly disagree to 4=strongly agree.

According to Zimet, Dahlem, Zimet, and Farley (1988) as well as (Chou, 2000), family support mainly focuses on the supporting willingness, emotional support, decision-making support, and the availability of discussing problems that children are facing on. In a line with this content, family support in CEPS (2013-2014) also covers two aspects: emotional support form parent and their availability of discussing problems that children have in schools. Specifically, family support was measured using four items. Students' responses to the questions were scaled on a 3-Likert format (1=never, 2=sometimes, and 3=always).

According to Martin and Marsh (2006) and Martin (2013), academic resilience mainly concerns on how students cope with the adversity or difficulties within academic settings. Then, the measurement of academic resilience focuses on students' responses to their emotional issues during learning, academic pressures, or some other setbacks within schools (Martin & Marsh, 2006). Consistent with this method, academic resilience in CEPS (2013-2014) concerned on how students tackle with the negative emotional response and academic pressures. Academic resilience was measured on three aspects, including students' negative feelings toward school engagement, emotional issue, and academic pressure using three items. All these items were examined on 4-Likert scales (1=strongly disagree, 4=strongly agree).

2.3 Data Analysis

The normality of these four constructs is tested. Based on the suggestion of Hair, Black, Babin, Anderson, and Tatham (2010), a skewness-kurtosis test is conducted to assess whether the data follows the rule of normal distribution. The values of skewness and kurtosis range from -1.133 to .496, and from -1.446 to 2.186, respectively, which follow the rule of (Kline, 2010) that the values be within the ranges of $|3|$ and $|8|$.

In this study, it was used the Partial Least Squares Structural Equation Modelling (PLS-SEM), which is a non-parametric test and is adopted to analyse the data by using SmartPLS3.0 (Ringle, Wende, & Becker, 2015) with several considerations. First, PLS-SEM is a complicated model that includes multiple independent variables and mediated variables, and has been shown to be capable of assessing parameters of complex models (Hair, Hult, Ringle, & Sarstedt, 2017). It allows enormous flexibility on the number of items of the construct and the measurement scales. Second, because the majority of constructs in this study were assessed by different scale criteria, there might be measure errors or systematic errors. This requires rigorous computation of parameters which the PLS-SEM meets (Chin, 2010). Last, academic resilience is always treated as an entity rather than divided into different components. Thus, in this study we are trying to explore the theory rather than confirm it. As such, the PLS-SEM is regarded as the most suitable data analysis technique for our study.

More specifically, two-steps analysing procedures are conducted to examine model hypotheses. First, we use the PLS algorithm technique for testing the outer model and its reliability and validity. Then, the bootstrapping technique is conducted to confirm the structural model relationships as well as compute the effect size of each path by using the blindfolding technique (Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014).

3. Results

3.1 Measurement Model Assessment

To test the measurement model's reliability and validity, the Cronbach's alpha, composite reliability (CR), average variance extracted (AVE), and discriminant va-

lidity are estimated. Table 1 shows the results from the SmartPLS3.0.

Table 1

Measurement model assessment

| Constructs | Item | Convergent validity | | CR | Cronbach's Alpha |
		Loadings	AVE		
Family support	b24a4	.83	.695	.901	.854
	b24a5	.849			
	b24b4	.821			
	b24b5	.834			
Peer support	c1706	.835	.713	.832	.598
	c1708	.854			
Teacher support	c1304	.771	.638	.914	.886
	c1305	.778			
	c1306	.779			
	c1307	.824			
	c1308	.818			
	c1309	.821			
Academic resilience	a1201	.642	.6	.816	.661
	a1202	.83			
	a1203	.837			
Academic achievement	Chinese	.848	.755	.902	.839
	English	.909			
	Math	.849			

As outlined in Table 1, only the factor loading of item 'a1201' is below .7, so it seems this item needs to be deleted (Hair, Ringle, & Sarstedt, 2011). However, all constructs' value of AVE is over .5 and all constructs' value of CR is over .7, thus, in this study, we keep this item in the resilience. As to Cronbach's alpha, its value ranges from nearly .6 to .886, and four constructs' alpha values are below .7 (Nunnally & Bernstein, 1994). However, we cannot conclude that we get a weak reliability of these constructs because (1) the Cronbach's alpha is too sensitive to the number of items in each construct and (2) the CR estimated the combined reliability of all items to the latent variables and its values (all over .7) show good reliability of each construct.

If the square roots of the AVE of each construct is over the correlation coefficients of two constructs, then we can confirm the construct has good discriminant validity (Fornell & Larcker, 1981). As shown in Table 2, all constructs' discriminant validity meet this rule, which reveals a reasonable discriminant validity for the constructs. It is proposed that the standardized root means square residuals (SRMR) and NFI are two indicators of the model fit to assess to what extent the data fits the model in SmartPLS3.0 (Henseler, Hubona, & Ray, 2016).

Table 2

Discriminant validity assessment

	AA	FS	PS	R	TS
Academic achievement (AA)	**.870**				
Family support (FS)	.033	**.829**			
Peer support (PS)	.132	.176	**.844**		
Academic resilience (R)	.147	.146	.189	**.775**	
Teacher support (TS)	.081	.25	.272	.216	**.796**

In this study, the SRMR=.064 is less than 0.1 (Hu & Bentler, 1995a) and NFI=.705 is less than the suggested .8 (Hu & Bentler, 1995b). Thus, basically, this is a fitted model.

3.2 Structural Model Assessment

Using the bootstrapping technique with 1000 resamples, the path coefficients in this model are estimated, as shown in Table 3. Besides the hypothesis of H_{1a} and H_{3a}, all the other hypothesis paths are significantly supported. Students' perception of academic resilience is significantly impacted by teacher support (β=.16), peer support (β=.131), and family support (β=.083). The result also reveals that students' academic achievements are significantly influenced by peer support (β=.102) and academic resilience (β=.123).

Table 3

Structural model assessment

Hypothesis pathway	Path coefficient	T-value	Result
H_{1a}: family support -> academic achievement	–.01	.424	Not supported
H_{1b}: family support -> academic resilience	.083	3.771***	Supported
H_{2a}: peer support -> academic achievement	.102	4.197***	Supported
H_{2b}: peer support -> academic resilience	.131	5.443***	Supported
H_{3a}: teacher support -> academic achievement	.029	1.19	Not supported
H_{3b}: teacher support -> academic resilience	.16	6.642***	Supported
H_4: academic resilience -> academic achievement	.123	5.439***	Supported

Note. ***p<.001

To test the mediation effect of academic resilience, we adopt Chin (2010)'s two-steps bootstrapping procedures. The effects, firstly, between family support, peer support, and teacher support and academic achievement without the mediator variable are assessed (see the section of Direct effects without mediator in Table 4). The results indicate that academic achievement has a significant relationship between peer support (β=.119) and teacher support (β=.065). However, the relationship between fa-

mily support and academic achievement is not significant.

Then, we add academic resilience as the mediator variable and the three coefficients of family support, peer support, teacher support, and academic achievement are declined. As shown in Table 3 and Table 4, the relationship between peer support and academic achievement is still significant, declined from .119 to .102, but the relationship between teacher support and academic achievement changes into insignificant, the coefficient declined from .065 to .029. Meanwhile, all indirect effects between family support, peer support, teacher support, and academic achievement are supported. Thus, we conclude that academic resilience has a partial mediated effect between peer support, family support and academic achievement and has a full mediated effect between teacher support and academic achievement.
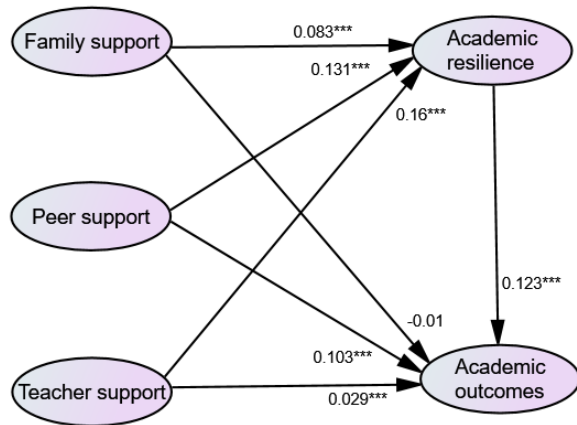
The structural relations are presented in the Figure 1.

Figure 1. Structural model relations.

4. Discussions

4.1 The Direct and Indirect Effects of Peer Support

This study reveals that peer support has a positive effect on low-income household children's academic resilience. This finding is consistent with some existing research conducted in the western context that, when students get strong support from their friends, they are more likely to have a high level of academic resilience (Robinson et al., 2015; Stewart & Sun, 2004). However, the finding is inconsistent with an investigation in China by C. Li, Zhang, and Li (2008) who found no significant effect between peer social capital and resilience. One possible reason is the difference in defining the construct of peer support. In our study, we assess two aspects of peer support –friendly to individuals and good for learning– while, in Li et al.'s research, they measured peer capital on both positively and negatively aspects.

Peer support also shows a positive impact on students' academic outcome, in agreement with the study of Ramirez et al. (2014) but against the finding of Elias

Table 4

Mediation effect results

Hypothesis pathway	Path coefficient	T-value	Result
Direct effects without mediator			
family support -> academic achievement	.042	.833	Not supported
peer support -> academic achievement	.119	5.530***	Supported
teacher support -> academic achievement	.065	3.139**	Supported
Indirect effects			
H_{1c}: family support ->academic resilience -> academic achievement	.01	3.151**	Supported
H_{2c}: peer support ->academic resilience -> academic achievement	.016	3.672***	Supported
H_{3c}: teacher support ->academic resilience -> academic achievement	.02	4.023***	Supported

Note. ***p<.001, **p<.01

and Haynes (2008). This disagreement may be because (Elias & Haynes, 2008) measured peer support by focusing on peer threat. They used items with a negative tone, for instance, "do you get picked on and teased by your friends?" or "do you feel left out by your friends?" (p. 480).

By regarding academic resilience as a mediator, the impact of peer support to low-income household children's academic achievement remains significant, which means academic resilience, has a partial mediation effect on this relationship. Thus, we may conclude that peer support has a positive effect on children's academic achievement, partially through increasing children's academic resilience. This finding could contribute to the development of the theory of how peer support improves children's academic outcomes by raising their academic resilience.

4.2 The Direct and Indirect Effects of Family Support

This study echoes the prevalent conclusion that family support has a positive effect on children's academic resilience, irrespective of their family's economic status (C. Li, Zhang, & Li, 2018; Sanders et al., 2015). However, it is interesting that family support has no significant impact on academic outcome of those from a low-income family and this result is inconsistent with some other studies (Liew et al., 2018; Ramirez et al., 2014). There are two possible reasons for this. First, according to the code theory (Bernstein, 1962), low-income families are more likely to use restricted code to express some simple opinions and the understanding of their speech relies on their specific context, while the middle and upper-class

families always use the elaborated code, which includes complete and relatively complicated meanings. The elaborated code is more powerful than a restricted code in expressing someone's thoughts and does not depend on the specific context. In the school context, teachers prefer to use the elaborated code to transfer knowledge, thus, the working-class or low-income family's children cannot engage in school education as effectively as those from the middle or upper-class family. Second, the Chinese culture may influence parents' emotional engagement in children's learning. For instance, an experimental research revealed that, compared with the USA parent, the Chinese parent shows a low level of emotional intensity and low emotional experience (Davis et al., 2012). This means the Chinese parent is not good at expressing their emotions in their daily life. This effect may influence family support having no significant impact on children's academic achievement in the Chinese context.

4.3 The Direct and Indirect Effects of Teacher Support

Our study is consistent with the existing findings that teacher support could improve students' academic resilience (Johnson, 2008; Werner, 1990). Furthermore, this study confirmed that, if children from the low-income family gain more praise from their teachers, they are more likely to have a high capacity for coping with adverse conditions (Sanders et al., 2016). It is interesting to note that academic resilience fully mediated the effect of teacher support on children's academic achievement. This means before adding the academic resilience, teacher support significantly impact children's academic outcomes; however, this effect changes to insignificant after we added the teacher support as the mediator. Based on this finding, we suggest teacher support may have a positive impact on low-income children's academic achievement but through influencing the children's academic resilience.

4.4 Academic Resilience and Low-income Children's Academic Achievement

This study's findings are consistent with many current findings that academic resilience has a positive effect on children's academic achievement, regardless of family economic status (Sattler & Gershoff, 2019; D. Wang et al., 2017). In addition, though, there are two new findings: academic resilience partially mediated the effect of peer support and fully mediated the effect of teacher support. In another recent study, academic resilience mediated the effects of social support on educational aspiration and plan to drop out, and of family support on academic effort and plan to drop out (Wu, Tsang, & Ming, 2014). Our study complements these findings in two aspects: 1) we measure academic achievement directly using English, Chinese, and mathematics testing scores; 2) we prove the effects of peer support and teacher support.

4.5 Implications of the Present Study

Several implications can be proposed for theory and practice improvement. By adopting an ecological framework of academic resilience that encompasses peer, teacher, and family support, this study deepens our understanding of to what extent and by which path these social supports improve academic achievement by extending to children from low-income household in China.

Practically, to improve low-income household children's school performance, the following two suggestions should be considered carefully: 1) pay more attention to family, such as parents offering more diverse support and learn how to express emotions to their children; 2) provide suggestions to children on how to make friends and how to keep healthy friendships, in recognition that peers are vital for improving both academic resilience and outcomes.

4.6 Limitations and Future Research

There are at least two limitations in this research. First, because it is based on the secondary data, this study is data-driven rather than theory-driven, thus some vital information of participants cannot be obtained. In addition, this is a cross-sectional design, it can only be used to conclude correlational results and cannot obtain causality effects between variables. Finally, the low-income household children were figured out by their own response, while teenagers may have bias perceptions toward their family's economic conditions. Therefore, it may have measurement errors in classifying the family in poverty.

In future, more studies should focus on casual effect of academic resilience on both its sources and impacts by using longitudinal study or experimental study. Meanwhile, future studies could focus on comparative research on minorities and majorities, local and international.

5. Conclusion

The present study reports the impact of students' perceived teacher, peer, and family support on their academic performance as well as examines the mediation effect of academic resilience between these support and academic outcomes using PLS-SEM and the bootstrapping technique. This study found that academic resilience of children from low-income family is significantly influenced by peer, family, and teacher support, while their academic achievements are only significant influenced by peer support and academic resilience. Specifically, academic resilience has partial mediation effect between peer support and academic achievement, and full mediation effect between teacher support and academic achievement.

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6. Appendix

Scales of this research

Construct	Items
Academic resilience	I would try my best to go to school even if I was not feeling very well or I had other reasons to stay at home.
	I would try my best to finish even the homework I dislike.
	I would try my best to finish my homework, even if it would take me quite a long time.
Teacher support	My mathematics teacher always asks me to answer questions in class.
	My Chinese teacher always asks me to answer questions in class.
	My English teacher always asks me to answer questions in class.
	My mathematics teacher always praises me.
	My Chinese teacher always praises me.
	My English teacher always praises me.
Peer support	Most of my classmates are nice to me.
	My class is in good atmosphere.
Family support	How often do your mother discuss your feelings with you?
	How often do your father discuss your feelings with you?
	How often do your mother discuss your worries and troubles with you?
	How often do your father discuss your worries and troubles with you?