

Perfectionism in High School Students: A Moderated Mediation Model of Self-Criticism, Attachment, Mental Health and Academic PerformanceNazia Zafar^{1*}, Romaisa Shahid², Momina Khushnood²**Abstract**

Self-oriented perfectionism is commonly encouraged in academic settings, yet in some situations, it may become maladaptive under certain psychological and relational conditions. This study examined a conditional process model in which mental health problems mediated the relationship between self-oriented perfectionism and academic performance among high school students. Self-criticism was tested as a risk-enhancing moderator, whereas parental trust and communication were examined as a protective buffer. In this study, data was collected from 274 high school students (Male=128, Female=146; $M_{age}=15.94$, $SD=1.01$) using standardized measures of self-oriented perfectionism, self-criticism, mental health problems, parental trust, communication, and academic performance. Moderated mediation analyses using PROCESS Model 29 revealed that perfectionism was associated with higher mental health problems at elevated levels of self-criticism. Mental health problems were, in turn, related to poorer academic performance. Parental trust and communication attenuated the negative association between mental health problems and academic performance, and communication also moderated the direct effect of perfectionism on academic outcomes. Conditional indirect effects supported a significant moderated mediation, highlighting the protective role of parental attachment in buffering academic risks linked to maladaptive perfectionism in adolescence.

Keywords: Academic Performance, High School Students, Mental Health, Parental Attachment, Self-criticism, Self-oriented Perfectionism

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Introduction

Academic success during high school is often framed as a function of high personal

standards, persistence, and motivation (Guterman, 2021) as self-oriented perfectionism which is characterized by setting exceptionally high standards for oneself, is frequently encouraged within school environments because it can support engagement and achievement (Parveen & Khan, 2024). However, perfectionism is a multidimensional construct with both adaptive and maladaptive tendencies (Saluria et al., 2025), and negative reactions to imperfection have been linked to depressive symptoms and reduced well-being in adolescent students (Lin & Guo, 2024; Yang et al., 2025). Perceived failure with self-blame and excessive self-criticism make students vulnerable to psychological distress (Okan, 2023), suggesting that self-criticism may amplify the harmful effects of perfectionism in educational contexts.

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High school students are usually sensitive to academic pressure and internalize symptoms (Wen & Hu, 2023). School achievement of high schoolers plays a central role in their identity formation and self-worth (Grindal et al., 2021). Adolescents who experience psychological distress like symptoms of anxiety and depression, tend to demonstrate poor academic outcomes as compared to their less distressed peers (Monzonís-Carda et al., 2025). Self criticism act as a Cognitive vulnerability that intensify this process in which critical self-evaluation may escalate negative emotional as a response to academic setbacks and heighten mental health problems (Zeb et al., 2025).

Bowlby suggested that secure parent–child attachment provides an important psychological support and fosters healthy self-processes and protects against maladaptive self-criticism in the stressful situations (Bowlby, 1969, 1988). Empirical evidences indicate that secured attachment moderates self-process trajectories and mitigates emotional distress during adolescence (Peter & Gazelle, 2017). In high school students, perceived parental trust has been found to correlate with adaptive

functioning and may counterbalance perfectionism-related stress (Khushnood & Irshad, 2023). Thus, family relational resources such as parental trust and open communication may buffer the negative effects of psychological distress on academic performance.

As discussed, existing research has largely examined these variables in isolation, offering limited insight into how self-criticism as an individual risk factors and attachment in terms of parental trust or communication as relational protective factors jointly influence academic outcomes in high schoolers. Integrating these factors into a single conditional process model can clarify when and for whom perfectionism becomes maladaptive. Guided by this framework, the present study examines a moderated mediation model in which mental health problems mediate the relationship between self-oriented perfectionism and academic performance, self-criticism moderates the association between perfectionism and mental health problems, and parental trust and communication serves as a protective buffer as shown in Figure 1.

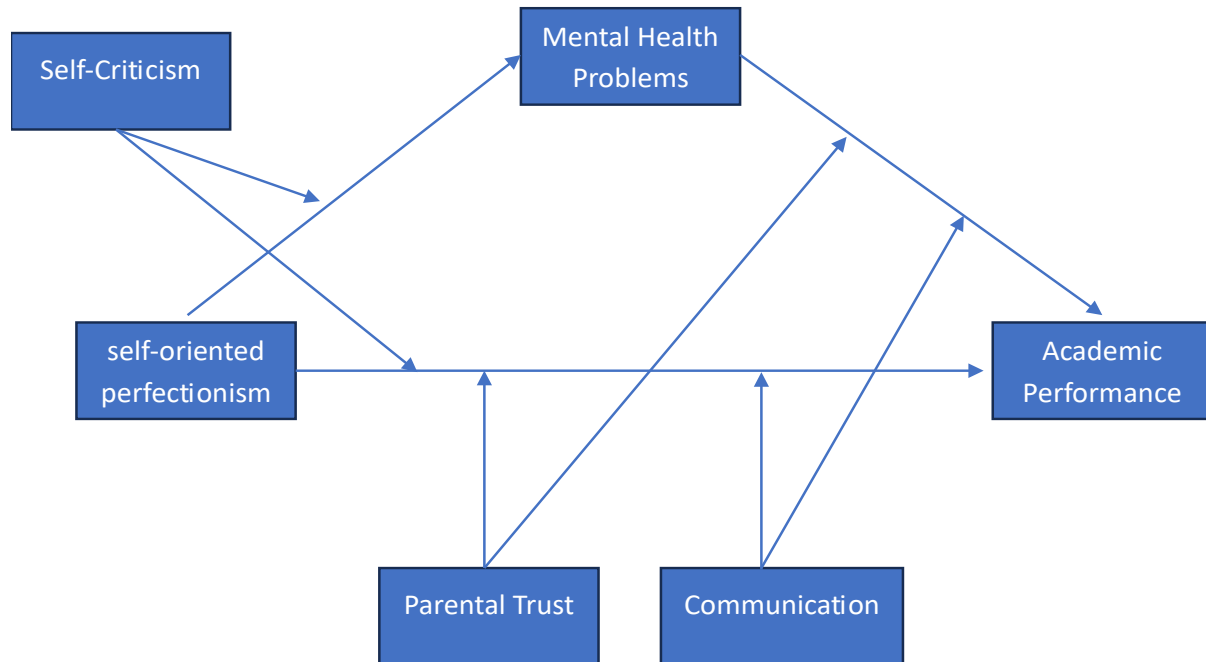


Figure 1 Conceptual Combined Moderated Mediated model using Hayes PROCESS Model 29

Method

Participants

The sample consisted of 274 high school students recruited from government and private higher secondary educational institutions across different cities of Pakistan. The participants included 128 males (46.7%) and 146 females (53.3%), with a mean age of 15.94 years ($SD = 1.01$). All participants were currently enrolled in higher school at the time of data collection. The students who did not meet the inclusion criteria and/or did not provide informed consent were not included in the study.

Sampling Strategy

In the current study, the required sample size was determined through an a priori power analysis which is suitable for testing the conditional process model which collectively involve mediation and moderation effects. Multistage sampling technique was used to ensure representation from diverse Pakistani geographical and institutional contexts. In the

first stage, the recognized institutions offering higher schooling were categorized into urban and rural clusters based on location and population density in the surrounding. In the second stage, institutions were selected from those clusters using simple random sampling from official lists of recognized government and private higher secondary schools in Pakistan. In the third stage, using purposive sampling technique, the link of online survey was shared with students from the selected institutions using predefined inclusion and exclusion criteria to ensure the participation of eligible students only. This combined approach allowed broader representation while maintaining feasibility for online data collection.

Measures

Demographic Performa

To keep a check on the homogeneity of the sample, demographic proforma was used to collect information from the participants regarding their age, gender, class level, and type of institution (government or private).

Child and Adolescent Perfectionism Scale (CAPS; Flett et al., 2016)

Self-oriented perfectionism was measured using Self-Oriented Perfectionism subscale of the Child and Adolescent Perfectionism Scale (CAPS; Flett et al., 2016). This subscale comprising 12 items measures tendencies of adolescents to set high personal standards and strive for perfection using 5-point Likert Scale (1=False/ Not at all true of me; 5=Very true of me). In the current study, the scale demonstrated good internal consistency (Cronbach's $\alpha = .79$).

Forms of Self-Criticizing /Attacking and Self-Reassuring Scale (FSCRS; Gilbert et al., 2004)

Self-criticism was measured using the Forms of Self-Criticizing/Attacking and Self-Reassuring Scale (FSCRS; Gilbert et al., 2004). In the present study, subscales Inadequate Self with 9 items and Hated Self subscales with 5 items were used to assess maladaptive tendencies of self-critical at 5-point Likert scale (0 = not at all like me; 4 = extremely like me). The combined score on Inadequate self and Hated self (for two subscales) showed excellent reliability in the present sample (Cronbach's $\alpha_{\text{Inadequate self}} = .82$; Cronbach's $\alpha_{\text{Hated self}} = .79$).

Depression Anxiety and Stress Scale–Youth (DASS-Y; Szabo & Lovibond, 2022)

Mental health problems were assessed using the Depression Anxiety and Stress Scale–Youth (DASS-Y; Szabo & Lovibond, 2022) which is a cross-cutting measure particularly designed for children and adolescents aged 8–17 years. The scale evaluates symptoms of depression, anxiety, and stress, with higher scores indicating greater emotional distress. The scale includes 21 items responding on a 4-point Likert scale (0=did not apply to me at all; 3=applied to me very much). In the current study, the total mental health problems score demonstrated excellent internal consistency (Cronbach's $\alpha = .87$).

Inventory of Parent and Peer Attachment-Revised (IPPA-R; Gullone & Robinson, 2005)

Subscales of IPPA-R (Gullone & Robinson, 2005) was used to measure parental trust and communication. These particular subscales assess perceived emotional bond, trust, and quality of communication of adolescents with their parents. Combined attachment with parents was measured using subscale Trust comprising 10 items and communication comprising 9 items using a 5-point Likert scale (1=Almost never or never true; 5=Almost always or always true). In the current study, reliability was high for parental trust ($\alpha = .86$) and parental communication ($\alpha = .80$).

Academic Performance Questionnaire (Birchmeier et al., 2015)

Academic Performance Questionnaire (Birchmeier et al., 2015) was used to assess academic performance of the participants. This scale measures academic engagement and performance perceived by the students through 8 items using 5-point Likert Scale (1=Strongly disagree; 5=Strongly agree). The scale demonstrated acceptable internal consistency in the present sample (Cronbach's $\alpha = .80$).

Procedure

Following the approval from the Institutional Review Board of the parent institute, official permission was obtained from the administrative authorities of selected government and private institutions across Pakistan to collect the data from their students. Data was collected using a well-structured Google Form to ensure the access to students across diverse geographical locations of Pakistan. The Google Form included a detailed description about the aims and objectives of the study, assurance of confidentiality and anonymity, information regarding voluntary participation, and the estimated completion time of 20–25 minutes prior taking the electronic informed consent for their participation. Some questions were

embedded in the online survey form to screen the participants according to the inclusion and exclusion criteria. In order to maintain data quality and to prevent incomplete submissions, all the items in the questionnaire were set as mandatory to answer. No personal identifiable information was collected to ensure anonymity of the participants. After screening of data, fully completed responses from a total of 274 participants were retained for analysis, yielding a 100% completion rate. After data collection, responses were exported from Google Forms into Microsoft Excel and subsequently transferred to SPSS Version 23 for further analysis. Hypotheses were tested using Hayes' PROCESS macro through Model 29 (Hayes, 2022) to examine moderated mediation effects.

Results

The final sample consisted of 274 high school students, including 128 males (46.72%) and 146 females (53.28%). One case had missing data for gender and was excluded from gender-based percentage calculations.

Participants ranged in age from 14 to 17 years ($M = 15.94$, $SD = 1.01$). Students were drawn from both government and private schools including 173 students from public sector school and 101 from private sector, indicating slightly greater representation from public sector institutions. For the further analysis, this valid data of 274 participants was retained for inferential analyses.

Prior to hypothesis testing, data was screened to ensure that the assumptions for Hayes' PROCESS analysis were satisfied indicating appropriateness for testing the proposed moderated mediation model. Descriptive statistics showed acceptable ranges for all variables as the values of skewness ($-.74$ to $.81$) and kurtosis ($-.68$ to $.92$) indicated no serious deviations from normality. Multicollinearity diagnostics revealed tolerance values ranging from $.52$ to $.74$ and VIF values between 2.19 and 1.61 , suggesting that multicollinearity was not a concern. Visual inspection of standardized residual plots supported the assumptions of linearity and homoscedasticity.

Table 1

Moderated Mediation of Self-Oriented Perfectionism on Academic Performance via Mental Health Problems, with Self-Criticism as Moderator and Parental Trust and Communication as Buffers (N=274)

Outcome	Predictor	B	SE	t	p	95% CI (LL, UL)
MHP (M)						
	SOP (X)	-0.29	0.22	-1.33	.186	(-0.7207, 0.1405)
	SC (W)	-0.42	0.21	-1.98	.049	(-0.8294, -0.0022)
	X × W	0.01	0.00	2.41	.017	(0.0020, 0.0198)
AP (Y)						
	SOP (X)	-0.11	0.22	-0.50	.615	(-0.5448, 0.3230)
	MHP (M)	-1.30	0.23	-5.74	.000	(-1.7485, -0.8553)
	SC (W)	0.22	0.18	1.22	.225	(-0.1365, 0.5786)
	MT (Z ₁)	-0.21	0.18	-1.16	.248	(-0.5674, .1473)
	X × W	-0.01	0.00	-1.29	.198	(-0.0129, 0.0027)
	X × Z ₁	0.01	0.00	1.38	.170	(-0.0024, 0.0138)
	M × Z ₁	0.03	0.01	4.79	.000	(0.0159, 0.0382)
AP (Y)						
	SOP (X)	-0.27	0.22	-1.19	.236	(-0.7053, 0.1742)
	MHP (M)	-1.10	0.23	-4.77	.000	(-1.5547, -.6468)
	SC (W)	0.31	0.18	1.70	.089	(-0.0480, 0.6678)
	Com. (Z ₂)	-0.28	0.19	-1.50	.134	(-0.6555, 0.0880)
	X × W	-0.01	0.00	-1.75	.081	(-.0147, .0009)
	X × Z ₂	0.01	0.00	2.63	.009	(0.0029, 0.0204)
	M × Z ₂	0.02	0.01	3.90	.000	(0.0116, 0.0352)

Note. SOP=Self-Oriented Perfectionism, SC=Self-Criticism, MHP=Mental Health Problems, AP=Academic Performance, MT=Parental Trust, Com.=Communication

A moderated mediation analysis was conducted using PROCESS Model 29 (Hayes, 2022) to examine whether mental health problems mediated the association between self-oriented perfectionism and academic performance, and whether this indirect effect was conditional on self-criticism and attachment variables (parental trust and communication). Table 1 indicates that self-oriented perfectionism interacted significantly with self-criticism in predicting mental health problems ($B = .01$, $SE = .00$, $t = 2.41$, $p = .017$), such that perfectionism was associated with greater mental health problems at higher levels of self-criticism. Mental health problems, in turn, were a significant negative predictor of academic performance across both parental trust model ($B = -1.30$, $SE = .23$, $p < .001$) and

communication model ($B = -1.10$, $SE = .23$, $p < .001$), supporting mediation.

Parental trust significantly moderated the association between mental health problems and academic performance ($B = .03$, $SE = .01$, $p < .001$) such that the negative impact of mental health problems on academic performance was weaker at higher levels of parental trust. Similarly, communication buffered the negative effect of mental health problems on academic performance ($B = .02$, $SE = .01$, $p < .001$) and also moderated the direct effect of perfectionism on academic performance ($B = .01$, $SE = .00$, $p = .009$). Conditional indirect effects revealed that the indirect effect of self-oriented perfectionism on academic performance via mental health problems was strongest and statistically significant under conditions of high self-

criticism and low attachment, whereas this indirect effect weakened and became non-significant at higher levels of parental trust and communication. The index of moderated mediation was significant in both models, indicating that the indirect effect of perfectionism on academic performance through mental health problems varied jointly as a function of self-criticism and attachment resources.

To summarize, the result indicates that self-oriented perfectionism predicted greater

mental health problems only under higher self-criticism. Mental health problems, in turn, predicted lower academic performance. Parental trust and communication buffered the negative impact of mental health problems on academic performance, with communication additionally moderating the direct perfectionism–academic performance link.

Discussion

The present study examined a conditional process model to clarify when self-oriented perfectionism becomes maladaptive for academic performance among high school students. Consistent with the proposed model, mental health problems were emerged as a key mechanism which linked perfectionism to academic outcomes and individual and relational factors were influencing this pathway. These findings were aligned with the prior researches integrating cognitive vulnerability and attachment-based protective processes within a single moderated mediation framework (Erzen & Çikrikçi, 2024; Hawkins et al., 2015; Tran, 2024).

In line with the previous works, self-oriented perfectionism was associated with greater mental health problems, particularly at higher levels of self-criticism (Ashra et al., 2021; Sheikh et al., 2025) which supports theoretical distinctions between adaptive and maladaptive forms of perfectionism (Stoeber & Otto, 2006) and indicates that self-criticism is a critical risk factor that intensify emotional cost of high personal standards (Dunn & Luchner, 2022; Lo & Cheng, 2024). The results indicated that, adolescents who respond to imperfection with critical negative self-evaluation are more vulnerable to anxiety and distress compromising their ability to cope with academic demands. These findings are consistent with

developmental researches indicating that mental health problems were negatively associated with academic performance (Zada et al., 2021) which may mean that psychological distress disrupts concentration, motivation, and school engagement during adolescence (Xu et al., 2025; Yin et al., 2023). Importantly, parental attachment was emerged as a protective buffer in this process as higher levels of parental trust and communication weakened the negative association between mental health problems and academic performance. These findings were aligned with the claim by Bowlby's attachment theory which says that secure relational bonds and attachment patterns helps in promoting emotional regulation and adaptive functioning under stressful situations (Bowlby, 1969, 1988).

Through the conditional indirect effect, it was also indicated that the negative impact of perfectionism on academic performance was strongest under the conditions where high self-criticism and weak attachment patterns were present. These findings highlighted that it is important to consider both risk and protective factors when evaluating perfectionism in adolescents (de Jonge-Heesen et al., 2021). It also suggested that it is important to introduce interventions targeting self-critical thinking and strengthening parent–child communication in order to reduce academic risks associated with maladaptive perfectionism.

Implications for Schools, Parents, and the Pakistani Context

The findings suggested that it is important to address the psychological costs of maladaptive perfectionism at schools and family level to promote high academic performance along with psychological well-being of the students. Schools should play their part in supporting students and providing them platforms to deal with self-criticism and academic setbacks, and also help them in strengthening their emotional resilience through mental health practices under skilled school counsellors. On the other hand, in Pakistani context it is more important that parents play their role in fostering trust, open communication, and realistic expectations to buffer the negative effects of psychological distress. This collaboration between schools and families can help in promoting mental health literacy and well-being of the adolescents to ensure a sustainable academic success along with psychological well-being.

Limitations and Future Directions

Despite the unique contributions of this study, it is important to interpret the findings in the light of some limitations. In this study cross-sectional research design was used which restricts causal conclusions, highlighting the need for longitudinal or experimental research in future for a more clear picture of the findings. Secondly, in this study self-report measures were used which may also have led to some methodological and/or social desirability biases, suggesting that future studies should use triangulation methods to get more objective academic data. The data was collected using online survey form which might have limited the participation from students with restricted internet access potentially affecting sample representativeness from rural areas. The study focused on parental trust and communication which does not capture broader family dynamics indicating the need to examine influence of extended family

which is a key character of collectivistic cultures like Pakistan. Last but not the least, additional moderators such as gender, socioeconomic status, and school context could not be included due to the limited available model options proposed by Haye's PROCESS, suggesting that SEM should be used in future research to better understand developmental changes in perfectionism and academic outcomes.

Conclusion

This study shows that self-oriented perfectionism is not always harmful for academic performance as it becomes problematic usually when students are highly self-critical and experience mental health problems. The findings also highlight that parental trust and open communication reduce the negative impact of mental health problems on academic performance and hence serve as protective factor for the students. In the Pakistani high school context, where academic pressure is strong and academic achievements are highly valued, supportive family relationships can play an important role in helping students to manage high expectations in a healthy way.

Ethics Statement

The study was conducted in accordance with the APA Ethical guidelines. Informed consent was obtained from all participants.

Contribution of Authors

Nazia Zafar: Conceptualization, Investigation, Formal Analysis, Writing - Reviewing & Editing

Romaisa Shahid: Investigation, Methodology, Data Curation, Writing – Original Draft

Momina Khushnood: Data Curation, Writing – Original Draft

Conflict of Interest

There is no conflict of interest declared by the authors.

Source of Funding

The authors declared no source of funding.

Data Availability Statement

The datasets of the current study are not available publicly due to ethical reasons but are available from the corresponding author [N.Z.] upon the reasonable request.

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