

Academic Stress Coping Responses and Mental Wellbeing Among Intermediate Students in Lahore

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Abstract

Academic stress and coping may be associated with adolescent mental well-being, but associations alone do not establish stress buffering. This cross-sectional study examined these relationships among intermediate students in Lahore. An online survey yielded 300 consenting respondents aged 17–19 years. Study-administered adaptations assessed academic stress, coping responses, and mental well-being. Analyses included correlations, hierarchical regression, and sensitivity checks for scoring and standard-error assumptions. Academic stress correlated positively with well-being ($r = .459$, $p < .001$), while total coping correlated with stress ($r = .609$) and well-being ($r = .554$), both $p < .001$. Stress and coping jointly explained 33.3% of well-being variance among 293 respondents with usable coping totals. The stress-by-coping interaction was not statistically significant ($B = 0.0128$, 95% CI $[-0.0004, 0.0260]$, $p = .057$; $\Delta R^2 = .008$). An exploratory five-item coping interaction and sensitivity analyses also did not establish moderation. Restricted response options, duplicated item wording, and substantial ceiling concentration constrain interpretation. The findings identify concurrent associations but provide insufficient evidence that coping moderated the stress–well-being relationship. The positive stress association should not be interpreted as beneficial effects of pressure. Further studies should use validated measures, prospective designs, and clearly documented sampling and consent procedures.

Keywords: *academic stress; coping responses; mental well-being; intermediate students; moderation; Pakistan*

Introduction

Academic pressure during the transition from school to higher education raises questions about how students maintain psychological functioning while meeting educational demands. Intermediate education is a useful setting for examining these questions because students are preparing for further study while managing assessments, expectations, and decisions about their academic direction. The present study examines academic stress, coping responses, and mental well-being among intermediate students in Lahore. Its central distinction is between the association of coping with well-being and the possibility that coping changes the relationship between stress and well-being. These are separate empirical questions with different implications for student support.

Academic stress includes perceived workload, concern about performance, pressure from other people, and difficulty meeting personal expectations. The Educational Stress Scale for Adolescents was developed to assess several related dimensions, including study pressure, workload, worry about grades, self-expectation, and despondency (Sun et al., 2011). This multidimensional perspective is relevant to students whose academic experiences include both external demands and self-evaluation. However, the meaning of a score depends on the actual items and response options administered. Changes to an established questionnaire therefore require explicit reporting and caution when interpreting its totals.

Mental well-being provides a complementary outcome to measures of symptoms or distress. The Warwick–Edinburgh Mental Well-being Scale was developed to capture positive aspects of mental health through positively worded items (Tennant et al., 2007). In an educational setting, this orientation directs attention toward feelings of usefulness, optimism, connection, and perceived functioning. A student may report academic pressure while also reporting positive experiences in other areas. Consequently, stress and well-being should be examined as related but distinct constructs, and their association should be established empirically rather than assumed from their labels.

Evidence from university populations often associates greater academic stress with poorer well-being. Barbayannis et al. (2022), for example, found an association between worse academic stress and poorer mental well-being in college students during the COVID-19 period. Such evidence provides a useful comparison, but differences in age, educational stage, setting, and measurement limit direct transfer to intermediate students in Lahore. Contextually relevant evidence is needed to establish whether similar patterns appear before university entry and whether coping responses account for additional variation in well-being.

Pakistani research provides grounds for studying academic demands within local educational contexts. Jabeen et al. (2024) developed an indigenous academic stressor measure for college students, identifying performance-related and psychosocial dimensions. Hameed et al. (2024) examined academic stress and coping among University of the Punjab students and reported relationships between these constructs. These studies establish the relevance of academic stress and coping to local research, while leaving room for investigation of positive mental functioning and interaction effects in intermediate education. The present study

addresses this narrower question without claiming to represent all students in Lahore or Pakistan.

The study had three principal objectives: to estimate associations among academic stress, coping, and mental well-being; to assess whether coping was associated with well-being after accounting for stress; and to test whether coping moderated the stress–well-being association. Gender comparisons were included as secondary descriptive analyses. Because the administered questionnaires differed from their published source measures, an additional objective of the article analysis was to evaluate whether the principal interpretation survived alternative scoring and estimation choices. This measurement-aware approach is necessary for interpreting an unexpected association without changing the data to match theoretical expectations.

Literature Review

Stress Appraisal and Coping

The transactional account of stress places appraisal and coping within an ongoing relationship between people and their environments. Demands do not have a uniform meaning for every person, and responses depend partly on how demands and available resources are appraised (Lazarus & Folkman, 1984). Applied to intermediate education, this framework suggests that two students facing similar assessments may experience different levels of pressure and use different responses. It also permits coping to increase alongside stress because greater perceived demand can prompt more attempts to manage the situation.

Coping is not a single behavior or an uncomplicated measure of successful adjustment. The Brief COPE was developed as a short instrument representing multiple coping responses (Carver, 1997). A composite that combines action, support seeking, prayer, denial, self-blame, and disengagement cannot automatically be interpreted as effective coping. A higher score may mean that a student reports more frequent responses across several domains, including responses with different functions. In the present study, the total coping score is therefore interpreted as response frequency within the administered questionnaire, rather than as a validated measure of coping competence.

The distinction between a main association and moderation is central to the research question. Coping can correlate with well-being even when the stress–well-being slope does not vary detectably across coping levels. A moderation model tests this latter possibility using an interaction term in addition to the component predictors (Hayes, 2022). Accordingly, a positive coping coefficient alone does not demonstrate buffering. The interaction must be considered together with its direction, confidence interval, and incremental explanatory contribution. This distinction prevents an association between coping and well-being from being presented as proof that coping protects students against academic stress.

Empirical Evidence and Measurement

Research supports examining coping and well-being together while allowing for more than one direction of association. Freire et al. (2016) identified different psychological well-being profiles among university students and found greater use of positive reappraisal, support seeking, and planning in higher well-being profiles. Their approach also treated well-being as

a potential resource for coping. Thus, a positive relationship may reflect students drawing on psychological resources to respond to demands, as well as possible benefits of coping. A single-wave survey cannot resolve these alternative temporal explanations.

Coping also develops within relationships. In a longitudinal study of Australian students, Zimmer-Gembeck et al. (2023) found that parental support predicted increases in engagement and comfort-seeking coping and decreases in disengagement coping. Negative parent–adolescent interactions predicted increased disengagement. These findings suggest that coping should not be treated solely as an individual characteristic detached from the student's environment. However, parental relationships were not measured in the current survey, so they remain possible contextual influences rather than tested explanations of the present results.

Intervention evidence requires a different design from correlational evidence. Rentala et al. (2019) evaluated a holistic stress management programme for Indian adolescent girls using a randomized controlled trial and reported improvements in mental health outcomes. Such research supports evaluating organized student support, but its effects cannot be inferred from the correlations in the present sample. Differences in setting, participant selection, intervention content, and outcome measurement also matter. The current study can identify patterns worthy of investigation, whereas claims that a particular support programme improves well-being require prospective evaluation.

Measurement quality is especially relevant when established instruments are shortened or altered. Internal consistency describes how items behave together, but a high coefficient does not establish that an adapted questionnaire measures the intended construct accurately or has the same meaning as its source scale. Tavakol and Dennick (2011) distinguish internal consistency from broader questions about measurement structure and interpretation. For the present study, this means that reliability estimates must be considered alongside duplicated wording, response-category restrictions, and heterogeneous coping content. These features constrain both comparisons with published research and the strength of substantive conclusions.

The available literature therefore motivates a focused analysis of concurrent associations and moderation, with transparent attention to scoring. The primary hypothesis was that academic stress would be associated with mental well-being, with the direction evaluated from the observed data. A second hypothesis concerned an independent association between coping and well-being. A third concerned moderation by coping. The exploratory five-item coping index was examined separately because its content was more closely aligned with constructive responses, although it was not treated as an established Brief COPE subscale. No claim of a preregistered analysis is made.

Research Methodology

Design and Participants

The study used a quantitative, cross-sectional, correlational survey design. The target population was intermediate students aged 17–19 years attending colleges in Lahore. The thesis describes purposive, nonprobability recruitment and eligibility based on age, intermediate enrolment, questionnaire comprehension, and willingness to participate. The sampling frame,

number of participating institutions, and number of students invited were not recorded in the available analytic materials. A population response rate and institution-specific participation rates therefore could not be calculated. The resulting sample should be interpreted as a recruited group of students rather than a probability sample of the city.

The survey export contained 305 submissions. Five respondents selected the nonconsent option and provided no substantive questionnaire data, leaving 300 consenting respondents. All 300 reported an eligible age and intermediate or college enrolment. The recorded submission timestamps ranged from May 21 to July 1, 2026. There were 162 female and 138 male participants. The age distribution was 50 students aged 17, 148 aged 18, and 102 aged 19. Field labels were standardized into computer-related and FSc or medical streams. Participant characteristics are presented in Table 1.

Table 1

Participant Characteristics

Characteristic	Category	n	%
Gender	Female	162	54.0
	Male	138	46.0
Age	17 years	50	16.7
	18 years	148	49.3
	19 years	102	34.0
Academic stream	Computer-related	151	50.3
	FSc or medical	149	49.7
Residence	Urban	174	64.2
	Rural	97	35.8
	Missing	29	9.7

Note. N = 300. Urban and rural percentages use 271 valid residence responses. Missing residence percentage uses all 300 respondents. All participants reported intermediate or college enrolment.

Procedure and Research Ethics

Data were collected through Google Forms. The thesis describes an introductory explanation of the study, voluntary participation, the ability to stop before submission, and a consent question preceding the substantive items. The export contained email fields and a field requesting initials. The data collection process therefore should not be described as fully anonymous. Identifiers were excluded from statistical calculations and are not reproduced in the tables or figures. This distinction between collection and analysis is necessary to give an accurate account of how participant information was handled.

Measures and Scoring

Academic stress was assessed with 16 study-administered items based on ESSA content. In the supplied export, the substantive categories were Strongly Disagree, Disagree, Neutral, and Agree, coded 1–4 in that order. Item scores were summed to produce a study-specific range of 16–64, with higher values representing greater endorsement of academic pressure and related difficulties. All eligible respondents had complete stress items. This four-category implementation is an adaptation and its totals were not interpreted using standard ESSA cutoffs. The original instrument is cited for its conceptual and measurement provenance (Sun et al., 2011).

Coping was assessed using ten administered items described in the thesis as adapted from Brief COPE content. Valid responses were coded 1 for I Don't Do This, 2 for I Rarely Do This, 3 for Sometimes, and 4 for Often Do This. The labels Section and Option 5 had no defensible substantive position in this ordering and were treated as missing rather than assigned scores. A total was calculated when at least eight items were valid, multiplying the respondent's mean valid-item score by ten. Thus, prorated scores could be no integer values. The possible total range was 10–40.

Two content limitations were retained transparently. The first coping item repeated the stress questionnaire's sleep-related worry wording rather than measuring a recognizable coping response. The remaining items combined potentially constructive and avoidant responses. The primary ten-item total was retained to preserve the thesis analysis, but it was not labelled a standard Brief COPE total. An exploratory index summed items 2–6, covering action, support, positive reappraisal, acceptance of limited control, and prayer. This index required all five items and ranged from 5–20. Its label describes the selected content without establishing that every response is beneficial in every context.

Mental well-being was assessed with 14 positively worded study-administered items adapted from WEMWBS content (Tennant et al., 2007). Observed response labels were None of the Time, Rarely, Sometimes, and Often, coded 1–4. Complete totals ranged theoretically from 14–56. Items 9 and 10 both referred to making up one's mind, giving duplicated content additional weight. The final item concerned a sense of purpose, and the administered wording was not identical to the published scale. Consequently, scores are reported as a study-specific mental well-being composite. Standard WEMWBS norms, clinical thresholds, and prevalence classifications were not applied.

Statistical Analysis

Analyses were recalculated from the supplied response export using Python with pandas, NumPy, and SciPy. The thesis described SPSS analyses, but numerical values in this article were independently reproduced from the item responses. Demographic categories were cleaned for capitalization and spacing. Missing residence responses were retained as missing and were not inferred from other information. No substantive questionnaire response was changed. Although eight response profiles repeated earlier profiles across the 40 substantive items, matching ordinal responses alone did not establish duplicate participation, and those

records were retained. Nonmissing email entries were unique after trimming and case normalization.

Descriptive statistics included frequencies, means, standard deviations, and observed ranges. Cronbach's alpha was calculated separately for the stress and well-being measures using 300 complete records and for total coping using 262 fully valid records. Pearson correlations described linear associations, with Fisher-transformed 95% confidence intervals. Spearman correlations provided a rank-based comparison for bounded scores and distributional irregularities. These complementary estimates were used to examine whether the direction of association depended on choosing a linear correlation measure. They were not treated as separate independent replications.

Ordinary least squares regression first included academic stress and total coping together. For moderation, stress and coping were centered on their means within the model's analytic sample, and their product was added in a second step. Centering changes the reference points of lower-order coefficients without changing the interaction test. Unstandardized coefficients, standard errors, 95% confidence intervals, model R^2 , and the change in R^2 were reported. The exploratory five-item coping index was tested in a separate model using its own complete analytic sample. All significance tests were two-sided, with a conventional threshold of .05.

Three sensitivity checks addressed specific weaknesses in the primary model. First, HC3 heteroscedasticity-consistent standard errors assessed dependence on the conventional constant-variance assumption. Second, a complete-coping analysis excluded all prorated records. Third, an exploratory rescoring omitted the sleep-related worry item from coping and one duplicated autonomy item from well-being. The revised coping total was calculated from at least eight valid responses among nine items and prorated to nine; the revised well-being score summed thirteen items. This analysis addressed item-content anomalies, but it did not transform the remaining measures into validated instruments.

Gender comparisons used Welch's independent-samples t test and Hedges' g , with positive effects indicating higher female scores. These secondary analyses were unadjusted and descriptive, and no correction for multiple comparisons was applied. The primary regression models did not adjust for age, gender, academic stream, socioeconomic circumstances, or institution. Their coefficients therefore represent concurrent associations conditional on the included questionnaire scores, not fully adjusted or causal effects. No post hoc power calculation or claim that the sample was adequately powered for all interaction sizes was made.

Results

Data Completeness and Score Distributions

All 300 consenting participants had complete academic stress and mental well-being responses. Across the 3,000 coping item entries, 63 responses used invalid labels and were coded as missing. There were 262 respondents with ten valid coping items, 26 with nine, and five with eight, producing 293 usable total coping scores. Seven respondents had fewer than eight valid coping items and were excluded from models requiring that total. The exploratory five-item coping index was available for 279 participants. Residence was recorded for 271

participants, with 29 missing responses. These denominators are retained throughout the analysis.

Descriptive statistics and internal consistency estimates appear in Table 2. Academic stress averaged 49.84 (SD = 11.67), total coping 27.42 (SD = 6.01), and mental well-being 40.62 (SD = 8.82). Alpha was .939 for stress, .810 for total coping, and .905 for well-being. The five-item exploratory coping index had alpha .732. These estimates indicate substantial interitem covariance, while leaving the content and validity limitations described above unresolved. In particular, they do not justify describing the administered questionnaires as equivalent to their published source measures.

Table 2

Descriptive Statistics and Internal Consistency

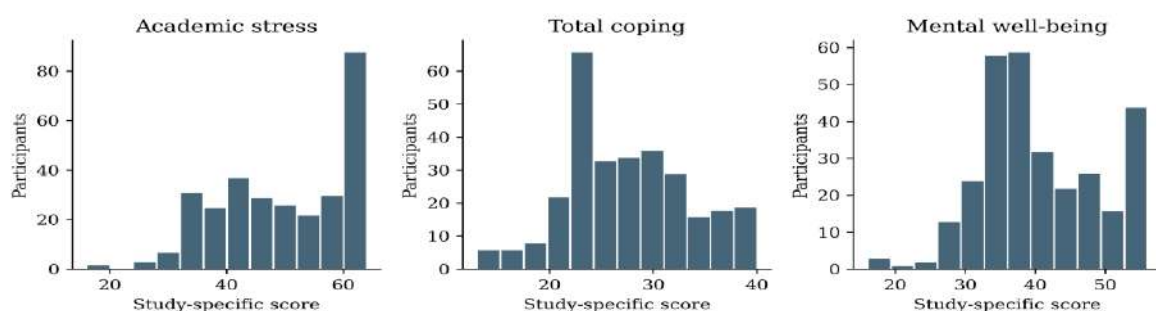
Measure	n	M	SD	Observed range	α
Academic stress	300	49.84	11.67	16–64	.939
Total coping	293	27.42	6.01	13–40	.810
Mental well-being	300	40.62	8.82	16–56	.905
Five-item coping index	279	14.30	3.37	6–20	.732

Note. Alpha uses complete items: n = 300 for stress and well-being, 262 for total coping, and 279 for the five-item index. All measures are study-specific adaptations. Coping totals may be prorated.

The distributions are shown in Figure 1. Seventy-three participants, or 24.3%, scored at the maximum stress total of 64, and 34 participants, or 11.3%, scored at the maximum well-being total of 56. These concentrations show that considerable information was compressed at the upper ends of the scales. The stress mean therefore should not be translated into a clinical severity category, and the distribution warrants caution about linearity and discrimination among highly endorsing respondents. The observed ceiling concentration also provides a practical reason to improve response formats in subsequent data collection.

Figure 1

Distributions of the Three Main Study Scores

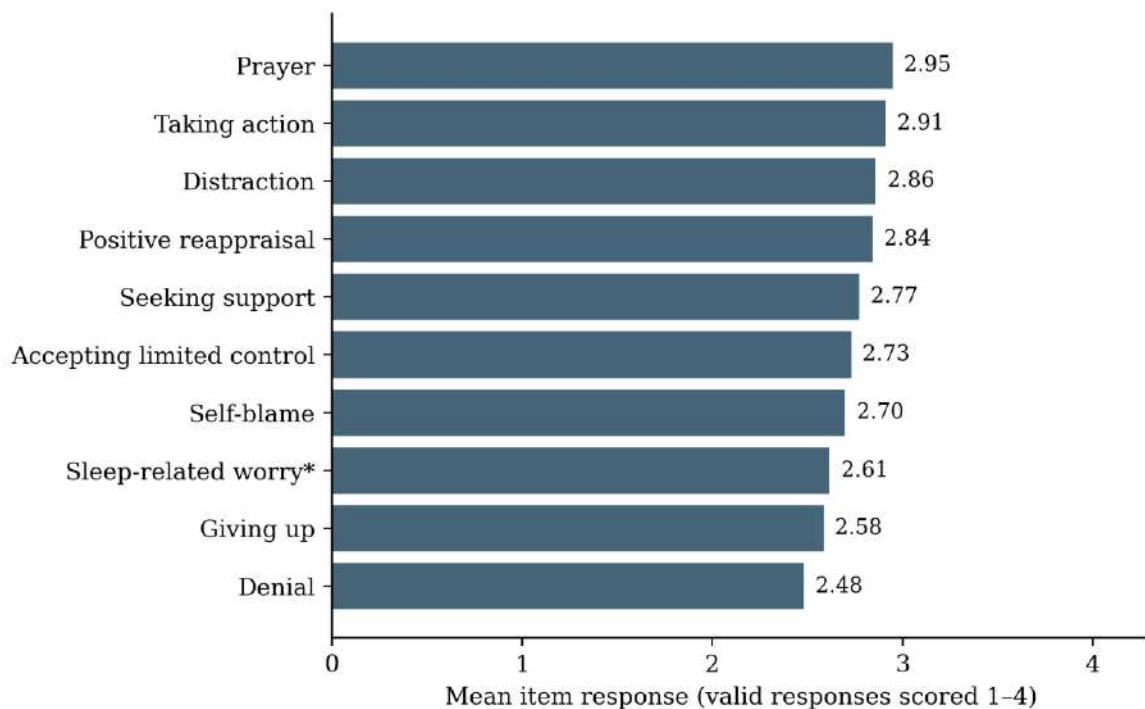


Note. Stress and mental well-being: n = 300; total coping: n = 293. Scores are study-specific and are not clinical classifications. All figures were generated from the supplied participant data at 350 dpi.

Figure 2 summarizes the coping items using their valid response counts. Prayer had the highest mean response (2.95), followed by taking action (2.91) and distraction (2.86). Denial had the lowest mean (2.48). The differences describe response frequency rather than demonstrated effectiveness. Item denominators ranged from 281 to 298 because invalid labels were not equally distributed across items. The sleep-related worry item is explicitly identified in the figure so that it is not mistaken for a conventional coping strategy. No significance tests were used to rank these item means.

Figure 2

Mean Endorsement of the Administered Coping Items



Note. Valid item n ranges from 281 to 298. Higher means indicate more frequent reported responses. The asterisk identifies a misplaced sleep-related worry item, retained only to represent the administered questionnaire. Values do not measure strategy effectiveness.

Associations Among the Main Variables

As shown in Table 3, academic stress was positively associated with mental well-being, $r = .459$, 95% CI [.365, .544], $p < .001$. Total coping was positively associated with stress, $r = .609$, and with well-being, $r = .554$, both $p < .001$. The corresponding Spearman coefficients were .506, .630, and .551. Thus, the unexpected positive stress–well-being relationship was not limited to Pearson correlation. Nevertheless, agreement between correlation methods does not establish the validity of the underlying composites or rule out common response tendencies and unmeasured confounding.

Table 3

Correlations Among Academic Stress Coping and Mental Wellbeing

Variable pair	n	r	95% CI for r	p
Stress and coping	293	.609	[0.532, 0.676]	.630
Stress and well-being	300	.459	[0.365, 0.544]	.506
Coping and well-being	293	.554	[0.469, 0.628]	.551

Note. All Pearson and Spearman tests have $p < .001$. r = Pearson correlation; ρ = Spearman correlation; CI = confidence interval. Fisher transformation was used for Pearson intervals.

The model containing stress and total coping explained 33.3% of the variance in well-being, $R^2 = .333$, adjusted $R^2 = .328$, $F(2, 290) = 72.31$, $p < .001$. Stress had a positive conditional association, $B = 0.154$, $SE = 0.046$, 95% CI [0.064, 0.244], $p = .001$. Total coping also had a positive association, $B = 0.634$, $SE = 0.089$, 95% CI [0.459, 0.810], $p < .001$. These coefficients describe expected score differences within the fitted model and should not be interpreted as the effects of increasing stress or prescribing more coping activity.

Moderation and Sensitivity Analyses

Adding the stress-by-total-coping interaction increased R^2 from .333 to .341, a change of .008. The interaction coefficient was $B = 0.0128$, $SE = 0.0067$, 95% CI [−0.0004, 0.0260], $p = .057$. The confidence interval included zero, and the estimate did not satisfy the specified significance threshold. Table 4 presents both regression steps. The positive coefficient, if interpreted descriptively, indicated a steeper positive stress–well-being slope at higher coping scores; it did not describe attenuation of a negative stress slope. It is therefore inappropriate to present the result as evidence of stress buffering.

Table 4

Hierarchical Regression Predicting Mental Wellbeing

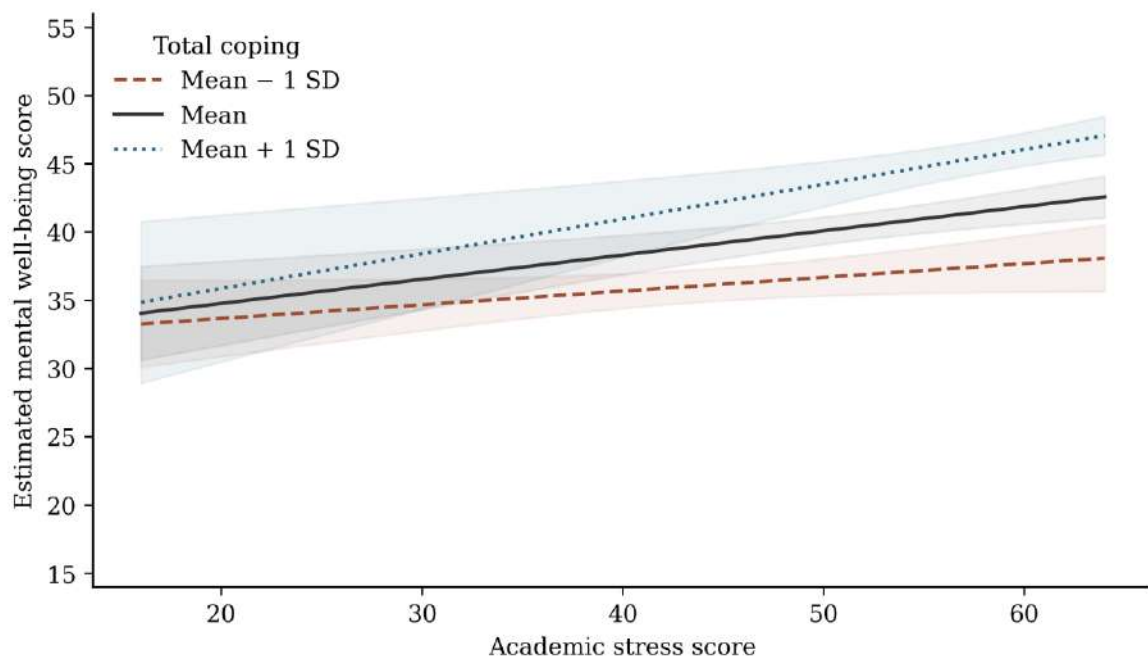
Predictor	B	SE	95% CI	p
Step 1 Intercept	40.614	0.425	[39.777, 41.452]	< .001
Step 1 Stress	0.154	0.046	[0.064, 0.244]	< .001
Step 1 Coping	0.634	0.089	[0.459, 0.810]	< .001
Step 2 Intercept	40.065	0.512	[39.057, 41.072]	< .001
Step 2 Stress	0.177	0.047	[0.085, 0.270]	< .001
Step 2 Coping	0.565	0.096	[0.376, 0.754]	< .001
Step 2 Stress × coping	0.0128	0.0067	[−0.0004, 0.0260]	.057

Note. $n = 293$. Predictors were mean-centered within the analytic sample. Step 1 $R^2 = .333$, adjusted $R^2 = .328$. Step 2 $R^2 = .341$, $\Delta R^2 = .008$. Conventional ordinary least squares standard errors and confidence intervals are shown. Coefficients are unstandardized.

Figure 3 displays the fitted relationships at the mean coping score and one standard deviation below and above it. These are illustrative model estimates with confidence bands, not three separately recruited groups. The figure helps show what the tested interaction represents, but visible differences between fitted lines do not override uncertainty in the interaction coefficient. It also does not imply that moving a student from one coping level to another would produce the plotted change in well-being. Such an interpretation would require evidence about temporal ordering and intervention effects.

Figure 3

Fitted Stress and Wellbeing Relationships at Selected Coping Scores



Note. $n = 293$. Lines show estimates at the coping mean and ± 1 SD. Shading shows pointwise 95% confidence intervals for the estimated mean using conventional model covariance. These are illustrative values, not participant groups. Interaction $p = .057$; HC3 $p = .130$. Lines do not establish moderation or causality.

The exploratory five-item coping interaction was also nonsignificant, $B = 0.0119$, $SE = 0.0105$, 95% CI $[-0.0087, 0.0325]$, $p = .257$, with $\Delta R^2 = .003$ and final $R^2 = .401$. Results of the sensitivity analyses appear in Table 5. For total coping, the HC3 standard error increased to 0.0084 and the interaction p value to .130. The complete-coping analysis yielded $p = .124$, and the revised-item analysis yielded $p = .131$. These checks consistently failed to establish moderation at the specified threshold, although none demonstrates that the population interaction is exactly zero.

Table 5

Exploratory and Sensitivity Analyses of the Stress by Coping Interaction

Analysis	n	Interaction B	95% CI	p
Primary model with HC3 errors	293	0.0128	[-0.0038, 0.0294]	.130
Five-item coping index	279	0.0119	[-0.0087, 0.0325]	.257
Complete coping records	262	0.0117	[-0.0032, 0.0266]	.124
Revised coping and well-being items	289	0.0101	[-0.0030, 0.0232]	.131

Note. HC3 = heteroscedasticity-consistent covariance estimator. Other rows use conventional standard errors. Revised scoring omits the misplaced coping worry item and one duplicated well-being item. Composite units and analytic samples differ between rows, so coefficient sizes are not directly comparable.

Secondary Gender Comparisons

Female participants reported higher stress scores than male participants, 52.34 versus 46.91, Welch's $t(297.77) = 4.16$, $p < .001$, $g = 0.48$. Their total coping scores were also higher, 28.77 versus 25.81, $t(290.98) = 4.38$, $p < .001$, $g = 0.51$. Female well-being scores averaged 42.24 compared with 38.72 among males, $t(297.91) = 3.55$, $p < .001$, $g = 0.41$. The coping comparison included 159 females and 134 males. These differences provide sample context but do not identify mechanisms or establish that measurement functioned equivalently across gender groups.

Discussion

Interpretation of the Principal Findings

This study identified positive concurrent associations among academic stress, coping responses, and mental well-being in intermediate students in Lahore. Coping retained an association with well-being when stress was included in the same model, but neither the total coping score nor the exploratory five-item index demonstrated statistically significant moderation. The first result concerns covariation between the observed composites; the second concerns uncertainty about variation in the stress slope. Keeping these conclusions separate is necessary because a positive coping association does not, by itself, support an intervention claim or a stress-buffering mechanism.

The positive stress–well-being association requires particular restraint. It differs from the adverse association reported by Barbayannis et al. (2022), but the present measures and population differ substantially. The result should not be described as showing that academic pressure improves mental health. It is possible that engaged students acknowledge both substantial demands and positive functioning, but engagement was not measured. Likewise, supportive relationships might coexist with high expectations, but the survey did not assess this

explanation. These possibilities are hypotheses for future studies rather than explanations established by the current data.

Measurement offers another plausible source of the unexpected pattern. All stress items used the same response direction, the well-being items were positively worded, and both measures had restricted four-category responses. Shared tendencies to endorse higher response categories could contribute to their association. The substantial concentration at maximum stress scores further limits discrimination between respondents at the upper end. The repeated autonomy wording also gives one type of positive functioning additional influence. None of these observations proves that the correlation is an artefact, but together they make an uncomplicated substantive explanation premature.

The stress–coping association is compatible with greater demand prompting more reported responses, as anticipated by a transactional view of appraisal and coping (Lazarus & Folkman, 1984). However, the total combines different behaviors and includes sleep-related worry, making it unsuitable as a straightforward index of coping effectiveness. Students with higher totals may be using more strategies, experiencing greater difficulty, or endorsing questionnaire items more strongly. Future work should separate strategy use from perceived helpfulness and should distinguish specific coping domains before proposing that a higher total represents better adjustment.

The positive coping–well-being relationship is consistent at a broad level with the profile differences reported by Freire et al. (2016). Yet the present design cannot establish whether coping supports well-being, whether well-being facilitates coping, or whether shared circumstances influence both. A student's available support, financial situation, academic achievement, and prior mental health could plausibly affect both reports, but these variables were not incorporated in the models. The positive coefficient is therefore useful as a sample association and as a basis for more specific hypotheses, rather than as an estimate of a protective causal effect.

Meaning of the Nonsignificant Interaction

The primary interaction estimate was positive and uncertain, with a confidence interval crossing zero. Reporting $p = .057$ as a significant or confirmed buffering result would misrepresent the specified decision threshold. At the same time, a nonsignificant result cannot establish that coping never moderates academic stress. The measured interaction may be small, the composite may obscure strategy-specific patterns, and measurement restrictions may reduce sensitivity. The appropriate conclusion is that this sample and these measures did not provide sufficient evidence for moderation under the tested specification.

The sensitivity analyses strengthen this cautious interpretation. Using HC3 standard errors made the interaction less precise, indicating that the inference should not depend entirely on conventional standard errors. Excluding prorated coping totals and removing the two conspicuous item anomalies also left the interaction nonsignificant. These checks address identifiable analytic choices without searching for a specification that produces significance. Their agreement improves confidence in the narrow reporting conclusion, while leaving

broad concerns about construct validity, sample selection, and unmeasured contextual influences unresolved.

The higher R^2 in the exploratory five-item model should not be interpreted as proof that it is a superior validated measure or a more effective coping intervention. That model used a different composite and a different analytic sample. Its content also excludes several responses included in the primary total, changing the construct represented by the score. The finding supports examining specific coping domains in future work, but model comparison across differently selected records cannot isolate the reason for the difference in explained variance. Validation must precede strong comparisons about the relative value of the measures.

Educational Implications and Limitations

For college support services, the results favor asking students about both their academic demands and how they respond to them. A high coping total should not automatically reassure a counsellor that a student is managing well, because frequent responses may include worry, denial, or disengagement. Assessment should instead explore the function and perceived usefulness of particular responses alongside the student's reported functioning. This is a practical implication of the questionnaire content and observed associations, not a validated screening algorithm or a basis for assigning students to clinical risk categories.

The descriptive prominence of prayer and active responding suggests that support discussions should be attentive to students' own preferences. The data do not establish that either response improves well-being, and no strategy should be prescribed solely because it was frequently endorsed. Relationships and the wider educational environment also deserve attention. Longitudinal findings linking parental support with coping development provide a rationale for examining family communication alongside individual strategies (Zimmer-Gembeck et al., 2023). Future Lahore studies should measure these contextual factors directly rather than using them as untested explanations after results are known.

Several limitations constrain generalizability. Purposive recruitment and the absence of invitation denominators prevent estimation of population participation or selection bias. The survey covered one educational stage in one city, and institution-level information was unavailable for examining clustering. Self-selection into an online survey may exclude students who have limited access, low interest, or particular concerns about disclosure. The sample also cannot establish prevalence of poor mental health because the outcome was an adapted positive-functioning composite without validated diagnostic thresholds. Gender differences remain unadjusted and may partly reflect other differences between the recruited groups.

The cross-sectional design is a further limitation. Stress, coping, and well-being were measured together, leaving temporal order unknown. The regression models omitted potentially relevant covariates and did not establish measurement invariance across groups. Invalid coping options created uneven missingness, and prorating assumes that observed item responses can reasonably represent missing ones within each person. Complete-case sensitivity reduces reliance on that procedure but cannot establish that missingness was random. Finally, removing duplicated or misplaced items retrospectively cannot recover the information that a correctly administered, validated instrument would have collected.

Conclusion and Recommendations

Among 300 intermediate students in Lahore, academic stress and coping responses were positively associated with the administered mental well-being score. Stress and total coping jointly explained approximately one-third of its variation, but the interaction test did not establish moderation. The unexpected direction of the stress association and the questionnaire limitations require cautious interpretation. The findings neither show that stress benefits students nor demonstrate that coping buffers its consequences. Their contribution is a transparent account of observed associations and of the uncertainty surrounding a commonly proposed coping mechanism.

Future studies should use validated, consistently administered instruments, check questionnaire programming before recruitment, and document sampling and ethics procedures fully. Prospective designs should distinguish different coping responses, examine their perceived effectiveness, and measure relevant family and institutional conditions. College support initiatives can be developed around identified student needs, but their effects should be tested through appropriate longitudinal or experimental evaluation. The present findings support further investigation and careful assessment rather than claims of established causal relationships or ready-made clinical thresholds.

References

- Barbayannis, G., Bandari, M., Zheng, X., Baquerizo, H., Pecor, K. W., & Ming, X. (2022). Academic stress and mental well-being in college students: Correlations, affected groups, and COVID-19. *Frontiers in Psychology*, 13, Article 886344. <https://doi.org/10.3389/fpsyg.2022.886344>
- Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine*, 4(1), 92–100. https://doi.org/10.1207/s15327558ijbm0401_6
- Freire, C., Ferradás, M. D. M., Valle, A., Núñez, J. C., & Vallejo, G. (2016). Profiles of psychological well-being and coping strategies among university students. *Frontiers in Psychology*, 7, Article 1554. <https://doi.org/10.3389/fpsyg.2016.01554>
- Hameed, R., Jabeen, R., & Hussain, G. (2024). Academic stress and coping strategies among university students: Case study of University of the Punjab. *Annals of Human and Social Sciences*, 5(3), 261–269. [https://doi.org/10.35484/ahss.2024\(5-III\)24](https://doi.org/10.35484/ahss.2024(5-III)24)
- Hayes, A. F. (2022). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (3rd ed.). The Guilford Press.
- Jabeen, A., Shahzad, A., & Khan, M. (2024). Development and validation of scale on academic stressors in college students: A factor analytical approach. *Journal of Postgraduate Medical Institute*, 38(1), 34–41. <https://doi.org/10.54079/jpmi.38.1.3288>

- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer Publishing Company.
- Rentala, S., Thimmajja, S. G., Tilekar, S. D., Nayak, R. B., & Aladakatti, R. (2019). Impact of holistic stress management program on academic stress and well-being of Indian adolescent girls: A randomized controlled trial. *Journal of Education and Health Promotion*, 8, Article 253. https://doi.org/10.4103/jehp.jehp_233_19
- Sun, J., Dunne, M. P., Hou, X.-Y., & Xu, A.-Q. (2011). Educational Stress Scale for Adolescents: Development, validity, and reliability with Chinese students. *Journal of Psychoeducational Assessment*, 29(6), 534–546. <https://doi.org/10.1177/0734282910394976>
- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2, 53–55. <https://doi.org/10.5116/ijme.4dfb.8dfd>
- Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., Parkinson, J., Secker, J., & Stewart-Brown, S. (2007). The Warwick–Edinburgh Mental Well-being Scale (WEMWBS): Development and UK validation. *Health and Quality of Life Outcomes*, 5, Article 63. <https://doi.org/10.1186/1477-7525-5-63>
- Zimmer-Gembeck, M. J., Skinner, E. A., Scott, R. A., Ryan, K. M., Hawes, T., Gardner, A. A., & Duffy, A. L. (2023). Parental support and adolescents' coping with academic stressors: A longitudinal study of parents' influence beyond academic pressure and achievement. *Journal of Youth and Adolescence*, 52, 2464–2479. <https://doi.org/10.1007/s10964-023-01864-w>