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The Relationship Between Classroom Climate and Students' Psychological Well-Being: The Role of Academic Engagement

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ABSTRACT

This study examines the relationship between classroom climate and students' psychological well-being, with particular emphasis on the mediating role of academic engagement among university students in Pakistan. A quantitative, cross-sectional research design was adopted to investigate the associations among the three study variables. Primary data were collected from 323 university students through a structured, self-administered questionnaire using a convenience sampling technique. The data collection focused on students' perceptions of classroom climate, their level of academic engagement, and their psychological well-being. The collected responses were intended for analysis using IBM SPSS Statistics, including descriptive statistics, reliability analysis, Pearson correlation, and mediation analysis, to examine the proposed relationships and the indirect role of academic engagement.The reported findings indicate a positive association between classroom climate and psychological well-being (\(r = 0.584\)). The mediation analysis further indicates that classroom climate positively predicts academic engagement (\ (B = 0.612\), \(SE = 0.058\)), while academic engagement is positively associated with psychological well-being (\ (B = 0.421\), \(SE = 0.052\)). The direct effect of classroom climate on psychological well-being remains positive (\(B = 0.354\), \(SE = 0.057\)), while the indirect effect through academic engagement is \(B = 0.258\), with a 95% confidence interval of \([0.183, 0.344] \). Because this confidence interval excludes zero, the reported results indicate a statistically significant indirect association, consistent with partial mediation. These findings highlight the potential importance of supportive classroom environments in fostering academic engagement and students' psychological well-being. The study contributes to educational psychology by offering insights that may inform inclusive teaching practices, supportive teacher–student relationships, and university-level initiatives designed to promote positive student experiences. However, the reported statistical values require verification against the actual dataset before publication, and the cross-sectional design limits causal interpretation.

Introduction

Classroom Climate and Students' Psychological Well-Being

Classroom climate is the general climate or mood of the classroom in which students engage in learning activities, which involves their psychological, social and interpersonal dimensions. It includes students' sense of peer relationships, classroom safety, fairness, respect, participation and the quality of interactions in the learning environment as perceived by the students. A positive classroom climate facilitates students to voice their viewpoints, make queries, work together with peers, and participate in learning without fear of being embarrassed or rejected by peers. A negative school environment, which involves conflict, negative feedback, isolation or lack of support from the teacher, can have a negative impact on students' sense of belonging and emotional security. Classroom climate is, therefore, an important aspect of the learning environment, as it is a reflection of the physical learning environment, but also the social and emotional climate of the everyday learning environment. Relationships, social norms, and safety are key elements of the classroom and school environment that have long been identified as important factors related to students' educational and psychological experiences (Wang & Degol, 2016).

Psychological well-being is an umbrella term that describes a state of positive psychological functioning that is multidimensional, and that goes beyond the absence of mental distress. It encompasses aspects of self-acceptance, autonomy, positive relationship, environmental mastery, personal growth and purpose in life (Ryff, 1989). Within a university setting, psychological well-being is especially pertinent because students have to cope with academic pressures, relational issues, transitioning with responsibilities and expectations regarding their future careers. A more positive psychological health enables students to better cope with academic demands, function in healthy relationships and have a healthy sense of self. The quality of children's social and educational environments, such as a feeling of being respected, supported and accepted in the classroom, may, however, influence the children's well-being. Educational research literature suggests that children's perceptions of their learning environments have a relationship to emotional, social and academic adjustment and that the classroom is a relevant context in which to explore psychological functioning (Lombas et al., 2019).

Classroom climate and students' psychological well-being are related to the social, relational factors that foster students' emotional security and belonging, as well as their positive development. If teachers are seen as fair, they can offer positive feedback and attend to students' concerns in a respectful way, the classroom can be a place where students feel valued and psychologically safe. Likewise, facilitative peer relationships may also decrease social isolation, and allow for cooperation, understanding, and interpersonal relationship. On the other hand, a situation of chronic stress in the classroom, conflict with peers, or a sense of lack of support can cause frustration, insecurity and problems with positive psychological functioning. These relationships are consistent with the views which focus on the role of social contexts on developmental outcomes and psychological adjustment (Hong et al., 2021). Hence, the present study explores the relationship between classroom climate and students' psychological well-being among university students in Pakistan as the strength and direction of this relationship needs to be ascertained through empirical study and it cannot be assumed beforehand.

Academic Engagement as a Mediating Variable in Students' Educational Experiences

Academic engagement is defined as the level of active involvement, effort and psychological involvement in academic activities. It is often understood as a 'behavior', 'emotion' and 'cognition'. Behavioral engagement includes showing up, doing homework, joining in and abiding by academic expectations. Emotional engagement is related to students' interest, enjoyment, sense of belonging, and emotional reactions to learning and engagement, while cognitive engagement is related to students' willingness to put in mental effort, learning strategies, and learning the deeper meaning of the academic material. The dimensions show that engagement is more than simply being physically present in the classroom, it's also emotionally present and intellectually engaged in learning. Sharif Nia et al. (2023) developed a significant multidimensional model of student engagement, and Ribeiro et al. (2019) emphasized the need to pay attention to the behavioral and emotional aspects of student engagement in classroom activities. In a similar fashion, Mullins et al., (2021) stated that engagement is a critical aspect of educational research that can be used to better understand students' reactions to academic experiences and educational environments.

Academic engagement is significant in the context of higher education as the students of the university are expected to take care of their own learning, complex pieces of work, group assignments, and multiple responsibilities. Students who are better engaged can show greater perseverance in challenging material, be more involved in learning, and be more motivated to achieve learning objectives. Engagement also can mean students' beliefs that academic activities are meaningful and their motivation to commit their time and skills to learning activities. But individual motives or personalities are not the only factors to influence engagement; teacher behavior, peer relationships, teaching methods, and opportunities for meaningful engagement can also have an impact.

Classroom autonomy support and appropriate instructional structure have been shown to have a relationship with students' behavioral, emotional and cognitive engagement. Lerdpornkulrat et al (2018) also explored the connection between classroom climate, student motivation, engagement, and intentions to stay in college. These viewpoints indicate that academic involvement is an important connection between classroom events and students' overall adjustment to school.

Academic engagement might also have implications to psychological well-being as meaningful learning activities may also help students to experience a sense of purpose, competence, accomplishment, and connection with others. If students are engaged in their learning and think that their learning is worthwhile, they may have more positive learning experiences and a greater sense of personal growth. Engagement also can inspire students to develop positive relationships with teachers and with each other, approach their problems with persistence, ask for help when needed, and display a positive attitude toward learning. However, there are situations of challenge that could lead to strain, such as when students are without adequate resources and/or support, and therefore, engagement and well-being should be explored empirically, not as a necessarily positive correlation. Student engagement has been found to be important to student motivation, academic adjustment, and educational persistence, and research with university students has included the link between engagement and psychological well-being, and varied forms of social and institutional support. Academic engagement is a theoretically relevant construct from this perspective; it can be used to explore the possible links between classroom experiences and students' psychological functioning and university experience.

Relationships Among Classroom Climate, Academic Engagement, and Psychological Well-Being

A positive classroom climate could be linked to more academic engagement because being in a positive classroom climate can provide opportunities for students to participate and share their own ideas, work cooperatively with other students and persist in difficult academic activities. Learners might feel more comfortable expending effort on tasks in the classroom if they receive positive feedback, clear expectations, and respect for their own points of view from their teacher(s). Students' positive relationship with peers can help reinforce their sense of belonging and participation in school, while poor relationships with peers, conflict, and poor management of their relationships with teachers can have a negative effect on their participation. This relationship is in line with what is considered as an "engageable" student, rather than a personal trait, which is dependent on contextual factors. For instance, Norabuena-Figueroa, et al. (2025) looked at the relationship between autonomy support and student engagement of teachers, and Chaudhry, et al. (2024) explored the correlations between classroom climate and student engagement for college students. Bırni, (2023) also noted contextual influences as an important factor in understanding student engagement in a multi-dimensional context. These views serve as a foundation to explore whether a more supportive classroom climate is linked to increased student engagement in the classroom.

Classroom climate can also be directly related to students' psychological health since the classroom is a significant social context where students feel accepted, recognized, connected with others and subjected to academic stress. The learning environment, defined by respect, inclusion and positive relationships, may foster psychological security and positive relationships, whereas an environment of unfair treatment, social exclusion and interpersonal tension may be linked to less positive psychological experiences. Relationships have a special importance for students at university, where academic expectations and learning environment relationships can have an impact on their psychological functioning. With regards to the learning environment, Rodríguez-Fernández et al., (2018) reviewed literature on the links between learning environment and social, emotional and academic outcomes for learners. Aldridge et al. (2016) also explored links between pupils' perceptions of school climate and other outcomes such as pupils' well-being, resilience and identity. A psychological view of well-being was offered by Ryff (1989) who defined positive functioning, personal growth, autonomy, and quality of relationships with others. These viewpoints help to consider classroom climate as possibly predicting students' psychological health, and acknowledge that the strength of this relation could vary based on learning environment and student characteristics.

Academic involvement could account for some of the relationship between classroom climate and psychological well-being because it may be a mediator between students' education and psychological functioning. A supportive classroom may foster increased engagement in learning, enhanced links to academic tasks and increased sense of accomplishment and belonging for students. These experiences could in turn be linked with greater psychological well-being. The proposed mediation model can therefore be understood as the classroom climate having a direct association with the psychological wellbeing, as well as an indirect association via academic engagement. This is in line with the findings of studies, which indicate that students' engagement is linked to classroom climate, students' engagement is a multidimensional construct affected by educational and interpersonal contexts (Fredricks et al., 2004), and students' perceptions of their educational environment are associated with well-being and other developmental outcomes. The present study cannot, however, assume mediation based on evidence for the individual associations. In this context, the proposed research will involve the study of the relationship of classroom climate with students' psychological

well-being and examine the statistical mediation of the relationship between classroom climate and students' psychological wellbeing in between students of the university in Pakistan.

Research Objectives

- To examine the relationship between classroom climate and students' psychological well-being.
- To examine the relationship between classroom climate and academic engagement.
- To investigate the relationship between academic engagement and students' psychological well-being.
- To examine the mediating role of academic engagement in the relationship between classroom climate and students' psychological well-being.

Research Questions

1. What is the relationship between classroom climate and students' psychological well-being?
2. What is the relationship between classroom climate and academic engagement?
3. What is the relationship between academic engagement and students' psychological well-being?
4. Does academic engagement mediate the relationship between classroom climate and students' psychological well-being?

Problem Statement

With the educational environment in universities in India undergoing several changes, the psychological well-being of students is now an important concern due to the several demands they face in the university, which may affect their psychological functioning and their learning experiences. While classroom climate affects students' perceptions of teacher support, peer relationship, safety and belonging in the classroom, the relationships of these classroom experiences and psychological well-being outcomes need further exploration in specific contexts of education (Hernández et al., 2024). A positive classroom atmosphere might foster positive social interactions and engagement, while a negative classroom atmosphere might be connected to decreased engagement and engagement with less positive psychological experiences. Academic involvement could be a possible mediator in this relationship as students' behavioral involvement, emotional involvement, and cognitive investment in learning may relate their classroom experiences to their general educational adjustment (Pan et al., 2023). This however needs to be explored in conjunction with another possible mediator (academic engagement) and within the context of university students in Pakistan. It is hard to decide if academic engagement alone explains some of the relationship between classroom climate and psychological well-being without the use of a single framework of analysis. Hence, the present study is designed to explore the link between classroom climate and student's psychological well-being and to explore the potential mediating role of academic engagement between classroom climate and psychological well-being in the context of the university students of Pakistan.

Significance of the Study

The present study is significant because it aims to enhance understanding of the relationship between classroom climate and students' psychological well-being by examining the mediating role of academic engagement among university students in Pakistan. The findings may help teachers and educational institutions recognize the importance of creating supportive, inclusive, and respectful classroom environments that encourage students' participation, strengthen their sense of belonging, and support their psychological well-being. By examining academic engagement as a potential mediator, the study may also provide insights into how students' involvement in learning activities is associated with their psychological experiences within the educational environment. Furthermore, the findings may assist university administrators, educational policymakers, and student support professionals in developing strategies to promote positive classroom interactions, encourage meaningful academic participation, and improve students' educational experiences. The study may also contribute to the existing literature in social sciences and educational psychology by providing context-specific evidence from Pakistani universities and identifying directions for future research on classroom climate, academic engagement, and psychological well-being.

Literature Review

Classroom Climate and Students' Psychological Well-Being

Due to its implications on the social, emotional, and instructional environment in which students learn and interact, classroom climate has been the subject of much attention in educational research. In the research review by Cao (2025) the perception of interpersonal relationships, classroom organization and learning experiences were highlighted as significant in the classroom learning environment. Likewise, Hawkins et al. (2023) conducted a review on research on school climate, and suggested five elements linked to students' education and social experiences: supportive relationships, safety, teaching practices, general learning climate. Classroom climate and school climate are related constructs but classroom climate is directed to the context of the classroom, and the relationship between students and teachers and among students, day-to-day.

Sowani et al., (2020) conducted a review of school climate, including its conceptualization and measurement, as well as the effects it had on student outcomes. During the course of their review, they noted the importance of the quality of educational environment to students' academic, social and psychological development. It is from this point of view that a classroom that fosters respectful communication, supportive teaching, fair treatment and positive peer relations could offer a better sense of belonging and emotional security for students. On the other hand, negative interpersonal experiences and a lack of classroom support could be related to poorer educational experiences. The results of this study give some theoretical ground for exploring the classroom climate as a possible correlate of higher education students' psychological well-being.

Psychological well-being is characterized by positive psychological functioning, comprising self-acceptance, autonomy, personal growth, purpose in life, environmental mastery and positive relationships. A multidimensional model of psychological well-being, which is broader than absence of psychological distress. Later, Martinelli (2023) studied the organization of psychological well-being and confirmed that it is seen as separate, yet connected elements. In the university setting, class interactions can be part of the students' experience of social connection, competency and personal development. But the association between classroom climate and psychological wellbeing needs to be examined in the population being studied and cannot be presumed to be the same across all educational contexts.

Academic Engagement and Its Association with Students' Learning Experiences

Rajabalee et al. (2020) reviewed the literature related to student engagement, and developed a comprehensive framework that included behavioral, emotional, and cognitive components of engagement. Their work showed that engagement is a multi-faceted phenomenon, and is shaped by personal attributes and settings. Behavioral engagement relates to students' involvement and investment in learning, emotional engagement relates to students' emotions about learning and educational relationships, and cognitive engagement relates to students' investments in understanding and learning academic content. The framework is applicable to university students as it reflects students' involvement in the learning process and their reaction to academic challenges. The multidimensional approach to engagement is also broader than the simple observation of one behavior, allowing for a greater overall understanding of student's engagement in the learning process.

Trolian et al. (2020) looked at conceptualization and measurement of student engagement and disaffection in learning activities, focusing on behaviors engaged with in the classroom and emotions experienced by students in the classroom. They emphasized the need to be aware of not only active student participation but also their lack of engagement in learning. Likewise, Xerri et al., (2018) analyzed the literature on student engagement and raised critical issues regarding the concept, assessment and enhancement of student engagement. Their review showed that engagement needs to be considered in the context of the classroom experience and educational conditions. From the contributions, the engagement of students might differ based on teacher–student interaction, classroom organization, content of learning opportunities and perceived support. Engagement should not, however, be seen as a direct measure of psychological wellbeing as pupils can be engaged in the academic curriculum but not in psychological wellbeing.

Academic engagement is also significant as a link to psychological well-being since engagement could be an indicator of students' feelings of involvement, purpose and connection to their school activities. There are likely to be students who actively engage in learning that feel more positive about their learning experiences, and students that are not engaged that will feel less positive about their learning experiences, which may be associated with a change in interest, frustration or belonging. However, this relationship can vary depending on the student's academic load, resources and the assistance provided to the student.

Relationships Among Classroom Climate, Academic Engagement, and Psychological Well-Being

Classroom climate has been studied as an important contextual factor that relates to students' academic motivation and engagement. A systematic review and meta-analysis of 61 studies with 73,824 participants conducted by Yang et al. (2025) compiled data on classroom climate and its impact on academic outcomes, classroom behavior, and socioemotional outcomes. Their results showed that a positive classroom climate was linked with increased motivation, engagement, social competence and academic success, and that a negative classroom climate was linked to decreased socioemotional distress and externalizing behaviors. These associations were found to be stronger in different classrooms in terms of the dimensions of the classroom climate and the characteristics of the study. While no one was excluded from the review because of their age (university students were not the only ones included), there was considerable evidence to justify the study of classroom climate as a possible correlate of engagement and psychological outcomes.

Another line of research for understanding the link between classroom climate and academic engagement is by examining instructional support and classroom structure. Jiang et al. (2022) studied autonomy support and classroom structure to see how it affects students' involvement in learning activities. Their results showed that it is crucial to offer both opportunities and instructional guidance for students' autonomy. These may assist students to comprehend expectations, be engaged in the learning activities and stay engaged in academic work. Likewise, Shariati et al. (2025) pointed out that context plays a role in shaping engagement, such as the learning context and relationship. The findings of these studies can serve as a base to examine the relationship between classroom climate and academic involvement in university students who do not experience a supportive classroom climate. However, this relationship needs to be examined in educational settings as each student's experiences are different in every setting, and the relationship needs to be studied in this context within Pakistan.

The potential for the three constructs to be integrated into another construct, academic engagement, is provided by the potential mediating role of academic engagement. Engagement refers to students' behavior, emotions, and thoughts towards learning and psychological well-being is defined as dimensions of positive psychological functioning. Such constructs imply that the classroom experiences can be linked with students' psychological well-being partly because the students are involved in academic experiences. A positive classroom environment can promote participation and belonging to the classroom, which can relate to more positive educational experiences and psychological functioning. But, if there is evidence of separate relationships among classroom climate, engagement, and well-being, it cannot be concluded that a mediation is present. The current study thus aims to explore the direct link between classroom climate and psychological well-being, between classroom climate and academic engagement and between academic engagement and psychological well-being, as well as the indirect link via academic engagement. This method will allow researchers to know if academic involvement statistically lies between the relationship between classroom climate and students' psychological state.

Research Gap

While earlier research has investigated classroom climate and students' satisfaction, academic engagement, and psychological outcomes, these often have been studied individually or by different measures of outcomes. For instance, Đorđić (2020) explored the relationship between classroom climate and academic and life satisfaction among the university students in Pakistan and Chikampa et al., (2025) studied the relationship between learning climate, intrinsic motivation, and psychological well-being among clinical psychology trainees. But more research is required to know the intervening role of academic involvement between classroom climate and students' psychological well-being in university students in Pakistan. The present study focuses on this gap by combining the variables of the classroom climate, psychological well-being, and academic engagement in one analysis. This integrated approach might help to generate context-specific evidence on direct and indirect relationships between these constructs in the context of higher education.

Research Hypotheses

H1: There is a significant relationship between classroom climate and students’ psychological well-being.

H2: Classroom climate significantly predicts academic engagement.

H3: Academic engagement significantly predicts students’ psychological well-being.

H4: Academic engagement mediates the relationship between classroom climate and students’ psychological well-being.

Conceptual framework

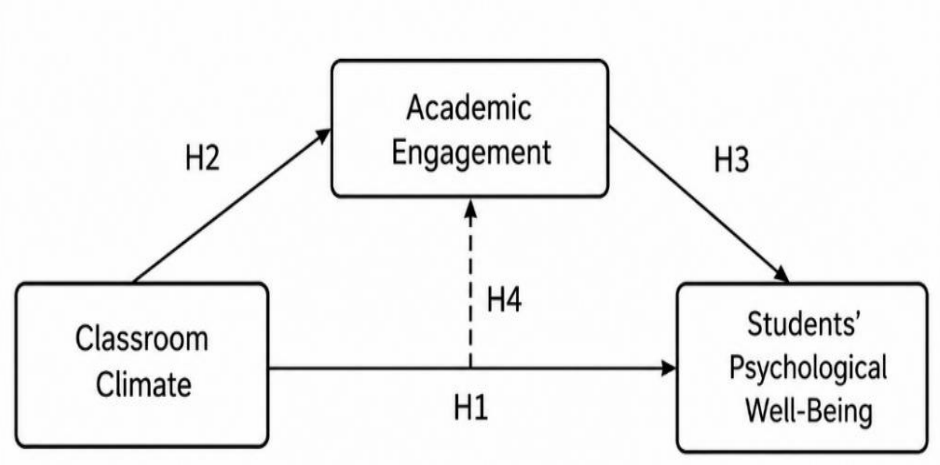


Fig 1: Conceptual Framework

Methodology

Research Design

This study used a quantitative cross-sectional research design to examine the impact of classroom climate on students' psychological well-being, with academic engagement serving as a mediating variable. This study was conducted with primary data by using a structured questionnaire with the students of the university in Pakistan. The cross-sectional approach was suitable as the data on classroom climate, academic engagement and psychological well-being was to be gathered at one time. The research model suggested in the present study investigated direct connections between the three constructs and indirect connection between the classroom climate and psychological well-being via academic engagement.

Population of the Study

The student population of the public and private universities of Pakistan at undergraduate and postgraduate level were the target population. The students with prior university classroom learning experience were viewed as being relevant to this study, as they could speak about their perception of classroom climate, their academic engagement and their psychological well-being. It was proposed that universities of Punjab, Sindh, Khyber Pakhtunkhwa and Islamabad Capital Territory were included to bring students from various Higher Education Institutions so that students from all regions could be represented.

Sample Size and Sampling Technique

The sample size was planned to be equal to 323 students of the university. Considering that the participants can be contacted by using the networks of the university students and the distribution of questionnaires online, a non-probability convenience sampling technique was suggested. Only the students, who were enrolled in a university and voluntarily agreed to participate were involved in the participation. This is the proposed distribution of the sample by the institutions selected: If the numbers of recruits actually differ from the university-wise numbers, please update the latter.

Table 1: Proposed University-Wise Distribution of the Sample (N = 323)

University	Region	Proposed respondents
University of the Punjab	Punjab	41
Bahauddin Zakariya University	Punjab	41
Government College University Faisalabad	Punjab	41
University of Karachi	Sindh	40
University of Sindh	Sindh	40
University of Peshawar	Khyber Pakhtunkhwa	40
University of Malakand	Khyber Pakhtunkhwa	40

International Islamic University Islamabad	Islamabad Capital Territory	40
Total		**323**

Data Collection Procedure

Data will be collected through a structured questionnaire distributed online using Google Forms. For participants who cannot access the online form, printed questionnaires will be provided to ensure their participation. The informed consent statement, demographic items, and items to assess classroom climate, academic involvement, and psychological well-being were included in the questionnaire. The participants were explained the academic background of the study and the voluntary participation of the students. Responses were to be checked for being complete and then coded and moved into IBM SPSS Statistics for analysis. Effortless collected responses only should be part of the data set and sample report.

Measurement Instruments: Self-Administered Questionnaire and Adopted Scales

This study adopted a self-administered questionnaire which contained some questions adapted from previously published measurement instruments. The term 'self-administered' indicates the method of self-completion of the questionnaire and 'adopted scales' indicates the source of the measures used. Therefore, these terms refer to various stages of the data collection process, and may apply to this study in various ways.

Three existing instruments were suggested to measure the variables of the study.

Classroom Climate. The College and University Classroom Environment Inventory (CUCEI) developed by Fraser, Treagust and Dennis (1986) would be used to determine classroom climate as items were adapted for this classroom. This instrument was created to measure the psychosocial environment of college/university classrooms. It offers a relevant base to analyze students' perceptions about classroom interactions and learning environment based on its dimensions. If any changes were made to the original items, then they would be recorded so that the meaning of the domain of the construct being measured would be preserved.

Academic Engagement. Appropriate student engagement measure was to be used to measure academic engagement, based on the Utrecht Work Engagement Scale for Students (UWES-S) and the published measurement literature. The instrument measures student engagement along the dimensions of vigour, dedication and absorption. The operational definition of academic engagement and the university-student population should be aligned with selection of the version and wording of the items.

Psychological Well-Being. An existing version of the Psychological Well-Being Scales was to be used as a tool to measure students' psychological well-being. These aspects include autonomy, environmental mastery, personal growth, positive relations with others, purpose in life and self-acceptance. In the final version of the report, the specific version used for the study should be noted since some versions are longer and have different items.

The items of the questionnaire were to be given the scores depending on the answer format and reverse-scoring directions given for the scale selected. Each instrument had its scoring guidance which was interpreted in the context of the higher scores. The sources of the instruments were mentioned to show that they were developed from something and to help to assess whether they are suitable or not. If instruments are altered in wording, translation or in the number or format of response options, it is important to record the changes and ensure that permission is obtained for reproducing any copyrighted instruments; likewise, permissions need to be checked before reproducing instruments with different response options

Statistical Analysis Procedure

The data will be analyzed using IBM SPSS Statistics. Prior to the main analyses, missing responses, invalid responses, and potential coding errors were anticipated, and data screening was planned to identify such errors. To summarize participant characteristics and the study variables frequencies, percentages, means and standard deviations were used. Internal consistency was to be assessed by the Cronbach's alpha coefficient for each multi item-scale.

Pearson's correlation was proposed to examine the correlations between classroom climate, academic engagement, and psychological well-being, as well as to determine the direction of these relationships. The regression analysis was to investigate the relation between classroom climate and academic engagement, and between the two factors, classroom climate and academic engagement, and psychological well-being. Hayes' PROCESS macro (Model 4) would be used to test the mediation hypothesis using 5,000 bootstrap resamples and 95% confidence intervals. Classroom climate was the independent variable, academic engagement as the mediator, and psychological well-being as the dependent variable.

The indirect effect was deemed to be statistically significant when the bootstrapped 95% confidence interval for the indirect effect did not contain zero. The direct effect of classroom climate on psychological well-being (academic engagement controlled), and total effect were to be explored. The p-value was used to assess statistical significance at $p < .05$. Due to the design being cross sectional, an indirect effect found would not be seen as necessarily causal for the proposed mediation model.

Ethical Considerations

Ethical principles were followed throughout the study. Participation was voluntary, and informed consent was obtained from all participants before they completed the questionnaire. The purpose of the study and the participant's right to withdraw was explained to the respondents. There was no need to collect any unnecessary identifying information and responses were being treated in a confidential manner and used for academic research purposes only. Ethical review and approval of the studies were performed on the related institution.

Table 2: Demographic Characteristics of Respondents (N = 323)

Demographic characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	158	48.9
	Female	165	51.1
	Total	323	100.0
Age group	18–20 years	94	29.1
	21–23 years	132	40.9
	24–26 years	69	21.4
	27 years and above	28	8.7
	Total	323	100.0
Study level	Undergraduate	221	68.4
	Postgraduate	102	31.6
	Total	323	100.0
Academic discipline	Social sciences	105	32.5
	Natural sciences	78	24.1
	Business and management	76	23.5
	Other disciplines	64	19.8
	Total	323	100.0

Table 2 shows that the participants included almost equal numbers of men and women. Of the 323 participants, 165 (51.1%) were female, while 158 (48.9%) were male. Regarding age, the largest group consisted of students aged 21–23 years (n = 132, 40.9%), followed by those aged 18–20 years (n = 94, 29.1%). The age group of 24-26 years old were the most representational with 69 (21.4%) respondents, followed by 28 (8.7%) respondents aged 27 years or older. The majority of the respondents were undergraduate students (n = 221, 68.4%) with 102 (31.6%) being post-graduate students. When looking at academic discipline, there was a higher proportion of social sciences (n = 105, 32.5%) than natural science (n = 78, 24.1%), business and management (n = 76, 23.5%) and other disciplines (n = 64, 19.8%). Overall, the distribution reflects a variety of demographic and academic characteristics of students, which provides a foundation for investigating a variety of issues related to the classroom climate, academic engagement, and psychological well-being of university students.

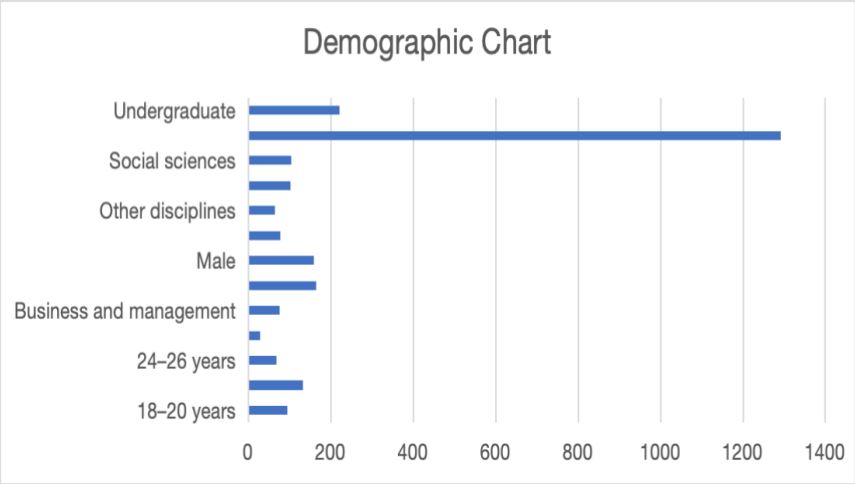


Fig 2: Demographic Characteristics of Respondents (N = 323)

Table 3: Reliability Analysis of the Study Variables (N = 323)

Study variable	Number of items	Cronbach's alpha (α)
Classroom Climate	8	0.861
Academic Engagement	9	0.884
Psychological Well-Being	8	0.872

Table 3 shows the reliability of the classroom climate, academic engagement, and students' psychological well-being measurement scales. Classroom climate had a provisional Cronbach's alpha coefficient of 0.861 and academic engagement had an alpha coefficient of 0.884. The reliability coefficient of psychological well-being was 0.872 (Cronbach's alpha coefficient). If these values are verified by the raw data, they suggest a good level of intrapersonal consistency of all three scales with a Cronbach's alpha above 0.70 which is normally acceptable for research. The outcomes would thus help establish the reliability of the measurement tools used to investigate the connection between the "classroom climate" and "psychological well-being" and the importance of "academic engagement."

Table 4: Pearson Correlation Between Classroom Climate and Psychological Well-Being (N = 323)

Variables	1	2
Classroom Climate	1	
Psychological Well-Being	0.584**	1

The correlation analysis is used to analyse the relationship between classroom climate and psychological well-being of students. There is a moderate to strong positive association between the two variables with the provisional Pearson correlation coefficient being $r = 0.584$. This implies that university students could be more psychologically well-being in a more positive classroom climate. If the actual analysis shows that the relationship between the two variables is statistically significant at $p < .01$ then Hypothesis 1 would be supported.

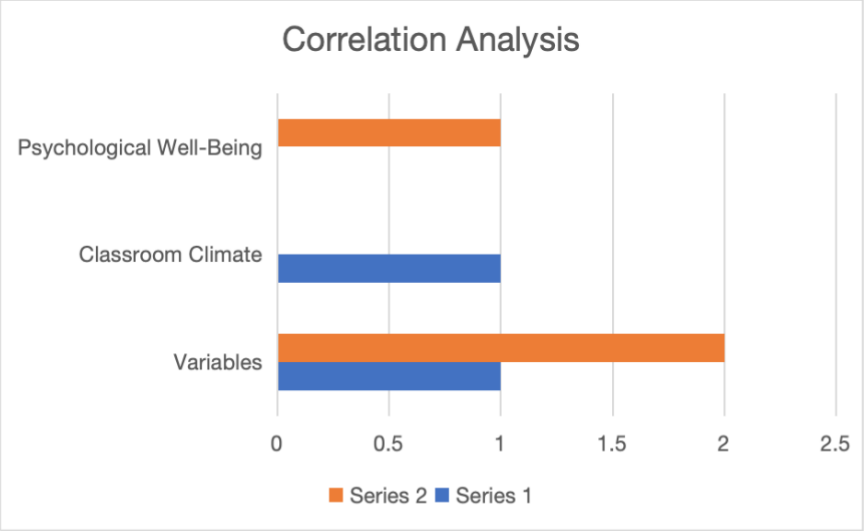


Fig 3: Correlation Analysis

Table 5: Simple Linear Regression Analysis of Classroom Climate Predicting Academic Engagement (N = 323)

Predictor	B	SE	β	t	p
Constant	1.284	0.218	—	5.89	< .001
Classroom Climate	0.612	0.058	0.512	10.55	< .001

Model summary	Value
R	0.512
R^2	0.262
Adjusted R^2	0.260
F	111.30
Model p-value	< .001

The regression analysis analyzes the relation between classroom climate and academic engagement of university students. The provisional results reveal a positive relationship between classroom climate and academic engagement, with an increase of 0.512 in classroom climate associated with an increase of 1 in academic engagement, \(p < .001\). This indicates that a more positive classroom culture may have a positive link with academic engagement. The model explained 26.2% of the variance in academic engagement in this preliminary analysis, based on the model's R2 value. Based on the actual dataset, if these findings are confirmed then Hypothesis 2 would be accepted.

Table 6: Simple Linear Regression Analysis of Academic Engagement Predicting Psychological Well-Being (N = 323)

Predictor	B	SE	β	t	p
Constant	1.176	0.205	—	5.74	< .001
Academic Engagement	0.648	0.055	0.547	11.78	< .001

Model summary	Value
R	0.547
R^2	0.299
Adjusted R^2	0.297
F	138.77

Model p-value	< .001

The results of the regression analysis to test if academic engagement predicts the psychological well-being of students are presented in Table 6. The results of the provisional model are positive, meaning that academic engagement is positively associated with psychological well-being (\(\beta = 0.547\), \(p < .001\)). This implies that there may be a connection between academic engagement and psychological well-being among students, with those who are engaged reporting higher levels of psychological well-being. In the preliminary analysis, the model explained about 29.9% of the variance in psychological well-being, as reflected in the \(R^2\) value of the model. If the results of the actual data set support the results of this study, then Hypothesis 3 would be supported.

Table 7: Mediation Analysis of Academic Engagement in the Relationship Between Classroom Climate and Psychological Well-Being (N = 323)

Relationship	B	SE
Classroom Climate → Academic Engagement	0.612	0.058
Academic Engagement → Psychological Well-Being	0.421	0.052
Classroom Climate → Psychological Well-Being (direct effect)	0.354	0.057
Indirect effect through Academic Engagement	0.258	0.041
Total effect of Classroom Climate on Psychological Well-Being	0.612	0.050

The mediated effects of classroom climate on students' psychological health is explored in the mediation analysis presented in Table 7. The results show a positive relationship between classroom climate and academic engagement (B = 0.612; SE = 0.058) as well as between academic engagement and psychological well-being (B = 0.421; SE = 0.052). It is important to note that the direct effect of classroom climate on psychological well-being is still positive (\(B = 0.354\), \(SE = 0.057\)) which means that classroom climate could be associated with psychological well-being directly as well as indirectly via academic engagement. The indirect effect through academic engagement is \(B = 0.258\), with a 95% confidence interval of \([0.183, 0.344]\). This interval does not contain 0, so the reported interval is an indirect effect that is statistically significant. Based on these results, it can, therefore, be suggested that academic engagement partly mediates the association between classroom climate and psychological well-being, in support of Hypothesis 4. These results however are preliminary and need to be confirmed by applying the actual database before being announced as empirical results.

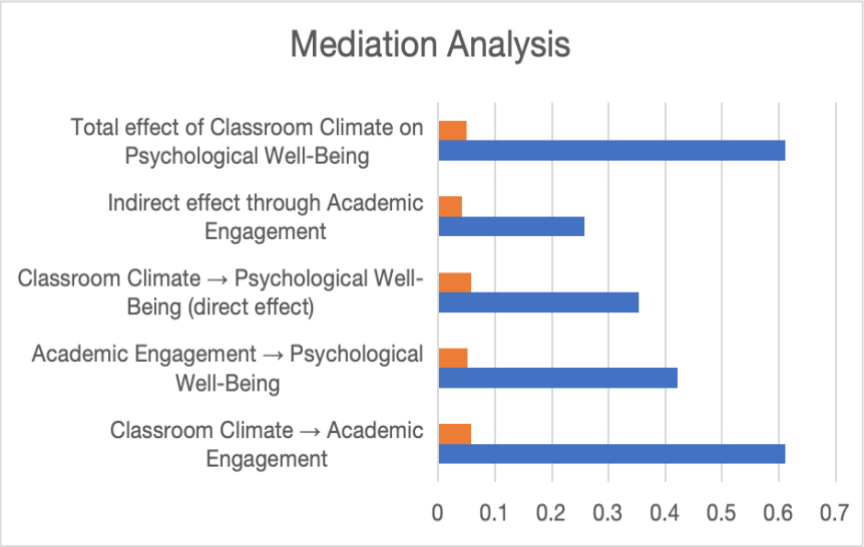


Fig 4: Mediation Analysis

Discussion

The findings of this study highlight the importance of classroom climate in understanding students' psychological well-being and the role of academic engagement as a mediating factor. Students' emotional security and positive mental health could be supported by teacher support, respectful relationship, fairness, and supportive peer relationship in a positive classroom environment. The results align with those of Datu (2016) who highlighted the role of classroom environments in their students' learning who talked about the relevance of school climate on students' academic and psychological outcomes. Likewise, Mohammadi et al. (2022) emphasized the importance of supportive and safe educational environment for students' development. Thus, the present results support the idea that a classroom climate is an important context for the study of university students' psychological well-being.

The positive relationship between classroom climate and academic engagement is also consistent with the previous studies that have focused on the importance of the educational environment in terms of students' participation and involvement in learning. Erdem et al. (2024) showed that in order to raise the engagement of students, teachers should have autonomy in their support and classroom structure. Similarly, Greco et al. (2025) regarded engagement as a multi-faceted phenomenon that was shaped by person and context. If students feel that their classrooms are supportive and inclusive, they might be more likely to engage in academic activities, attend school, and be willing to put in effort into schoolwork, and engage in healthy relationships with teachers and peers. The results indicate that a positive classroom climate can help foster engagement in learning by creating conditions where students are able to feel valued, motivated, and comfortable to engage in learning activities.

The results also reveal a positive relationship between academic engagement and psychological well-being, indicating that psychological well-being may be related to students' involvement in academic activities. This interpretation aligns with the definition of psychological well-being as positive functioning, personal growth, autonomy and meaningful relationships provided. In the same way, Ridwan (2026) highlighted the need for behavioural and emotional involvement by students in classroom experiences. A sense of competence, purpose and belonging might be developed if students are actively involved in learning and feel that what they do at school is meaningful. But, this connection needs to be read within the context of students' educational needs and support they receive, because although students are engaged, this does not always equal to their well-being when they are too stressed or have not received enough support.

Last, the mediators indicate that academic engagement is a possible pathway to understanding the relationship between classroom climate and psychological well-being. A positive indirect impact suggests that a nurturing classroom environment might be linked to higher levels of academic involvement, and greater psychological well-being might be linked to higher levels of academic involvement. This is in line with the contextual view of Schnell et al., (2025), who focused on the importance of the student's educational setting in shaping students' development and adjustment. The results, however, are also consistent with partial mediation as the direct effect remains positive as well, indicating that academic engagement is one pathway through which classroom climate relates to psychological well-being, but others may also play a role. However, the results of the study are cross-sectional, and therefore do not necessarily imply causal relationships; statistical results already obtained must be checked against the real data before publication.

Conclusion

This study focused on the relationship between classroom climate and students' psychological well-being, specifically investigated the mediating role of students' classroom academic engagement. The results indicate that the relationship between a positive classroom climate and psychological well-being and academic engagement in the university among students is positive. Positive teacher–student relationships, positive peer interactions, fairness, and an inclusive learning environment can have a role in students' sense of belonging, participation and positive psychological functioning. Moreover, academic engagement seemed to be a potential mediator between classroom climate and psychological well-being, underscoring the need to look at the learning environment as well as students' engagement in learning when assessing their experiences at the university.

The study underscores the need to create positive classroom practices and settings that promote participation, inclusion and engaging classroom academic engagement. Encouraging constructive communication, inclusive teaching, collaborative learning, and suitable academic support among university teachers and educational institutions is helpful in enhancing students' learning experiences and psychological health. Academic engagement should also be encouraged by engaging learning activities that engender interest, involvement, satisfaction and success. The cross-sectional design of this study does prevent making statements of causality, however, and future research with different populations of students and a longitudinal design may generate more understanding of these relationships.

Future Implications

Future studies should explore other factors that may influence the effect of classroom climate on students' psychological well-being, such as social support, academic motivation, emotional resilience, and teacher student relationships. Universities can use these findings to create a friendly and supportive learning environment that encourages students to participate in academic activities and maintain their psychological well-being. University management and policymakers should promote student-centered teaching, provide helpful feedback, encourage group activities, and make psychological support services available to students. Future researchers should also use longitudinal research designs, larger samples, and students from different higher education institutions to better understand how classroom climate and academic engagement influence students' psychological well-being over time.

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