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The impact of self-determination on students' psychological well-being and academic achievement

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ABSTRACT

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The current study aimed to examine the impact of self-determination on psychological well-being and academic achievement among university students. Self-determination is the ability of a person to make choices and manage their own life, and psychological well-being refers to an individual's emotional state and overall functioning. The study employed a quantitative approach using a survey method. A simple random sampling technique was used to collect data, and 600 university students participated in the study. Self-determination was measured through Basic Psychological Needs Scale (BPNS) developed by Deci and Ryan in 2000, psychological well-being was measured through Psychological Well-Being Scale developed by Ryff in 1989. Academic Achievement was measured through CGPA. Linear regression and t-test were applied for data analysis through SPSS 24. Linear regression was applied to examine the impact of self-determination on students' psychological well-being and academic achievement. The study found that self-determination has a significant impact on students' psychological well-being and academic achievement. Furthermore, the findings found that psychological well-being has no significant impact on students' academic achievement. Independent sample t-test was applied to examine the difference in students' self-determination and psychological well-being across gender. The study found that male students had higher self-determination than female students, however; there was no significant difference between psychological well-being of male and female students. The present study recommends that universities should introduce targeted initiatives to strengthen female students' self-determination, such as mentorship, confidence-building seminars, and supportive learning environments.

Introduction

In today's educational environment, students encounter numerous obstacles that can impact their academic achievement and psychological well-being. Psychological constructs can also impact students' psychological well-being and academic achievement. Self-determination (SD) is the ability of an individual to make decisions and take control of their own life. Self-determination theory (SDT) emphasizes relatedness, competence, and autonomy as three fundamental psychological needs. SD has emerged as "one of the most significant theories within well-being and human motivation" (Ryan & Deci, 2020). According to the theory, when a student's psychological needs are satisfied, they are more likely to achieve their academic potential and experience greater well-being (Ryan & Deci, 2017). Furthermore, when students have autonomy, they feel more in control of the learning process and have an increased level of motivation, engagement and ownership in their learning. Moreover, this

sense of competence refers to the ability to attain academic goals, feeling capable of achieving your academic desires, is also needed for increasing confidence and resilience when encountering academic difficulties.

Additionally, relatedness, the sense of belonging and being connected with other students in relation to learning environment foster psychological well-being. Higher self-determination contributes to the academic success and satisfaction that students express for their academic experiences (Howard et al., 2021). Psychological well-being (PWB) is the emotional state and overall functioning of an individual. The six domains of PWB include personal growth, self-acceptance, autonomy, environmental mastery, purpose in life and positive relations with others (Ryff, 1989). PWB is a comprehensive state that encompasses resilience, meaningful relationships, involvement, positive emotions, and achievement (Fathi et al., 2020).

University students deal with a variety of academic, social, and psychological difficulties in the competitive and demanding higher education setting (Bernaras et al., 2018). Furthermore, these challenges can influence their emotional stability and well-being as well as their academic achievement. Students encounter anxiety, fatigue, and decreased motivation as a result of the stress they endure while trying to maintain good grades, manage their time effectively, and negotiate their interactions with others (Bruffaerts et al., 2018). Research indicates that university students experience less anxiety, despair, and burnout, self-determination-driven intrinsic motivation is crucial (Ryan & Deci, 2020). Self-determination is fundamental to the academic and personal growth of students because it can provide them with the ability to take responsibility for their education and life choices. Moreover, encouraging students' self-determination not only improves their psychological well-being but also greatly improves their academic achievement, making it a crucial component of university students' overall success.

In Pakistan, a developing country with diverse cultures (Fatima, 2022), and socioeconomic backgrounds various factors can affect students' academic performance and psychological well-being. Female students from conservative and rural areas encounter obstacles when entering coeducational universities; as a result, they often lack opportunities to pursue higher education (Irshad, 2022). Jibeen (2016) also stated that in many conservative and rural regions, coeducation, where male and female students study together cause of female student difficulties and remains a challenging cultural issue. One of the major cultural challenges confronting female students in higher education is the persistence of conservative attitudes that restrict their freedom to participate equally in academic settings. Moreover, family members and societal norms are frequently the source of this pressure, and they may set strict standards that go against the interests of the students. These barriers and challenges are inaccessible higher education institutions, unsafe and expensive transportation, and inadequate university facilities (Mehmood et al., 2018). Such limitations are not only barriers to students' education opportunities but also obstacles for their career and personal growth. In addition, such challenges may hinder the self-determination of students who develop autonomy, competence and resilience, by allowing to mitigate them financial issues and pursue their psychological development. Female students in Pakistan, particularly belonging to rural and conservative areas, are facing several challenges to education, most of which come from the cultural constraints, safety issues, and economic problems (Bashir et al., 2025). Additionally, students who experience external control due to this type of instruction may become demotivated and experience increased emotional discomfort as a result of a decrease in their perception of autonomy, a fundamental element according to self-determination theory. Institutional barriers consist of a lack of financial resources, limited exposure to high-caliber mentorship, and gender bias that can impact those students who are from low-income or rural backgrounds.

From the perspective of self-determination, two fundamental features are a sense of competence and autonomy and these can be undermined by such situations. There can be a significant impact of self-determination and students' academic progress and emotional well-being in the context of Pakistan, where there are high social pressures on academic among students along with dropout rate. Research has shown that the rate of university dropout is approximately 16%, and it is higher among females than males (Khan et al., 2011). Moreover, university students may face difficulties including academic pressure, cultural background and high familial expectations, all of which can impact their well-being and academic achievement as well. Rote learning that stifles critical thinking and creativity is one of the challenges to Pakistan's educational system. Previous studies in Pakistan have shown that students are not able to build critical thinking skills (Khan, 2017; Shaukat & Chowdhury, 2020). Additionally, this traditional approach focuses more on learning content for testing rather than fostering deep understanding, problem-solving, and creativity.

Furthermore, self-determination may positively influence psychological well-being of students because it helps them feel competent and autonomous, enabling them to handle emotional and academic stress. This will help students develop essential skills such as time management, self-discipline, and problem-solving, thereby becoming more resilient and adaptable. Moreover, these aspects may promote reliable performance, improve academic engagement, decrease procrastination. High PWB enhances language retention, and advances learning capabilities, both of which are factors that lead to a positive learning environment (Pan et al., 2023). Conversely, students who are not psychologically well might struggle to be motivated, cope with academic demands, and achieve their potential. This sense of autonomy significantly boosts academic achievement since it fosters intrinsic motivation that leads to better understanding, improved problem-solving capabilities, and a learning desire.

Research highlights those students who feel competent and independent have higher PWB and life satisfaction (Ryan & Deci, 2017). Moreover, students have a higher degree of autonomy, which is required not only for psychological, but also for emotional stability, since students consider themselves to have power over their academic and personal decisions. This research gap highlights the significance of a comprehensive study of the influence of self-determination on the PWB and academic performance of university students. To develop empirical evidence that can add value to the academic performance of students and PWB, ultimately enhancing their overall success and well-being, it is imperative that this issue be addressed.

Research Questions

- What is the impact of self-determination on students' psychological well-being at the university level?
- What is the impact of self-determination on academic achievement among university students?
- What is the impact of psychological well-being on academic achievement of university students?
- What is the difference between students' self-determination across gender?
- What is the difference between students' psychological well-being across gender?

Limitation

The present study used self-reported data, which may have a possibility of social desirability bias.

Rationale of the Study

Higher education is a critical period in the lives of students who experience diverse academic, social, and psychological issues that determine their future success. University students at this stage handle their academic workloads, adjust to new environments and develop sense of independence. These requirements tend to cause stress and pressure which may affect their performance and psychological health. In this respect, self-determination becomes one of the crucial aspects as it promotes intrinsic motivation, resilience, and adaptability, allowing students to manage challenges successfully. The self-determination theory emphasizes on autonomy, competence, and relatedness as means of developing motivation and personal growth. Studies indicate that students that feel a sense of competency and independence are more content with their lives and show less symptoms of anxiety and despair (Deci & Ryan, 2000). It was also noted in past research that students who have higher self-determination are more likely to exhibit increased academic engagement, persistence, and life satisfaction.

Psychological well-being is one of the key aspects of overall academic and personal growth for students. Fathi et al. (2020) have stated that PWB is an all-inclusive condition that involves resilience, significant relationships, positive emotions, and academic success. Evidence also suggests that PWB plays a vital role in enabling students to cope with stress, maintain their motivation, and develop resilience in the face of challenges. Without these components, students can be more inclined to academic failure, anxiety, fatigue, and even dropout. The findings of the current study can support students not only for academic achievement but also for meaningful and satisfying lives, which makes it a significant inclusion in the area of education. Academic success is still a vital objective for students, though, because it can direct impact on their personal growth and future career opportunities. According to SDT, the needs of autonomy, relatedness, and competence must be met to facilitate internal drive, well-being, and optimal performance. There is evidence that the theory is essential for improving academic performance and psychological well-being but little study has been done on how these associations appear at the university level.

Policy makers can play a crucial role in reducing barriers that hinder students' participation and sense of belonging in coeducational institutions. For this purpose, it is essential to design policies that promote inclusive, stable, and gender-sensitive learning environments to ensuring equal opportunities for all learners. Universities can provide students with the skills necessary not only for academic success but also for personal growth, social development, and professional advancement. Incorporating programs that emphasize well-being, self-development, and career preparedness within the academic framework can enhance the student experience. Moreover, strengthening students' competencies in communication, collaboration, and other soft skills can help bridge the gap between theoretical knowledge and its practical application in real-world contexts. University students often face challenges academically and psychologically which can affect their educational experiences and well-being. Nevertheless, limited research has examined the influence of SD on university students particularly in the context of Pakistan. While SD and PWB have been studied individually but their influence on university students' SD, PWB, and academic achievement has not been thoroughly investigated.

Theoretical Background of the Study

Deci and Ryan proposed the SDT as a macro-theory of human motivation, development, and wellbeing. They developed this theory after conducting multiple studies on motivation in the 1970s and 1980s. The capacity to make choices and lead one's own life is known as SD. SDT asserts that when individuals' fundamental psychological requirements for relatedness, competence, and autonomy are satisfied, they become intrinsically driven to grow and develop (Nishimura & Joshi, 2021). Furthermore, the theory states that psychological well-being requires the three fundamental demands: relatedness, autonomy, and competence (Deci & Ryan, 2000; Sheldon & Niemiec, 2006). SDT introduced psychological requirements to describe the reasons why some students choose their own actions, are motivated by external pressure or have aims that are independent or controlled by others. Three psychological needs are suggested by this theory: relatedness, competence, and autonomy (Ryan & Deci, 2017). Furthermore, these demands as universal rather than as subjective variations among individuals. Therefore, SDT asserts that (a) the degree to which these needs have been met determines how healthy and effective an individual is; (b) that psychological needs are fundamental in spite of social background, gender, age, or culture; and (c) that deprivation of these needs results in illness and psychopathology (Deci & Ryan, 2000, 2012).

The satisfaction of basic psychological needs is directly tied to intrinsic motivation engaging in activities for their inherent satisfaction rather than external rewards. SDT posits that individuals are naturally motivated to grow and learn, but this motivation is most robust when the three basic needs are met. Autonomy refers to feeling independent and free to choose one's own actions. Students make choices that suit their interests and values and think they are leading the way (Deci & Ryan, 2013). Additionally, it leads integration, initiation and interacting without prior planning in our society, the "self" is driven to hold onto its sense of freedom. The core of self-determination theory is the integrative process, which incorporates tendencies, experiences, values, and new functions (Ryan & Deci, 2017). Additionally, autonomy is not synonymous with independence in SDT; both autonomous independence and autonomous dependence on others are possible for individuals. Students behave more autonomously when they are capable of assistance for their independence (Guay & Vallerand, 1996) and learn the important elements of the school environment that helps them willingly to follow school rules and regulations. Furthermore, it is regarded as significant rather than a developmental stage from the start of life to its conclusion. And last, autonomy does not mean being detached or cut off from important people. According to research, a stronger sense of autonomy is really linked to feeling attached to and accepted by significant individuals (Guay et al., 2008).

Competence refers to our ability to do things at different levels of difficulty while feeling competent and productive. Competence is the desire to engage with one's surroundings in an effective manner. This need motivates students to search out challenges that are just a little bit harder than they can handle now and to practice skills that will eventually improve them. Furthermore, it is the subjective experience of believing oneself to be competent, not the actual level of ability a learner gains, that matters. Moreover, students obviously experience adaptive consequences since its fulfillment is strongly tied to performance (Guay et al., 2003). Individuals are more inclined to take charge, persevere in the face of difficulties, and participate in learning or goal-directed activities when they feel competent (Vansteenkiste et al., 2005).

Competence has a major impact on psychological well-being in addition to motivation. Feelings of efficacy, personal achievement, and life satisfaction are all strongly correlated with meeting the competence need (Ryan & Deci, 2017). In the classroom, a student's confidence in their academic abilities often referred to as perceived academic competence reflects their level of competence. Furthermore, when they are able to solve problems, meet learning objectives, and show understanding, students feel competent (Niemiec & Ryan, 2009). According to research, students who have a strong sense of competence are more likely to set ambitious academic goals, use deep learning strategies, and exhibit greater persistence (Howard et al., 2021). Conversely, students are more likely to disengage or experience anxiety and self-doubt when they feel incompetent, which can be brought on by repeated failure, ambiguous feedback, or excessively challenging assignments.

It is fundamental urge to be linked to, supported by, and cared for by others. According to Ryan and Deci (2017), relatedness refers to strong bonds with individuals and also a sense of belonging in a group. Furthermore, students' potential is also enhanced when their demand for relatedness is met. Individuals feel supported by their parents, for instance, they are more likely to develop an aptitude for mathematics; when they experience conditional regard or bitter parents, on the other hand, this potential is more likely to be suppressed (Ryan et al., 2015). Fundamentally, relatedness is the state of being emotionally and socially close to important people, including mentors, teachers, and peers. The quality of relationships that promote trust, respect, empathy, and genuine interest is more important than just social interaction. SDT holds that students are more likely to internalize values, participate in learning in a meaningful way, and find a sense of purpose in their academic journey when they feel connected and valued (Niemiec & Ryan, 2009).

Ryff presented the multidimensional model of PWB in 1989. The concept of PWB includes multiple components which describe a person's complete experience of feeling good emotions and satisfaction in life and life purpose realization. Psychological well-being has been functioning under the umbrella of psychology for a few decades to define more about development and

sustainability. Over the years, the term PWB has developed into a more affirmative one, as it was initially defined as a lack of symptom discomfort, anxiety, and depression, among other symptoms associated with psychological ailment (Magyar & Keyes, 2019). Moreover, researchers have improved this model by adding various PWB elements, which comprise positive relationships (Diener, 2009), personal growth, and a sense of purpose (Ryff, 1989). The six components of PWB include personal development, self-acceptance, independence, mastery over the environment, purpose in life, and positive interpersonal relationships. Autonomy is the ability to have an internal center of control to manage one's behavior. Personal growth can be defined as the expansion and development of oneself. Environmental mastery is the skill to make decisions and work out the current circumstances, both mentally and physically. Having a sense of purpose in life is a significant indicator of psychological health, as it makes a person feel that they have a sense of meaning and direction in their lives. It is the dimension of ability to build intimate relationships that are satisfying and close with understanding, care, and mutual support. Self-acceptance is a fundamental element of psychological health that includes the complete recognition and acceptance of ourselves, our positive attributes, and flaws.

Past Research

A study conducted by (Nishimura & Joshi, 2021) investigated the SD, academic achievement, and the happiness of students at women's university in Japan. Research shows that parental autonomy support enables students to achieve their basic psychological needs and perceive themselves as competent based on this theory. The findings revealed that academic achievement and PWB of university students are significantly impacted by parental autonomy support. John and Awuku-Larbi (2024) examined the relationship between postgraduate students' PWB and academic success among Ghanaian public universities. The researchers used a quantitative cross-sectional approach to gather information from 140 postgraduate students using an academic success questionnaire and the psychological well-being scale. The findings revealed that a significant positive connection between academic success and PWB. The study also found significant differences across gender in PWB and academic success.

(Chaudhry et al., 2024) investigated how formal and informal support influence the PWB of university students 309 studying in the department of management. They analyzed data using structural equation modeling and hierarchical regression model. The findings indicate that family support, institutional support, and the internal team environment positively impact psychological well-being. Furthermore, academic engagement mediating the link between institutional support and well-being while partially mediating the effects of team environment and family support.

The research conducted by Sari (2012) investigated the association between students' essential psychological demands and their PWB at Turkish University. The basic psychological need scale and the scale of PWB were used to gather data. The findings revealed that a strong but negative link between PWB and fundamental psychological requirements. Furthermore, regression analysis showed that these demands explained 41% of the variation in psychological well-being, indicating that greater well-being is linked to the satisfaction of the fundamental needs.

Wang et al. (2021) conducted a study to investigate the ways in which digital competency can support university students' psychological well-being. This study analyzed its function in preventing academic burnout and cognitive load, during online learning. The findings indicated that a substantial negative association between student engagement in online learning and academic burnout, while mental load and mental effort were favorably correlated with academic burnout.

Graham and Vaughan (2022) investigated the relationship between first-year college students' academic performance and SD. Strong positive connections between students' perceived self-determination, satisfaction with college life and first-term academic performance were discovered in the study. The findings showed that students who were high self-determined had higher academic achievement than those who were not. Additionally, the study recommends professional development and curriculum approaches that increase autonomy and perceived self-determination, which could improve academic performance in the first year.

Afzal and Jami (2023) investigated the relationship between university students' self-determination-based demands (autonomy, competence, and relatedness) and academic accomplishment. The study was conducted on a single Pakistani institution. The study found that academic performance was significantly predicted by autonomy, relatedness, and academic locus of control, with academic locus of control mediating the relationship between competence and academic achievement.

Although numerous studies have investigated the connection between students' academic success and their sense of self-determination, the majority of these studies have concentrated on Western educational environments. Studies have demonstrated that self-determination enhances academic performance and motivation; however, there has been little focus on how it affects students' psychological well-being, especially in Pakistan. Furthermore, little research has been done on how SD affects university students' PWB and educational outcomes. Additionally, the present study filled this gap by examining how

Pakistani contextual elements influence students' academic and psychological experiences, which is essential for creating a valuable educational perspective. The current study addressed this gap by examining how academic achievement and self-determination requirements vary across different cultural and educational situations. Furthermore, the present study aims to address this knowledge gap by examining the association between psychological well-being and autonomy, along with competence, relatedness, and self-determination, among university students in Pakistan.

Methodology

A quantitative research approach was used in the current study, utilizing a descriptive survey design to examine the influence of self-determination on psychological well-being and academic achievement among university students. Data were collected through questionnaires using the survey method. The population of the present study consisted of three public sector universities of Faisalabad. A sample of 600 students was selected to participate in the study using a simple random sampling. The sample size consisted of 600 students, 275 male and 325 female, who were studying from the following departments: Computer Science, Physics, English, and Education, at three public sector universities in Faisalabad. A random sampling technique was employed to ensure representative results from universities: Government College University Faisalabad, University of Education Faisalabad Campus, and University of Agriculture Faisalabad. Simple random sampling technique was employed to ensure that each student had an equal chance using the lottery method. This method allowed for unbiased selection and helped achieve a representative sample across different institutions. Participants were drawn from three public sector universities ensuring diversity in academic experiences.

Research Instruments

The present study used the standardized questionnaires. In the first section, a questionnaire was presented to collect demographic information such as gender, residence, socioeconomic status, age, and CGPA. Students' academic achievement was measured through CGPA. The second section consisted of a self-determination scale named as Basic Psychological Needs Scale (PBNS) was adapted in the current study. This scale was developed by Deci & Ryan in 2000. It has 21 statements and measures students' self-determination. It is comprised of three subscales: relatedness (8 statements), competence (6 statements), and autonomy (7 statements). The Likert scale was used in this study ranged from 1 to 5, 1 denoting strongly disagree, 2 disagree, 3 neutral, 4 agree, and 5 strongly agree. Previous research showed the subscales' reliability such as, (Autonomy $\alpha = .65$; Competence $\alpha = .72$; Relatedness $\alpha = .82$) (La Guardia et al., 2000). In the current study this sample item scale was used. Autonomy 1. (I feel like I am free to decide for myself how to approach my studies). Competence (1. Often, I do not feel very competent). Relatedness (1. I really like the students and teachers I interact with).

The third section comprised the Psychological Well-Being Scale originally developed by Ryff in 1989. The researcher adopted this scale for the present study. The scale includes 28 items covering four key dimensions of well-being: environmental mastery, self-acceptance, purpose in life, and personal growth. Each dimension comprises seven items. The Likert scale was used in this study ranged from 1 to 5, 1 denoting strongly disagree, 2 disagree, 3 neutral, 4 agree, and 5 strongly agree. Environmental mastery (I generally believe that I have control over my circumstances).

Personal growth (I think it is important to have new experiences that challenge how you think about yourself and the world). Purpose in life (I have a sense of direction and purpose in life). Self-Acceptance (When I look at the story of my life, I am pleased with how things have turned out). The current study pilot tested on the 100 university students. Pilot testing was conducted on 50 students from GC University Faisalabad and 50 students from the University of Education Faisalabad Campus. The content validity of the instruments was ensured by utilizing validated scales adopted from previous studies. To ensure the content validity of the research instruments, previously established and widely accepted measurement scales were carefully selected and adopted. Cronbach's Alpha was employed to evaluate the internal consistency and reliability of the scale. The reliability of psychological well-being was .79 and the self-determination scale reliability was .70.

Data Collection

Questionnaires were used to collect data. The participants were selected randomly from the following departments: Computer Science, Physics, English, and Education. Before the data collection procedure, permission was taken from universities. Individual consent was obtained from students for prior participation. Ethical considerations were maintained throughout the data collection procedure. Informed consent and confidentiality were maintained to protect each participant's rights and privacy during data collection. Confidentiality was maintained by handling and collecting the data securely, and anonymity was ensured throughout the data collection procedure.

Results

The results of Pearson Correlation are indicated in Table 1. The table shows intercorrelations among self-determination factors (autonomy, competence, relatedness), psychological well-being factors (environmental mastery, personal growth, purpose in life, self-acceptance), and academic achievement.

Table 1 Intercorrelations among different indicators of self-determination, psychological well-being and academic achievement (n = 600 students)

	Auto	Com	Rel	EM	PG	PIL	SA	SD	PWB	AA
Autonomy (Auto)	1									
Competence (Com)	.463*	1								
Relatedness (Rel)	.335*	.268*	1							
Environmental Mastery (EM)	.042	-.029	.029	1						
Personal Growth (PG)	.223*	.365*	.159*	-.026	1					
Purpose in life (PIL)	.233*	.371*	.071	-.015	.533*	1				
Self- Acceptance (SA)	.274*	.433*	.065	.081	.466*	.468*	1			
Self- Determination (SD)	.773*	.765*	.735*	.019	.327*	.292*	.333*	1		
Psychological Well-being (PWB)	.297*	.443*	.123*	.339*	.757*	.774*	.766*	.375*	1	
Academic Achievement (AA)	.083	.175*	.032	-.031	.027	.084	.113*	.126*	.077	1

Note: * $p < 0.05$

The table shows that intercorrelations among self-determination factors, psychological well-being factors, and academic achievement. The findings revealed a moderate positive significant association between autonomy and competence (.463), a weak positive significant relationship between autonomy and relatedness (.335). The study found a weak significant association between the competence and relatedness (.268), a weak but positive significant association between autonomy and personal growth (.223). Furthermore, the findings revealed a weak positive significant connection between competence and personal

growth (.365), a weak positive significant association between relatedness and personal growth (.159). Moreover, the study found a weak positive significant link between autonomy and purpose in life (.233), a weak positive significant association between competence and purpose in life (.371), there is a moderate positive significant relationship between personal growth and purpose in life (.533).

Additionally, the finding revealed a weak positive significant connection between autonomy and self-acceptance (.274), a moderate positive significant connection between competence and self-acceptance (.433). The study found a moderate positive significant correlation between personal growth and self-acceptance (.466), a moderate positive significant association between purpose in life and self-acceptance (.468). Furthermore, the result showed that there is a weak positive significant connection between competence and academic achievement (.175), a weak significant connection between self-acceptance and academic achievement (.113). Moreover, the study found a strong positive significant association between SD and autonomy (.773), a strong positive significant link between SD and competence (.765). The findings revealed that a strong positive significant correlation between SD and relatedness (.735), a moderate positive significant connection between SD and personal growth (.327).

The findings revealed a weak positive significant association between SD and purpose in life (.292), a weak positive significant connection between self-acceptance and students' SD (.333), and a weak positive significant link between SD and academic achievement (.126). The study found a weak positive significant correlation between PWB and autonomy (.297), a moderate positive significant connection between PWB and competence (.443). The findings revealed a weak positive significant relationship between PWB and relatedness (.123), a weak positive significant relationship between PWB and environmental mastery (.339). The study found a strong positive significant relationship between PWB and personal growth (.757), a strong positive significant association between purpose in life and PWB (.774). The findings revealed a strong positive significant correlation between self-acceptance and PWB (.766), a weak positive significant relationship between students' PWB and SD (.375). Furthermore, the finding revealed a weak significant relationship between SD and students' academic achievement (.126), a weak positive significant relationship between SD and PWB (.375), and there is non-significant relationship between students' PWB and academic achievement (.077).

Table 2 Linear regression analysis predicting students' psychological well-being from self-determination (n = 600 students)

	β	SE	Sig
Self-determination	.375*	.046	.000
R ²	.140		
Adjusted R ²	.139		
*p < 0.05			

Table 2 shows the impact of self-determination on students' psychological well-being. The findings reveal that self-determination has a significant impact on students' psychological well-being ($\beta = .375$, SE = .046). The R-squared value is .140, which indicates that self-determination explains 14% of the variance in students' psychological well-being.

Table 3 Linear regression analysis predicting students' academic achievement from self-determination (n = 600 students)

	β	SE	Sig
Self-determination	.126*	.03	.000
R ²	.016		
Adjusted R ²	.014		
*p < 0.05			

Table 3 shows the impact of self-determination on students' academic achievement. The finding reveals that self-determination has a significant but weak positive impact on students' academic achievement ($\beta = .126$, SE = .03, $p < .05$). The R-squared value is .016, which indicates that self-determination explains 1.6% of the variance in students' academic achievement.

Table 4 Linear regression analysis predicting students' academic achievement from psychological well-being (n = 600 students)

	β	SE	Sig
Psychological well-being	.077	.03	.060
R ²	.004		
Adjusted R ²	.006		
*p < 0 .05			

Table 4 shows the impact of psychological well-being on students' academic achievement. The finding reveals that psychological well-being has no significant impact on students' academic achievement ($\beta = .077$, SE = .03). The R-squared value is .004, which indicates that psychological well-being explains only 0.4% of the variance in students' academic achievement.

Table 5 Gender wise comparison of self-determination among university students

	Gender	N	Mean	Std. Deviation	t value	P value
Self-determination	Male	275	3.33	.45	5.365	.000
	Female	325	3.15	.35		

Table 5 shows the results of t-test which measured the difference between male and female students' self-determination. The result shows significant difference in mean values between male (Mean= 3.33; SD= .45) and female students (M=3.15; SD= .35), as indicated by p-value (.000). The table shows that there is a significant difference between males and females' self-determination mean scores. The mean score showed that male students had a great difference of self-determination than female students.

Table 6 Gender wise comparison of psychological well-being among university students

	Gender	N	Mean	Std. Deviation	t value	P value
Psychological well-being	Male	275	3.33	.37	1.595	.111
	Female	325	3.28	.37		

Table 6 shows the results of t-test which measured the difference between male and female students' psychological well-being. The results indicated that no significant difference in mean values between male (Mean= 3.33; SD= .37) and female students (M=3.28; SD= .37), as indicated by p-value (.111). The study found that there is no significant difference between male and female students' PWB mean scores.

Findings

The results indicated that students' academic success and self-determination have a weak significant association (.126). Similarly, the results showed a weak significant relationship between self-determination and psychological well-being (.375), whereas, no significant association was found between students' academic success and psychological well-being (.077). Further regression analysis revealed that self-determination had a significant impact on students' psychological well-being, ($\beta = .375$, SE = .046, $p < .05$). The R-squared value is .140, which indicates that self-determination explains 14% of the variance in

students' psychological well-being. The findings revealed self-determination had a significant but weak impact on students' academic achievement, ($\beta = .126$, $SE = .003$, $p < .05$). The R-squared value is .016, which indicates that self-determination explains 1.6% of the variance in students' academic achievement. However, psychological well-being had non-significant impact on students' academic achievement, ($\beta = .077$, $SE = .003$, $p < .05$). The R-squared value is .004, which indicates that psychological well-being explains 0.4% of the variance in students' academic achievement. The result showed that a significant difference in SD between male (Mean= 3.33; SD= .45) and female students (M=3.15; SD= .35) as indicated by p-value (.000). The study found that there is a difference between males and females' SD mean scores. The mean score showed that male students have higher self-determination than female students. Conversely, results showed that no significant difference in PWB between male (Mean= 3.33; SD= .37) and female students (M=3.28; SD= .37) as indicated by p-value (.111). The results indicated that there was no difference in the mean scores of PWB between male and female students.

Conclusion

The findings of the study provide substantial support for self-determination theory. The results showed that students' self-determination and academic achievement had a positive significant relationship. The relationship between psychological well-being and self-determination was weak but statistically significant. Furthermore, there was no relationship between students' academic achievement and PWB. Moreover, the regression analysis revealed that self-determination has significant impact on students' psychological well-being. According to the R-squared value, self-determination explains 14% of the variance in students' psychological well-being indicating that students with higher degrees of self-determination also tend to have better psychological well-being. Regression analysis also showed that self-determination has a weak significant impact on students' academic achievement. The study found that there was non-significant impact of psychological well-being on students' academic achievement. Despite its importance, psychological well-being explains only 0.4% of the variance in students' academic achievement, indicating that it is not an accurate predictor of academic achievement on by itself. The t-test revealed a significant difference between males and females' SD mean scores. The mean score showed that male students' have higher SD than female students. Furthermore, the findings revealed that no significant difference between male and female students' PWB.

Discussion

The present study identified a weak but significant positive association between academic achievement and self-determination, which supports other findings that emphasize the role of competence and autonomy in academic success (Graham & Vaughan, 2022; Afzal & Jami, 2023). These findings support Deci and Ryan (2000), which highlights how fundamental psychological needs improve well-being and academic achievement. The current study revealed a weak significant relationship between academic achievement and self-determination, which is similar to Graham and Vaughan (2022), who established that highly self-determined students achieved better academically. Similarly, Afzal and Jami (2023) examined the influence of autonomy and locus of control on academic achievement. A study by Feri et al. (2016) and Jeno et al. (2017) demonstrated a substantial influence of competence and intrinsic motivation on academic performance of students. Deci and Ryan (2000) also noted that the satisfaction of basic psychological needs is positively related to both academic achievement and psychological well-being. Concerning this study, Howard et al. (2021) investigated that the feelings of competence and autonomy promote persistence in student studies and positively influence academic performance.

The present research found a moderate significant positive correlation between self-determination and psychological well-being. The present study is consistent with the findings of Sari (2012), who noted that the availability of autonomy, competence, and relatedness has a role in enhancing higher levels of well-being. Another study, by Sun and Chen (2010), also supported the value of self-determination in enhancing PWB and adaptive behaviour. Additionally, Wang et al. (2021) found that the development of autonomy led to decrease in academic fatigue and an enhancement of psychological well-being. The concept that students who thought they were more competent and independent were more satisfied with life is also supported by Deci and Ryan (2000). In addition, Bartholomew et al. (2011) found that meeting the basic psychological needs decreases anxiety and increases academic motivation.

The results of the current study indicated that there was no significant correlation between academic success and psychological well-being (PWB) among university students. The present study is consistent with the findings of Klapp et al. (2024), who noted that high-achieving students tended to report low levels of well-being, which were mainly defined by the pressure and stress associated with academics. Their study implied that the higher-achieving students were, the more anxious and stressed they became, especially regarding test and coursework. Likewise, Mustafa et al. (2020) also acknowledged that, although certain areas of well-being can be positively associated with academic achievement, the relationship between them is not universal as it involves moderating factors, including stress, motivation, and the personal coping strategies.

Moreover, Sebire et al. (2009) also emphasized that autonomy plays an indirect role in enhancing students' academic performance and psychological well-being; however, this may also be contingent on how autonomy is facilitated in the learning environment. Conversely, the non-existent relationship in the present research could imply that the presence of external forces, performance-driven learning environments, or academic pressure could subdue the impact of psychological well-being on performance. Furthermore, Azmi et al. (2022) also highlighted the significance of PWB to support the success of postgraduate students. There might be a possibility that the current study's undergraduate students have not encountered the same number of academic and emotional difficulties, and thus a strong connection has not been established. Altogether, this discrepancy in the results points to the complexity of the connection between academic performance and psychological well-being, as well as indicates that the contextual and individual differences can contribute to the relationship.

Implications

The current research revealed that male students possess a higher self-determination than females. The present study suggests that institutions should implement gender-sensitive mentoring and support programs to reduce cultural and social barriers faced by female students. Universities should design policies and interventions that strengthen students' autonomy, competence, and relatedness, as these dimensions are central to fostering both psychological well-being and academic achievement. Although psychological well-being did not directly predict academic achievement, it remains an essential component of students' overall development. Universities should integrate counseling services, stress management workshops, and well-being initiatives into academic life. Faculty members should adopt student-centered teaching approaches that encourage autonomy and active engagement, fostering a stronger sense of ownership over learning outcomes. In Pakistan, where cultural and societal norms limit female participation, policymakers must prioritize safe transportation, affordable access to education, and equal learning opportunities. Although this study was conducted at the university level, the study suggests that future research should also be extended to the school level to examine students' psychological well-being in earlier stages of education. Further studies should investigate the longitudinal impact of self-determination on academic and psychological outcomes, as well as motivation and social support across diverse cultural contexts.

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