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Psychological Determinants of Students' Academic Achievement: The Role of Well-Being

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Abstract: Psychological well-being, motivation, and behavioural factors affect academic achievement. The purpose of this study is to examine the relationship between psychological well-being and academic performance among undergraduate students in Azerbaijan, while considering gender, academic year, and motivational factors. A cross-sectional survey design was used. Data were collected from 52 undergraduate students studying at different universities through an online survey.

Psychological well-being was measured using the World Health Organisation Five Well-Being Index (WHO-5), and academic achievement was measured by students' self-reported Grade Point Average (GPA). Students were also asked about motivation and self-confidence. Descriptive statistics, correlation analyses, and group comparisons were used to examine relationships among variables. Students' mental health influences their academic achievement. Students with GPAs below 70 reported lower WHO-5 well-being scores than students with higher GPAs. There is a relationship between motivation and well-being ($r = 0.20$, $p = 0.01$), showing that motivated students had better mental health. While female students reported slightly higher well-being scores than male students, the difference was not statistically significant. Similarly, no significant differences in well-being were observed across academic years or fields of study. The findings showed that students' mental health and motivation are the main parts of their academic performance. Universities can help students through programs that support students' mental well-being, confidence and motivation. This study shows the importance of including mental health support in education.

Keywords: Academic achievement, Cognitive skills, Coping strategies, Psychological well-being, Social media, Student performance.

Introduction

Many factors, such as motivation, behaviours, mental health, and thinking skills, influence academic achievement in higher education. Studies from different countries show that students with strong cognitive skills, higher motivation, and better mental health are usually good at their studies. (e.g., García et al., 2021; Putwain et al., 2022; Zhou & Brown, 2023). Recent research highlights that good mental health helps students perform better. Students who are more emotionally balanced and confident are better at handling academic stress (Seligman & Adler, 2022; Bückner et al., 2023). Motivation also plays an important role. Motivated students try to complete difficult tasks and have positive attitudes toward learning (Howard et al., 2021; Wang et al., 2024). In parallel, behavioural factors such as study routines and the use of educational technologies can also support academic performance.

However, there is little research on these topics in Azerbaijan, even though the country has a large student population - around 205,385 bachelor's and master's students in 2025 (Ministry of Education of the Republic of Azerbaijan, 2025). Most recent studies are basic and don't explore how thinking skills, mental health, and motivation interact to influence academic performance. As a result, the extent to which international findings can be generalised to the Azerbaijani context remains unclear. The purpose of this study is to fill this gap by examining how mental well-being and motivation contribute to students' academic success in this specific context. The study focuses on key factors like cognitive skills, mental health, motivation, self-confidence, study habits, and technology use, and how they influence academic performance.

The main aim of this research is to explore how thinking skills, mental health, and motivation are connected to academic success in Azerbaijani university students. Although the study's relatively small

sample size limits its findings, it provides an important foundation for future research. It highlights the need for universities to adopt a more holistic approach that supports students' academic development alongside their psychological well-being.

Research Problem

Although there is a lot of research showing that mental well-being, motivation, and academic performance are strongly connected, most studies examine these relationships only at one point in time. As a result, we don't fully understand how mental well-being, motivation, self-confidence, and study habits influence academic achievement.

Research Focus

This study examines how mental well-being affects academic performance among university students. It especially examines how motivation and self-confidence shape this relationship, and how study habits and self-regulation contribute to academic success.

Research Aim and Questions

This study aims to investigate well-being and academic achievement in an Azerbaijani sample of university students:

H1: There are statistically significant differences in the well-being features and academic achievements for male and female students.

H0: There are no gender based differences for the features of well-being;

H2: There are statistically significant differences in the well-being of the students over the years.

H0: There are no differences based on academic years and well-being.

Research Questions

1. What is the relationship between gender and the variables of well-being and academic achievement among university students?
2. How does the academic year (course level) of a student influence their reported levels of well-being?
3. Is there a significant correlation between a student's WHO-5 well-being index score and their academic achievement (GPA)?

Literature review / Theoretical Overview

Academic achievement is increasingly conceptualised as a multidimensional and dynamic construct shaped by the interaction of cognitive, psychological, and behavioural factors rather than as an outcome determined solely by intellectual ability. Early educational research predominantly emphasised cognitive capacities -such as intelligence, memory, attention and problem-solving skills -

as the primary predictors of academic success. Students with higher cognitive abilities were assumed to process information more efficiently, comprehend complex academic material more easily, and perform better on assessments. Although these cognitive skills undeniably contribute to learning and academic performance, a growing body of empirical evidence demonstrates that they are necessary but not sufficient to fully explain variations in academic achievement (Duckworth & Seligman, 2005; Hattie, 2008; Arum & Roksa, 2011).

In recent decades, scholars have increasingly turned their attention to psychological determinants, particularly psychological well-being, motivation, and self-confidence, as crucial contributors to students' academic success. Psychological well-being encompasses emotional balance, life satisfaction, a sense of purpose, and positive functioning, all of which influence how students perceive academic challenges and respond to stressors. Research consistently indicates that students with higher levels of well-being show greater academic engagement, persistence, and confidence in their learning, leading to improved learning outcomes and higher academic performance (Diener et al., 2018; Stallman, 2010; Topp et al., 2015). In contrast, low psychological well-being is associated with heightened stress, emotional exhaustion, anxiety, and disengagement from academic tasks, which can undermine concentration, motivation, and overall academic functioning (Keyes, 2006; Bukhari & Khanam, 2017).

A substantial number of international studies provide strong empirical support for the relationship between psychological well-being and academic achievement across diverse cultural and educational contexts. Research conducted in countries such as Canada, Georgia, Sweden, Lithuania, and Azerbaijan demonstrates that students reporting higher levels of well-being tend to achieve better grades, maintain higher GPAs, and exhibit more adaptive learning behaviors (Chow, 2007; Turashvili & Japaridze, 2012; Rapuano, 2019; Klapp et al., 2024; Ministry of Education, 2025). These findings suggest that well-being functions not merely as an outcome of academic success but as an active psychological resource that enhances students' capacity to learn, cope with academic demands and sustain long-term academic engagement.

Academic emotions play a particularly important role in this process. Positive emotions such as enjoyment, interest and pride foster intrinsic motivation, promote self-regulated learning strategies and enhance cognitive flexibility, thereby facilitating deeper learning and higher achievement. Conversely, negative academic emotions, including anxiety, hopelessness and burnout, are linked to avoidance behaviours, surface learning strategies, and decreased academic performance (Pekrun et al., 2002; González Pérez et al., 2020; Rapuano, 2019). These emotional experiences are closely tied to students' psychological well-being and influence how effectively they utilise their cognitive resources.

Motivation and self-confidence further mediate the relationship between well-being and academic achievement. According to self-determination theory, intrinsically motivated students - those who engage in learning for personal interest and satisfaction - are more likely to persist in challenging tasks, employ deep learning strategies, and experience higher levels of psychological well-being (Ryan & Deci, 2017).

Similarly, Bandura's theory of self-efficacy emphasises the role of self-confidence in shaping academic behaviour, as students who believe in their ability to succeed are more resilient in the face of difficulties and more willing to invest sustained effort (Bandura, 1997). Expectancy-value theory further explains academic performance by proposing that students' expectations of success and the value they assign to academic tasks jointly determine their engagement and achievement outcomes (Wigfield & Eccles, 2000; Eccles & Wigfield, 2002).

Empirical studies examining the direct link between psychological well-being and academic performance consistently reveal that students with higher well-being scores achieve better academic results, including higher grades and GPAs. These findings highlight that well-being is not simply a byproduct of academic success but a foundational determinant that supports cognitive functioning, motivation, and effective self-regulation (Bukhari & Khanam, 2017; González Pérez et al., 2020; Rüppel et al., 2015; Topham & Moller, 2011; Guamanga et al., 2024). Importantly, psychological factors do not operate in isolation. Cognitive abilities and behavioural habits interact dynamically with psychological well-being to shape academic outcomes. Skills such as critical thinking, problem-solving, and memory enhance comprehension and learning efficiency, but their impact is significantly amplified when students possess high levels of well-being and intrinsic motivation (Ennis, 2018; Richardson et al., 2012). Behavioural factors-including effective study routines, time management skills, goal setting and adaptive coping strategies-serve as mechanisms through which cognitive and psychological resources are translated into observable academic performance (Zimmerman, 2002; Credé & Kuncel, 2008).

In the contemporary educational landscape, the use of technology, particularly social media, has emerged as an additional factor influencing both academic achievement and psychological well-being. While the academic use of digital technologies can support learning, collaboration, and access to educational resources, excessive non-academic use has been linked to reduced academic performance, increased distraction, and lower levels of well-being (Junco, 2012; Karpinski et al., 2013; Broadbent & Poon, 2015). These findings suggest that students' self-regulatory capacities and psychological well-being largely determine whether technology functions as a learning tool or a source of academic and emotional strain (Duckworth & Seligman, 2005; Hattie, 2008).

Despite the growing body of research on psychological determinants of academic achievement, much of the existing literature is derived from Western educational contexts. Emerging research underscores the importance of examining these relationships in diverse and underrepresented settings. In Azerbaijan, for instance, approximately 246,500 students are currently enrolled in higher education institutions, many of whom face challenges related to heavy academic workloads, stress management, and developing effective study strategies (Ministry of Education, 2025). Although research in this context remains limited, available studies suggest that Azerbaijani students' academic success is similarly influenced by psychological well-being, motivation, and behavioural habits (Mustafa et al., 2020). Comparable findings from Sweden, Georgia, Canada, and Lithuania further support the global relevance of these psychological determinants and highlight potential cultural and systemic variations in their effects (Klapp et al., 2024; Turashvili & Japaridze, 2012; Chow, 2007; Rapuano, 2019).

Nevertheless, significant research gaps remain. Many existing studies rely on cross-sectional designs, which limit the ability to draw causal conclusions about the directionality of the relationship between well-being and academic achievement (Stallman, 2010; Richardson et al., 2012). Furthermore, research on post-Soviet and developing educational contexts is sparse, particularly regarding the interaction among psychological well-being, motivation, and digital technology use (Mustafa et al., 2020; Sarafraz et al., 2019). Longitudinal and mixed-methods research is therefore needed to capture the dynamic and reciprocal nature of these factors over time.

In conclusion, academic achievement is best understood as the outcome of a complex interplay between cognitive abilities, psychological well-being, motivation and behavioural strategies. Psychological determinants-especially well-being, motivation and self-confidence- play a central role by enhancing students' engagement, persistence and effective use of cognitive skills. Cognitive abilities and behavioural habits moderate these effects, while technology use presents both opportunities and risks for academic success. These findings highlight the need for holistic, student-centred interventions in higher education that prioritise mental health, foster intrinsic motivation, and support effective self-regulation to promote sustainable academic achievement across diverse student populations.

Research Methodology

General Background

This review was conducted following the interpretivist paradigm, which focuses on understanding the deep, contextual, and personal meanings individuals attach to their experiences, utilising the survey method in this research.

Inclusion criteria of the study: Academic achievement was operationalised through measures such as grade point average (GPA), exam scores, standardised test results, or other validated academic performance scales.

Exclusion criteria: Clinical populations with diagnosed cognitive impairments, psychiatric disorders, or learning disabilities were excluded to focus on typically developing students. Studies lacking clearly defined academic outcomes or using unvalidated measures were excluded. Editorials, opinion pieces, and commentary articles, as well as non-peer-reviewed sources lacking empirical data, were also excluded. These criteria were piloted on a small subset of studies to ensure clarity and consistency before full screening.

Participants / Sample

A survey study was conducted. A survey questionnaire was administered online via Google Forms.

The sample consisted of 52 students from the University of Azerbaijan: female students (90.4%) and male students (9.6%). Students from different age groups participated in the study, with the

largest group aged 16-35 (19.5 ± 2.5). The small sample size and gender issues were identified as the main limitations of the research.

Instrument and Procedures

Online questionnaires were developed and distributed to university students in Baku, Azerbaijan's capital. All questionnaires were administered in Azerbaijani because the students invited to participate in the study were studying their majors in Azerbaijani. Data were anonymous, and respondents were not asked to provide any identifiable information.

During the study, various tools were used to collect data relevant to its purpose. The online questionnaire included questions to collect information on the study participants' demographic characteristics (age, gender, academic course, branch, GPA). The well-being of the students was assessed using the World Health Organisation Five-Well-Being Index (WHO-5). Study participants were presented with a Likert Scale to assess their well-being. They were asked to indicate, for each of the five statements, which one was closest to how they had been feeling over the last two weeks (the WHO-5 index is attached as an appendix).

Data Analysis and Discussion

The data collection took place during November-December 2025. The demographic characteristics of the study sample are shown in the table. As shown by the statistics, more female students (90.4%) participated in the study than male students (9.6%). Students from different age groups participated in the study, with the largest group aged 16-35 (19.5 ± 2.5).

Table 1

Demographic feature of the study sample

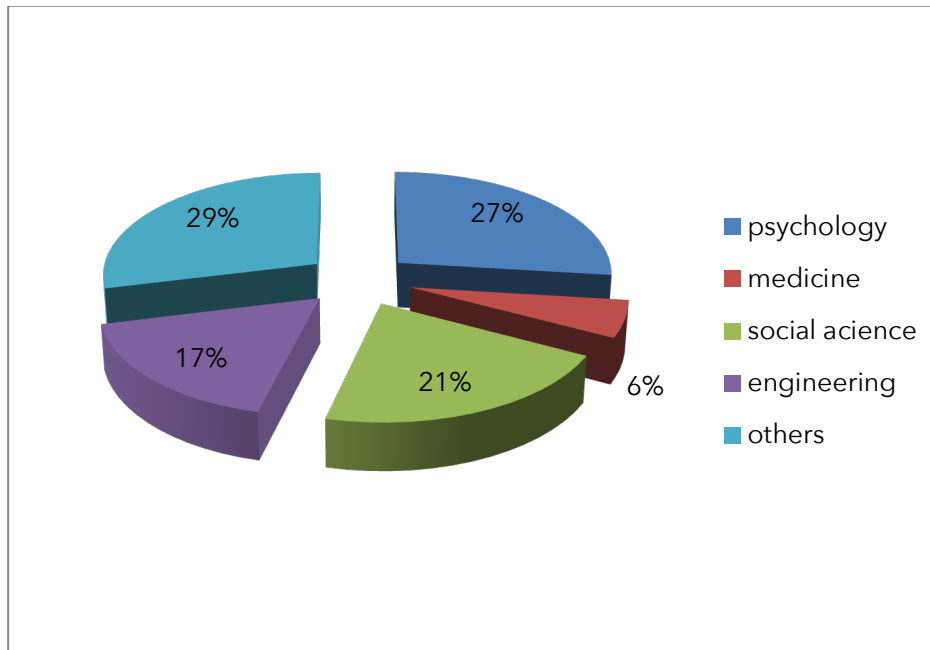
		Frequency	Valid percentage(%)
Gender	male	5	9.6
	female	47	90.4
Academic (course)	year 1 st	2	3.8
	2 nd	14	26.9
	3 rd	28	53.8
	4 th	3	5.8
	≥ 5	5	9.6

Source: Author's own development.

The students were from various specialities, including psychology, economics, engineering, and social science. Their results were presented in the following bar chart.

Figure 1

Branches of the students education

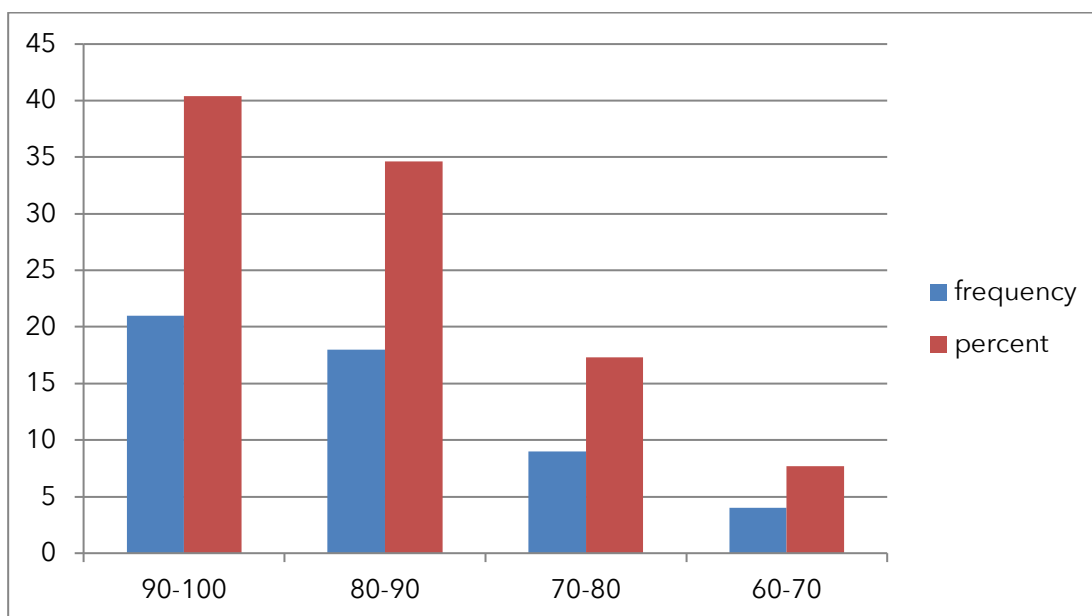


Source: Author's own development.

The students' academic results and achievements were assessed based on their grades. The majority of students (75%) reported GPAs above 3.2, while 13 (25%) reported academic performance below 80 points. The distribution of students' grades is shown in the following chart.

Figure 2

The students' academic achievement

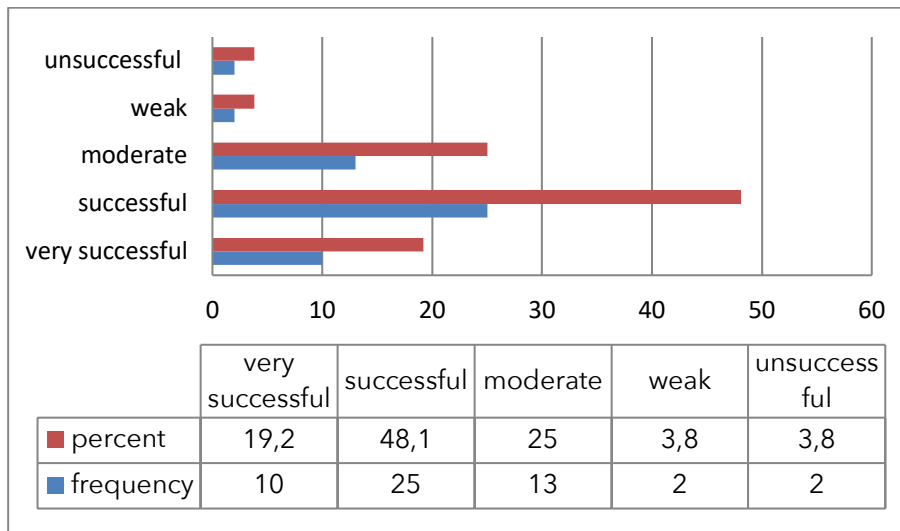


Source: Author's own development.

The students' self-assessments of their performance were similar to their GPAs or academic results.

Figure 3

The students' self-assessment results

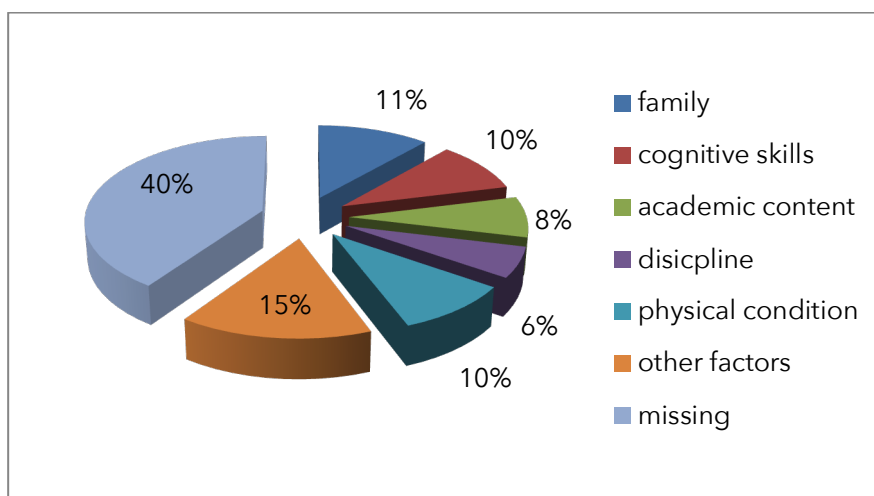


Source: Author's own development.

The next stage of the study, the authors analysed the factors that influenced their well-being and academic achievement. The factors that affect students' achievement are shown in the following bar chart. Notably, 40% of the students did not answer this question. The reason for this case should be examined in future searches. Why can't they distinguish the factors? Are they aware of this condition? It is a research gap, and a question about the students' awareness.

Figure 4

The distribution of the factors

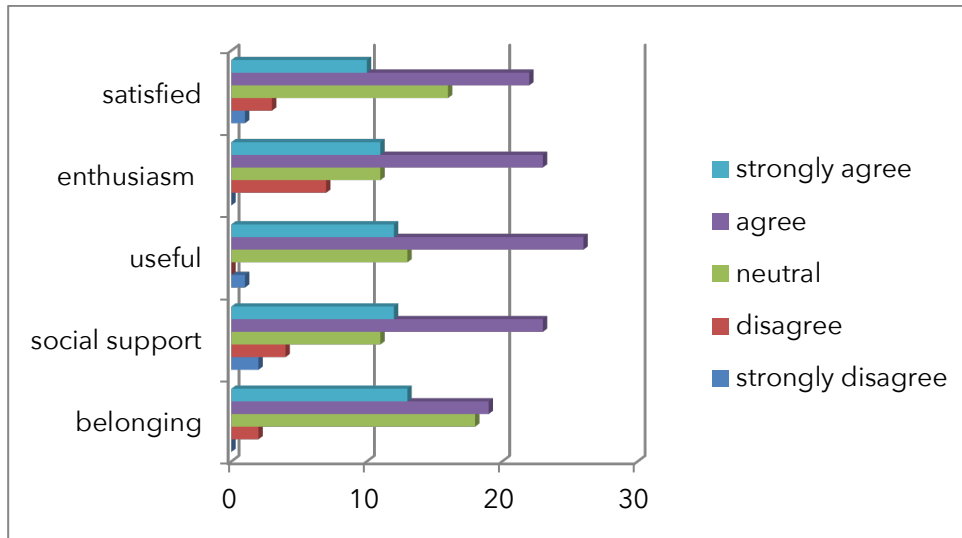


Source: Author's own development.

The students estimated their daily activities, university life, and sense of belonging using Likert-scale survey questions. The results were presented in the following diagram (Picture 5). They felt themselves as part of the university life, mentioned social support, being useful and satisfied in those academic conditions

Figure 5

Students' satisfaction features

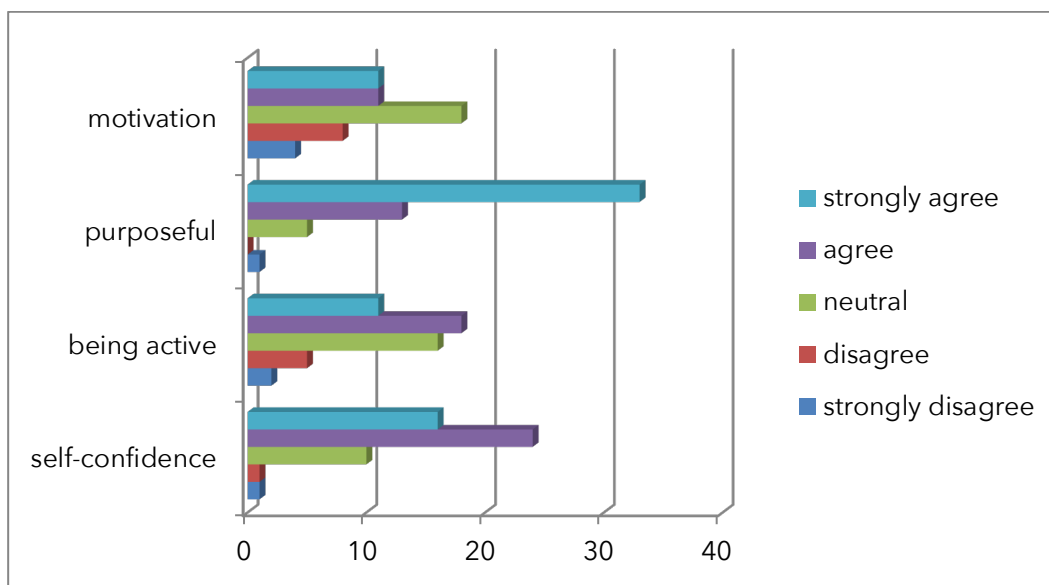


Source: Author's own development.

The study also explored students' self-confidence and motivation. Likert scale results were demonstrated using the following diagram (Picture 6).

Figure 6

Students' self-confidence and motivation



Source: Author's own development.

The well-being of the students was assessed using the WHO-5 index, which was translated into Azerbaijani. 5 main questions related to how they felt cheerful, calm and relaxed, active and vigorous, the main items of daily activity were estimated by students. According to the WHO, a percentage score below 50 (or a raw score below 13) has been suggested as a cutoff for poor mental well-being and as an indication for further assessment of the possible presence of a mental health condition. The results were between min. 20, max. 100; 58.1 ± 1.7 .

First, a statistical analysis of the data was conducted, and mean well-being differences across genders were computed and compared. As shown in the data, there were mean differences in well-being between males ($\mu = 52 \pm 12.5$) and females ($\mu = 58.8 \pm 17.5$). The analysis showed that these differences were not statistically significant ($F = 0.5$, $p > 0.001$).

Then the correlation between the well-being index and students' academic achievements was examined. A negative statistical correlation was observed between the two factors; the p-value was more than 0.01, so it was significant only for this study ($r = -0.161$; $p > 0.01$).

The students' well-being was estimated across the groups, as shown in the following table.

Table 2

Well-being index results in various academic achievement groups

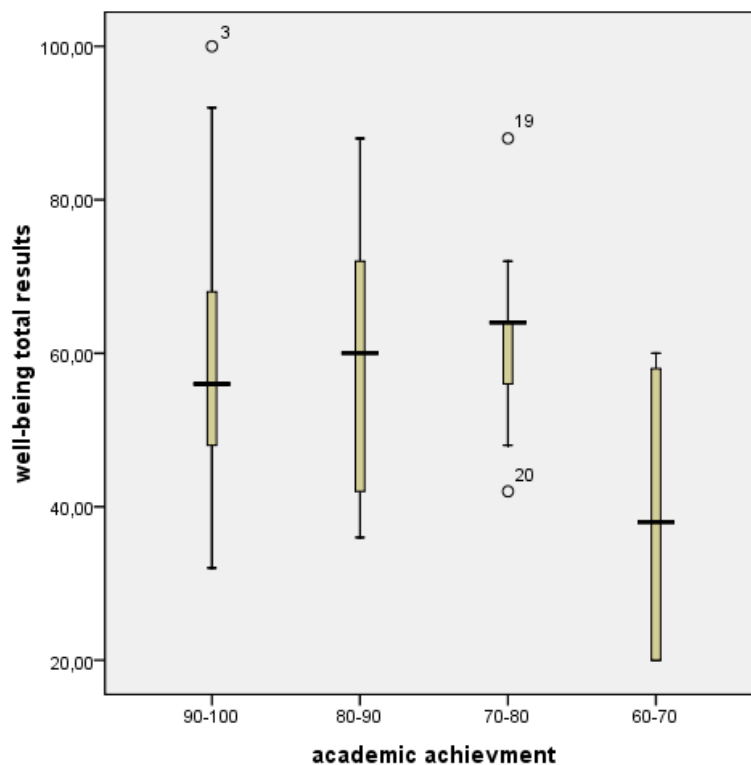
Academic results	n	Mean (μ)	SD	
90-100	21	58.6	1.6	($F=0.015$; $df=50$; $t=-0.8$; $p=0.39$)
80-90	18	60.1	1.6	
70-80	9	61.5	1.3	
60-70	4	39	2.2	

Source: Author's own development.

When comparing the well-being index results, the index was higher in two groups (80-90 and 70-80). Students whose academic results were below 70 points had a well-being index of 39 ± 2.2 . The result is presented in the following charts (Picture 7):

Figure 7

Well-being and academic achievement of the students



Source: Author's own development.

The statistical significance between two variables (students' motivation -independent, and well-being -dependent) was examined and the positive correlation mentioned ($F=0.23$; $df= 50$; $t=0.7$; $r=0.2$; $p=0.01$). Based on the figures, it was concluded that motivation increases with positive well-being features. The other factor - self-confidence also correlated well with the well-being of the students positively ($r=0.196$; $p=0.16$).

The well-being index results weren't statistically different or significant among the academic branches of the students. According to the ANOVA test, the mean: between groups $\mu=58$; within groups $\mu=313.6$ ($F=0.185$; $p=0.94$). Considering the study's limitations and participant sample, these results may be relevant to this group of students, as reflected in the F , μ , and p values.

The factors that affected the students' academic results, achievement, and well-being were analysed using a Nonparametric test (χ^2), and a statistically significant positive result was noted ($\chi^2=0.814$; $df=4$; $p=0.09$). The statistical regression analysis between two factors indicates a cause-and-effect relationship among the determinants of students' achievement and well-being ($R=0.1$; $R^2=0.02$; $F=0.8$; $B(\text{constant})=53$; $t=8.9$; $p=0.000$).

Discussion

The findings of this study further support the view that academic achievement is a multifactorial construct shaped by the interaction of psychological, motivational and behavioral factors. In line with expectations, students with lower academic performance showed noticeably poorer psychological well-being, particularly those whose grades were below 70. This pattern is consistent with empirical evidence showing that students experiencing academic difficulties tend to report lower emotional balance, higher stress, and reduced life satisfaction (Bukhari & Khanam, 2017; González Pérez et al., 2020). Similar results have been observed in European contexts, where well-being has been identified as a psychological resource that supports academic engagement and persistence rather than merely an outcome of academic success (Rüppel et al., 2015; Klapp et al., 2024). The present findings extend these observations to the Azerbaijani higher education context, suggesting that the relationship between academic achievement and well-being may be broadly applicable across cultural and educational systems.

At the same time, the relatively weak overall correlation between GPA and well-being indicates that academic performance alone does not fully explain students' psychological functioning. This aligns with previous research emphasising that well-being is influenced by a combination of academic, personal, and contextual factors (Stallman, 2010). It is therefore plausible that academic difficulties contribute to reduced well-being for some students, while others may maintain psychological balance through effective coping strategies for external support. Conversely, diminished well-being may impair concentration, motivation, and self-regulation, thereby increasing vulnerability to lower academic achievement. Because the study is cross-sectional, the direction of this relationship cannot be determined, but the findings support a dynamic, reciprocal association.

Motivation emerged as a particularly important psychological correlate of well-being. The positive relationship between motivation and psychological well-being is consistent with self-determination theory, which posits that motivated students experience greater psychological stability due to feelings of competence and purpose (Ryan & Deci, 2017). Empirical studies conducted in Canada and Lithuania similarly report that motivation enhances emotional regulation and academic engagement, thereby indirectly supporting academic performance (Chow, 2007; Rapuano, 2019). The present findings suggest that motivation may play a comparable role among Azerbaijani students, acting as a mechanism that sustains well-being under academic pressure. This result highlights motivation not only as an academic driver but also as a protective psychological factor.

In contrast, the association between self-confidence and well-being, although positive, did not reach statistical significance. This finding diverges from studies grounded in self-efficacy theory, which consistently identify confidence as a strong predictor of resilience and academic engagement (Bandura, 1997; Topham & Moller, 2011). One possible explanation for this discrepancy is methodological. The limited sample size and restricted variability in self-confidence scores may have reduced the statistical power necessary to detect significant effects. Additionally, self-confidence may exert its influence indirectly through motivation or study behaviours rather than directly on well-being, a possibility suggested in previous research but not testable within the current analytical framework.

The absence of statistically significant differences in well-being across gender and academic year further illustrates the contextual sensitivity of psychological research in educational settings. While some studies report higher stress and lower well-being among female students or first-year undergraduates (Stallman, 2010; Topham & Moller, 2011), others find minimal or inconsistent differences (Chow, 2007; Turashvili & Japaridze, 2012). The present findings align more closely with the latter group of studies, suggesting that psychological well-being challenges may persist throughout university education rather than being confined to specific demographic groups or academic stages. However, the strong gender imbalance in the sample limits firm conclusions and may partly explain the absence of significant differences.

An unexpected but noteworthy finding was that a substantial proportion of students were unable to identify the factors influencing their academic achievement. This lack of awareness may reflect limited metacognitive understanding of the psychological and behavioural determinants of academic success. Previous research indicates that students often underestimate the role of well-being, motivation, and self-regulation in shaping academic outcomes, focusing instead on external explanations such as task difficulty or assessment structure (Zimmerman, 2002; Credé & Kuncel, 2008). This observation suggests that increasing students' awareness of these factors may represent an important target for educational interventions.

Overall, the findings demonstrate both convergence and divergence with existing empirical research, emphasising the importance of methodological and contextual considerations when interpreting psychological determinants of academic achievement. While the results largely align with the international literature, variations in effect sizes highlight the need for larger, more balanced samples and longitudinal designs to capture better the dynamic relationships among well-being, motivation, and academic performance. By situating the findings within established theoretical and empirical frameworks, this study contributes to a more nuanced understanding of academic achievement in an underrepresented educational context.

Conclusions and Implications

Based on the conducted literature review (Klapp, A., & Gustafsson, J.-E., 2024), Klapp, A., & Gustafsson, J.-E. (2024), Safian, N. A. A. et al., 2020; Rapuano, 2019), it can be concluded that a student's mental well-being is closely tied to their academic performance and psychological state.

Consistent with the study hypothesis (H1), the study findings showed a mean difference in well-being between male ($\mu = 52 \pm 12.5$) and female students ($\mu = 58.8 \pm 17.5$). However, the analysis showed that these differences were not statistically significant ($F = 0.5$, $p > 0.001$), so gender didn't play a major role in well-being for this group.

The study's findings also supported the second hypothesis. The well-being index fluctuated with grades, showing that students who scored below 70 had much lower well-being scores ($\mu = 39 \pm 2.2$) than those scoring above 70.

The statistical analysis of the data showed that factors such as motivation and self-confidence are positively associated with well-being. Specifically, we found a positive correlation for motivation ($r=0.2$; $p=0.01$), suggesting that as students feel more motivated, their well-being improves. Regression analysis also confirmed a cause-and-effect relationship between these determinants and student achievement ($p=0.000$).

The findings help us to understand different gaps in student awareness. A surprising 40% of students couldn't identify the factors that actually affect their achievement, a research gap that warrants further study.

Limitation

This study has several limitations that prevent us from concluding that the findings are widely applicable to the entire student population in Azerbaijan. One limitation is the study sample. Since participation was voluntary, it was not possible to obtain comparable sample sizes across universities, which would have helped us compare students based on where they study.

Other factors that could be a problem include the significant gender imbalance in the research, with 90.4% of students female and 9.6% male. This study lacked sufficient data to compare private and public universities, which is a missing piece of information.

The research was highly specific, focusing solely on student well-being and academic achievement. A major gap in the data occurred because 40% of students did not answer the question about what impacts their success. Additionally, social conditions and the specific environments of different universities were not fully explored in this research.

Therefore, it is suggested that further study address the limitations of the current study and further explore the links between students' well-being, academic achievement, self-confidence, motivation, and social conditions. Future studies should include more students from different universities. This can help the researchers compare students from different places. Future research should also include more male students to have a balanced sample. The researchers also suggest using interviews or face-to-face surveys to better understand students' well-being and academic achievement. The researchers should encourage students to answer all survey questions. This can help to get more complete and clear data.

Consultations with stakeholders are the study's future focus. It also helps to understand how the results can be applied in real life. The study becomes more practical rather than theoretical. The findings are explained in ways that fit real educational settings. In the end, the review provides clear, useful results that can benefit students, teachers, and future research.

Consultation can be conducted through focus groups, structured interviews, surveys, or workshops. Feedback from stakeholders is used to refine interpretations and ensure that conclusions are grounded in real-world contexts. By integrating stakeholder input, the review not only synthesises academic evidence but also produces practical, context-appropriate recommendations that are more

likely to be implemented. This stage ensures that the scoping review delivers practical value for students, educators, and educational institutions.

Suggestions for Future Research

Academic achievement is a complex, multifactorial outcome shaped by the interplay of cognitive, psychological and behavioural determinants. Cognitive skills provide the essential foundation for effective learning, enabling students to process, analyse, and apply information efficiently. Psychological well-being contributes to resilience, motivation and sustained engagement with academic tasks, supporting students in managing stress and maintaining consistent performance. Behavioural habits, including study routines, time management and coping strategies, mediate the effects of cognitive and psychological factors, either enhancing or undermining academic outcomes depending on their quality and consistency.

The practical implications of these findings are considerable. In terms of curriculum design, educational programs should integrate exercises that actively develop critical thinking and problem-solving skills, along with tools that enable students to approach complex learning tasks systematically. Student support initiatives targeting stress management, self-esteem and intrinsic motivation are equally important, as they foster engagement, persistence and overall academic success. Furthermore, the rise of digital technologies necessitates the inclusion of digital literacy programs that teach responsible use of social media and technology, thereby mitigating behavioural distractions that can negatively impact learning.

Despite these insights, several limitations exist within the current body of research. A large proportion of studies employ cross-sectional designs, which constrain the ability to infer causality between determinants and academic outcomes. Additionally, socioeconomic and gender-related differences in the influence of cognitive, psychological and behavioural factors remain underexplored, limiting the generalizability of findings across diverse populations. To address these gaps, future research should employ longitudinal and mixed-methods approaches to deepen understanding of how these determinants interact over time.

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Author Contributions

Fatima Shikhmammadzada, one of the study's authors, developed the conceptual design and overall theoretical framework in the initial stages of the research. In addition, she was directly responsible for the large-scale provision and collection of preliminary data from university students.

Muzaya Ahmadova: She provided substantial support in extensively reviewing and revising the manuscript to enhance its academic tone and clarity. She also conducted the final review and formal approval of the research prior to submission.

Gulshan Aliyeva: contributed to the study as an advisor.

Competing Interests

All Authors disclose that there is no conflict of interest at the time of submission, and other matters that may influence the manuscript. None of the authors has a conflict of interest to disclose.

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AI-Assisted Technologies Statement

The authors did not utilise any AI-powered software or assistant in the development of the research design, analysis, interpretation, or overall preparation of this manuscript. All content, ideas, and intellectual contributions are solely the responsibility of the authors. AI tools were used exclusively for grammar checking and language refinement.

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