

# The Mediating Role of Academic Buoyancy and Academic Achievement Motivation in the Relationship between Basic Psychological Needs and Psychological Well-being at Al-Qadisiyah University, Iraq

Makarem. Sabti Tamimi<sup>1</sup>, Felor. Khayatan<sup>1\*</sup>, Thaeir. Fadhil Abd Ali<sup>2</sup>, Ali. Mahdad<sup>1</sup>

<sup>1</sup> Department of Psychology, Isf.C., Islamic Azad University, Isfahan, Iran

<sup>2</sup> Department of Educational Psychology, University of Kufa, Iraq

\* Corresponding author email address: f.khayatan@yahoo.com

### Article Info

#### Article type:

Original Research

#### Section:

Educational Counseling

#### How to cite this article:

Sabti Tamimi, M., Khayatan, F., Fadhil Abd Ali, T., & Mahdad, A. (2025). The Mediating Role of Academic Buoyancy and Academic Achievement Motivation in the Relationship between Basic Psychological Needs and Psychological Well-being at Al-Qadisiyah University, Iraq. *KMAN Counseling and Psychology Nexus*, 3, 1-12.

<http://doi.org/10.61838/kman.ec.psyxenus.3.13>



© 2025 the authors. Published by KMAN Publication Inc. (KMANPUB), Ontario, Canada. This is an open access article under the terms of the Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) License.

### ABSTRACT

Psychological well-being is one of the most influential factors affecting students' efforts and performance. Hence, this study aimed to determine the mediating role of academic buoyancy and academic achievement motivation in the relationship between basic psychological needs and psychological well-being among students at Al-Qadisiyah University in Iraq. This research follows a correlational method. The statistical population comprised students at Al-Qadisiyah University in Iraq during the spring of 2024. From this population, 239 students were selected through convenience sampling and responded to Psychological Well-being (Ryff & Keyes, 1995), Academic Buoyancy (Hossein Chari & Dehghani Zadeh, 2012), Academic Achievement Motivation (McInerney & Sinclair, 1991) Basic Psychological Needs (Gagné, 2003) questionnaires. The data were analyzed using Pearson correlation coefficients and structural equation modeling (SEM) through SPSS version 26 and AMOS version 26. The results showed a significant relationship between basic psychological needs and psychological well-being, academic buoyancy, and academic achievement motivation ( $p < 0.05$ ). The results of Structural equation modeling revealed that academic buoyancy and academic achievement motivation act as complete mediators in the relationship between basic psychological needs and psychological well-being. Based on the findings of this study, the role of basic psychological needs, academic buoyancy, and academic achievement motivation should be emphasized in academic setting to foster greater student psychological well-being.

**Keywords:** Basic psychological needs, academic buoyancy, academic achievement motivation, psychological well-being

## 1. Introduction

University education constitutes a pivotal phase in young adults' lives, serving as a bridge between academic preparation and societal contribution. This period is marked by the pursuit of academic success and personal growth, both of which depend on the satisfaction of fundamental psychological needs and adaptive motivational processes that sustain psychological well-being. Contemporary educational psychology emphasizes that students' academic adjustment is not limited to cognitive competence but extends to emotional, motivational, and social dimensions that collectively determine well-being and resilience in the face of academic challenges (Lanza et al., 2024). Thus, understanding how students' basic psychological needs interact with motivational and emotional variables to predict psychological well-being is crucial for promoting mental health and optimal performance in higher education settings, particularly in the context of Iraqi universities, where academic pressures and social transitions are rapidly evolving.

Psychological well-being, as a multidimensional construct, represents a central component of positive functioning. Ryff's eudaimonic model defines it as encompassing self-acceptance, positive relationships, autonomy, environmental mastery, personal growth, and purpose in life (Zhong, 2024). These dimensions capture the capacity of individuals to manage life challenges and actualize their potential. Recent studies have reaffirmed the significance of psychological well-being in shaping adaptive coping and emotional regulation among university students, suggesting that well-being mediates the link between cognitive engagement and positive health outcomes (Yiğit & Çakmak, 2024). The literature also highlights that the university environment—marked by increased autonomy, academic demands, and identity exploration—plays a substantial role in determining students' well-being trajectories (Fadji et al., 2024). Within this context, scholars have increasingly focused on identifying foundational determinants of well-being, with basic psychological needs emerging as one of the most consistent predictors.

The Self-Determination Theory (SDT) provides a robust framework for understanding the role of basic psychological needs—autonomy, competence, and relatedness—in students' functioning and well-being. These needs are considered universal psychological nutrients essential for motivation, personal growth, and psychological integration (Slemp et al., 2024). When satisfied, they foster vitality,

engagement, and well-being; when thwarted, they lead to passivity and emotional distress (Mahmoudi et al., 2022). The satisfaction of these needs enables students to internalize motivation, regulate behaviors autonomously, and sustain effort in academic contexts (Hutomo & Kurniawati, 2024). Conversely, need frustration results in diminished motivation and poor emotional outcomes, highlighting the interdependence between motivation and mental health (Kermavnar et al., 2024). Therefore, the fulfillment of these needs is foundational to psychological health and is positively associated with life satisfaction, purpose, and optimism among university populations (Nafar et al., 2023).

Several empirical findings confirm that satisfying basic psychological needs predicts increased psychological well-being in educational contexts (Asfa & Abolmaali Alhosseini, 2022; Gholamali Lavasani et al., 2011; Parchami Khoram et al., 2022). For instance, students who perceive autonomy support and competence reinforcement from their instructors report higher levels of engagement and lower stress (Mahmoudi et al., 2022). In contrast, controlling or neglectful environments undermine these needs, leading to motivational decline and emotional exhaustion (Sheikholeslami et al., 2019). The cross-cultural generalizability of SDT, confirmed by large-scale meta-analyses (Slemp et al., 2024), suggests that need satisfaction is a universal pathway to well-being, although contextual mediators—such as academic buoyancy and achievement motivation—modulate this relationship across settings.

Academic buoyancy has emerged as a critical construct in educational psychology, representing students' capacity to withstand everyday academic setbacks, such as poor grades, test anxiety, or workload stress (Derakhshan et al., 2012). It reflects an adaptive emotional-motivational disposition that allows students to maintain effort and self-efficacy when confronted with difficulties. Unlike resilience, which pertains to major life adversities, buoyancy captures the micro-adaptive mechanisms necessary for sustaining academic progress (Collie et al., 2015). Empirical research demonstrates that academically buoyant students are more likely to recover from temporary setbacks, maintain engagement, and display positive affect in academic tasks (Fakharian et al., 2020). Moreover, academic buoyancy is positively associated with intrinsic motivation, self-efficacy, and well-being, while negatively related to anxiety and disengagement (Veiskarami et al., 2019). This construct is particularly relevant in developing contexts where academic infrastructures and support systems are still

evolving, as it represents an individual-level resource that protects students from stress-related maladjustment (Fazli, 2019). Hence, buoyancy is increasingly recognized as a vital educational outcome and a mediator linking motivational processes to psychological well-being.

Building on this, the theoretical connection between basic psychological needs and academic buoyancy can be explained through SDT. When students experience autonomy, competence, and relatedness in their academic settings, they are more likely to interpret challenges as opportunities for growth rather than threats to self-worth (Khodashahi, 2025). This orientation enhances emotional adaptability, leading to greater buoyancy in the face of setbacks. Empirical findings reveal that the satisfaction of basic psychological needs predicts academic buoyancy through enhanced intrinsic motivation and self-regulated learning strategies (Asfa & Abolmaali Alhosseini, 2022; Fakharian et al., 2020). Therefore, buoyancy not only reflects the student's capacity to cope with difficulties but also serves as a motivational mechanism that bridges fundamental needs and well-being outcomes.

Alongside buoyancy, academic achievement motivation represents another critical factor influencing psychological functioning in students. Rooted in achievement theory and attributional frameworks, achievement motivation refers to the internalized drive to accomplish goals, overcome obstacles, and attain success standards (Weiner, 2010). It embodies both cognitive and affective dimensions of learning—students' perceptions of competence, their emotional investment, and their pursuit of mastery goals. Studies have shown that strong academic achievement motivation predicts persistence, deeper learning strategies, and higher academic performance (Pakdaman Savoji et al., 2013; Yasami Nejad et al., 2014). Motivation, in this sense, is not only a predictor of educational outcomes but also an emotional regulator that enhances self-worth and psychological well-being (Hejazi et al., 2015; Hossein Mardi et al., 2022). Conversely, low achievement motivation is linked to procrastination, stress, and reduced academic engagement (Azadikhah et al., 2018).

The role of academic motivation as a mediator between basic psychological needs and well-being has received empirical support. Satisfying the needs for autonomy and competence enhances self-determined motivation, which subsequently promotes vitality and emotional balance (Saleem et al., 2023). Moreover, motivation transforms the abstract satisfaction of needs into concrete goal-directed behavior, providing a psychological sense of progress that

fuels well-being (Nejati-Garai, 2023). When students feel competent and connected, they invest effort toward mastery, thus experiencing a sense of fulfillment and growth that translates into higher well-being levels (Nemati et al., 2022). In contrast, frustration of these needs leads to diminished intrinsic motivation and emotional exhaustion, undermining both performance and mental health (Mahmoudi et al., 2022). As demonstrated by prior studies, motivation plays a dual role: it reflects the outcome of need satisfaction and simultaneously serves as a dynamic process through which psychological well-being is realized (Kordloo & Behrangi, 2020).

Collectively, empirical and theoretical literature suggests that both academic buoyancy and academic achievement motivation function as mediating variables linking basic psychological needs to psychological well-being (Parchami Khoram et al., 2022; Veiskarami et al., 2019). SDT postulates that satisfaction of autonomy, competence, and relatedness enhances motivational quality and emotional adaptability, which in turn lead to optimal functioning and well-being (Slomp et al., 2024). In other words, the satisfaction of psychological needs alone may not directly translate into well-being unless it activates context-specific motivational mechanisms. In the academic environment, buoyancy and achievement motivation represent such mechanisms. Buoyancy enables students to maintain equilibrium and confidence under stress, while achievement motivation sustains their engagement and goal pursuit, both fostering eudaimonic well-being (Fadji et al., 2024). This multidimensional perspective acknowledges that the relationship between basic psychological needs and well-being is indirect, operating through academic pathways that integrate cognitive, emotional, and social domains of student experience (Yarmohammadi et al., 2019).

Furthermore, research across cultural contexts has underscored variations in how these mediating pathways manifest. For example, students from collectivist societies, such as those in the Middle East, often place greater emphasis on relatedness and social harmony as central determinants of well-being (Mahmoudi et al., 2022). In such contexts, the satisfaction of relatedness need might exert a stronger influence on achievement motivation and academic engagement than autonomy, contrasting with findings from Western samples (Slomp et al., 2024). Similarly, in transitional educational systems like Iraq's, students often navigate challenges related to limited institutional support, high unemployment expectations, and socio-economic uncertainty (Lanza et al., 2024). These contextual stressors

heighten the importance of buoyancy as a protective factor that translates need satisfaction into sustained well-being. Accordingly, investigating how these processes interact in Iraqi higher education can reveal culturally specific pathways to student mental health.

Despite extensive global evidence, limited empirical research has explored these relationships in the Iraqi educational context. Existing studies in Iran and other countries have demonstrated the mediating influence of motivational and emotional variables on well-being, yet similar investigations within Iraqi universities remain scarce (Derakhshan et al., 2012; Fakharian et al., 2020). Given the sociocultural and academic transitions occurring in Iraq, examining how students' psychological needs contribute to well-being through buoyancy and motivation can provide significant insights for educational policy and student development programs. This investigation not only bridges a theoretical gap but also contributes to cross-cultural validation of SDT-based models (Zebing, 2019).

The relationship between psychological well-being, motivation, and need satisfaction also bears significant implications for educational management. Studies have shown that institutional efforts to cultivate autonomy-supportive environments—characterized by participatory decision-making, constructive feedback, and recognition of students' perspectives—enhance intrinsic motivation and emotional well-being (Hutomo & Kurniawati, 2024; Kermavnar et al., 2024). Similarly, fostering competence through mastery-based assessment and cooperative learning strengthens academic buoyancy and persistence (Veiskarami et al., 2019). When universities emphasize relatedness by promoting peer collaboration and mentoring, students experience higher levels of belonging and satisfaction (Hossein Mardi et al., 2022). Collectively, these findings emphasize that the academic environment's capacity to satisfy basic psychological needs is central to cultivating well-adjusted, motivated, and resilient students.

In addition, the convergence of SDT and attribution theory suggests that motivation and buoyancy mediate not only cognitive but also affective responses to academic situations (Weiner, 2010). Students who attribute success to internal, controllable causes such as effort are more likely to sustain motivation and report greater well-being. Conversely, attributing failure to external, uncontrollable factors reduces engagement and fosters helplessness (Yasami Nejad et al., 2014). Therefore, interventions aimed at enhancing buoyancy and achievement motivation should simultaneously address students' attributional beliefs to

reinforce adaptive coping patterns (Pakdaman Savoji et al., 2013). Educational programs that emphasize reflective goal-setting, emotional awareness, and self-efficacy building can, consequently, amplify the positive impact of need satisfaction on mental health.

In summary, existing evidence underscores that students' psychological well-being is a function of both universal psychological needs and the adaptive mechanisms that mediate their influence. Basic psychological needs form the foundation for optimal functioning, but their effect on well-being depends on intermediary processes such as academic buoyancy and achievement motivation. These mediators transform abstract psychological needs into concrete academic experiences of confidence, persistence, and fulfillment (Nejati-Garae, 2023; Nemati et al., 2022). Therefore, a holistic understanding of student well-being necessitates examining these mediating pathways within specific cultural and institutional contexts.

Given the scarcity of studies addressing this model in Iraq, the present research seeks to fill this gap by empirically testing the mediating roles of academic buoyancy and academic achievement motivation in the relationship between basic psychological needs and psychological well-being among students at Al-Qadisiyah University.

The aim of this study is to determine whether academic buoyancy and academic achievement motivation mediate the relationship between basic psychological needs and psychological well-being among university students at Al-Qadisiyah University in Iraq.

## 2. Methods and Materials

### 2.1. Study Design and Participants

This study employed a correlational research design using structural equation modeling (SEM). The statistical population of the present study consists of all students at Al-Qadisiyah University, Iraq, during the spring semester of 2024. Based on recommended sample sizes for structural equation modeling (between 200 and 400 participants), a sample of 250 students was selected through convenience sampling method. After data collection, 11 questionnaires were deemed invalid, reducing the final sample size to 239 students. Four questionnaires were employed in the present research, including the Psychological Well-being, Authentic Personality, Basic Psychological Needs and Academic achievement motivation. For this study, all questionnaires was translated using translate and back translate method. First, a bilingual psychologist translated it into Arabic,



followed by an Arabic language specialist translating it back into Persian. After comparison and corrections, the final Arabic version was administered.

## 2.2. Measures

### 2.2.1. Psychological Well-being

To measure psychological well-being, the short-form questionnaire developed by Ryff (1989) and revised in 1995 was used. This questionnaire consists of 18 items covering six dimensions including Self-acceptance (3 items), Positive relationships with others (3 items), Autonomy (3 items), Environmental mastery (3 items), Life purpose (3 items) and Personal growth (3 items). The total score is calculated based on the sum of the six subscales. Ryff (1989), provided evidence of convergent and divergent validity by showing significant correlations between this questionnaire and Life Satisfaction Questionnaire (convergent validity), Self-Esteem Questionnaire (convergent validity) and Depression Questionnaire (divergent validity). The Cronbach's alpha reliability for the questionnaire ranges between 0.86 and 0.93, while test-retest reliability over six weeks falls between 0.81 and 0.86 ( $p < 0.001$ ) (Ryff & Keyes, 1995). A Persian version of the questionnaire was validated by Bayani et al. (2008) in Iran, demonstrating Significant correlations with happiness, self-esteem, and life satisfaction scales (construct validity), Cronbach's alpha reliability = 0.89 and Test-retest reliability (two-month interval) = 0.82. In the present study, Cronbach's alpha for the Psychological Well-being Questionnaire was 0.72.

### 2.2.2. Academic Buoyancy

Hossein Chari and Dehghanizadeh (2012) developed the Academic Buoyancy Questionnaire based on Martin and Marsh's (2008) scale, which originally contained 41 items. The final version of the Academic Buoyancy Questionnaire consists of 9 items measuring a single construct. Hossein Chari and Dehghanizadeh (2012) assessed the factor structure of the questionnaire using Exploratory Factor Analysis (EFA) with Principal Component Analysis (PCA) and Varimax Rotation. After removing one item (Item 8), Cronbach's alpha increased from 0.75 to 0.80, confirming strong internal consistency. The Cronbach's alpha for the revised scale was 0.80, and test-retest reliability was 0.73. In the present study, Cronbach's alpha for the Academic Buoyancy Questionnaire was 0.87.

### 2.2.3. Academic Achievement Motivation

To measure academic achievement motivation, this study used the McInerney & Sinclair (1991) questionnaire, which consists of 43 items covering four main domains includes Ability (Task Completion, Effort), Performance (Competition, Reputation Seeking), Social Goals (Social Connection, Altruism), External Goals (Rewards, Recognition) and eight components: Task Interest (4 items), Effort (7 items), Competitiveness (6 items), Social Power (6 items), Social Affiliation (3 items), Social Interest (5 items), Praise Seeking (5 items), Exemplary Behavior (7 items). The Cronbach's alpha for this questionnaire is reported above 0.70 (cited in (Yarmohammadi et al., 2019)). In a study by Azadikhah et al. (2018), Confirmatory Factor Analysis (CFA) confirmed the construct validity, with Cronbach's alpha ranging from 0.70 to 0.89 across subscales. In this study, Cronbach's alpha was 0.94, indicating excellent reliability (Azadikhah et al., 2018).

### 2.2.4. Basic Psychological Needs

To measure basic psychological needs, this study used the Gagné (2003) questionnaire, consisting of 21 items covering three psychological needs includes Autonomy (7 items), Competence (6 items), Relatedness (8 items). Construct validity of this questionnaire has been confirmed through factor analysis. Research shows significant correlations between this questionnaire and perceived social support, well-being, happiness, self-actualization, anxiety, depression, and self-confidence. Cronbach's alpha reliability for the three psychological needs ranges from 0.84 to 0.90 (Besharat, 2013). Besharat & Ranjbar Kalagari (2013) translated and validated the questionnaire for Iranian university students and Convergent and divergent validity were confirmed through significant correlations. Moreover, Cronbach's alpha ranged between 0.83 and 0.91, while test-retest reliability (two-week interval) ranged from 0.67 to 0.77 (Besharat, 2013). The reliability of this questionnaire was also measured in Iraq, with scores of 0.56, 0.52, and 0.52 for autonomy, competence, and relatedness, respectively.

## 2.3. Data analysis

Participants completed self-report questionnaires, and the collected data were analyzed using Pearson correlation coefficient, mean, and standard deviation. Additionally, statistical assumptions such as normality (via Shapiro-Wilk

test) and linearity (via scatter plots) were checked. Finally, the data were analyzed using structural equation modeling (SEM) with SPSS version 25 and AMOS version 26.

### 3. Findings and Results

Table 1 presents the demographic characteristics of the research sample group.

**Table 1**

*Demographic Characteristics of the Research Sample Group (n=239)*

Variable	Frequency	Percentage	Variable	Frequency	Percentage
Educational level			Age		
Up to bachelor's degree	147	61.5	Up to 20 years old	23	9.6
Master's degree	25	10.5	21-25	53	22.2
Ph. D.	67	28	26-30	48	20.1
-	-	-	31 years and older	115	48.1
Marital Status			Gender		
Single	109	45.6	Female	126	52.7
Married	130	54.4	Male	113	47.3

Table 2 indicates the mean, standard deviation, and correlation between the research variables.

**Table 2**

*Mean, Standard Deviation, and Correlation between Research Variables*

Variables	1	2	3	4	5	6
1. Need for Autonomy	-					
2. Need for Competence	0.54	-				
3. Need for Relatedness	0.37	0.30	-			
4. Academic Achievement Motivation	0.16	0.31	0.30	-		
5. Psychological Well-being	0.06	0.10	0.05	0.21	-	
6. Academic Buoyancy	0.24	0.21	0.15	0.08	0.21	-
Mean	28.55	24.03	37.15	171.35	83.15	42.17
Standard Deviation	5.28	4.49	5.92	21.32	10.31	9.58

\* $p < 0.05$  \*\* $p < 0.01$

According to Table 2, except for components of basic psychological needs with psychological well-being and academic achievement motivation with academic buoyancy, which did not show a significant relationship, all other study variables indicated significant positive relationship ( $p < 0.01$  /  $p < 0.05$ ).

The study's conceptual model was tested using structural equation modeling (SEM).

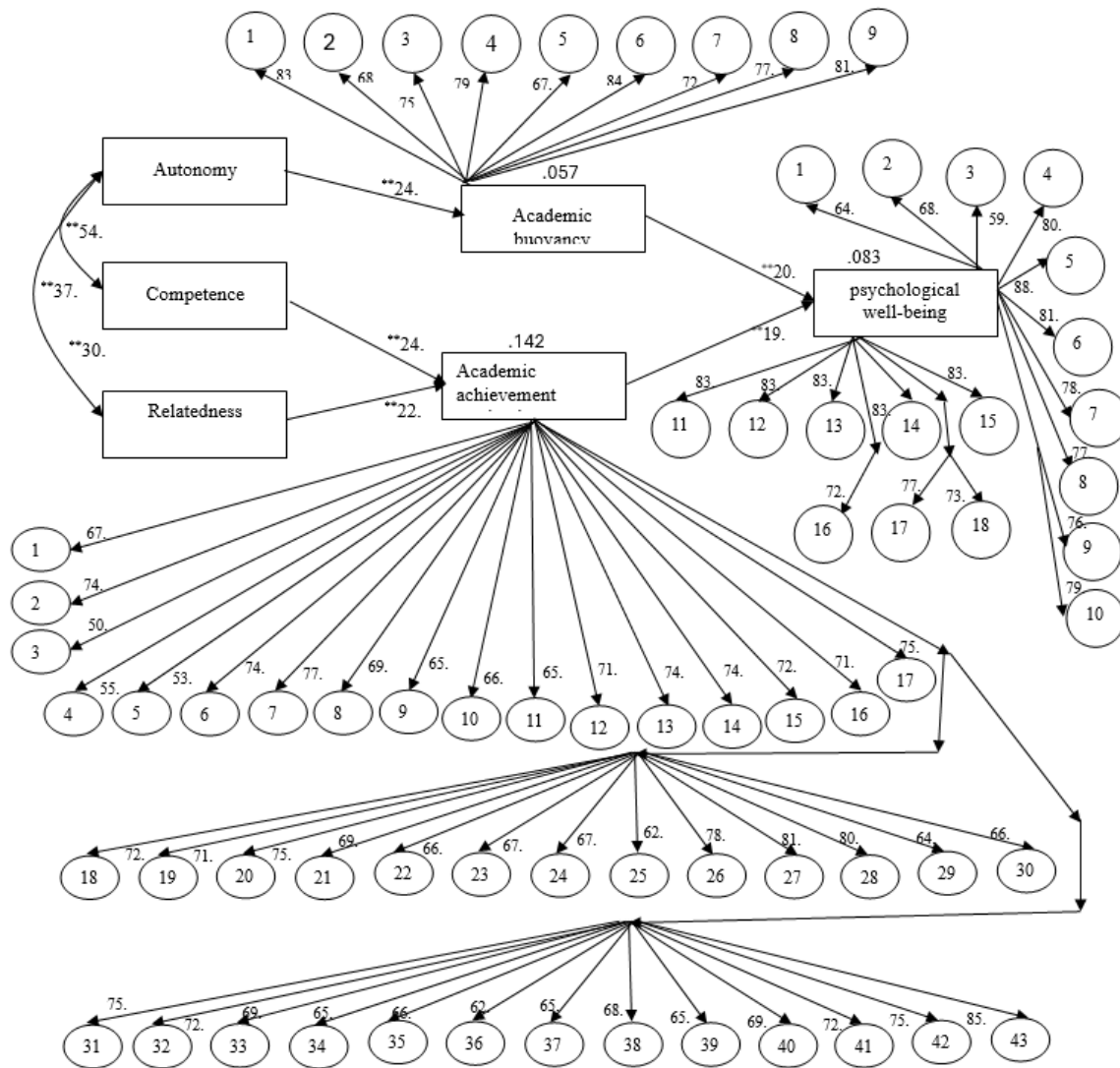
Analyzing the path coefficients and model fit indices revealed that among the three basic needs, only autonomy with academic buoyancy and the need for competence and the need for relationships with others with academic achievement motivation have significant relationships. Other relationships between basic psychological needs and the mediating variables were not significant. Accordingly,

the fit indices were not in a desirable condition. By examining the correction indices, it was decided to eliminate the non-significant relationships. After these modifications, both the path coefficients and model fit indices improved significantly.

According to the figure, Need for Autonomy significantly predicts academic buoyancy ( $p < 0.01$ ,  $\beta = 0.24$ ), explaining 5.7% of the variance in this variable. Need for Competence ( $p < 0.01$ ,  $\beta = 0.24$ ) and Need for relatedness ( $p < 0.01$ ,  $\beta = 0.22$ ) significantly predict academic achievement motivation, together explaining 14.2% of its variance. Academic buoyancy ( $p < 0.01$ ,  $\beta = 0.20$ ) and academic achievement motivation ( $p < 0.01$ ,  $\beta = 0.19$ ) significantly predict psychological well-being, explaining 8.3% of its variance.

Figure 1

Final structural model of research for psychological well-being



As shown in Figure 1, Need for Autonomy is indirectly related to psychological well-being through academic buoyancy. Need for Competence and Need for relatedness

are indirectly related to psychological well-being through academic achievement motivation. Table 3 presents the indirect effects tested in the final model.

Table 3

Indirect effects of the final research model in standard and non-standard conditions for the psychological well-being

Row	Indirect effects	psychological well-being	
		Non-standard	standard
1	The indirect effect of the need for autonomy on psychological well-being through academic buoyancy	*0.094	*0.048
2	The indirect effect of the need for competence on psychological well-being through academic achievement motivation.	*0.108	*0.047
3	The indirect effect of the need for relationships with others on psychological well-being through motivation for academic achievement.	*0.077	*0.044

According to Table 3, the indirect path from Need for autonomy to psychological well-being through academic buoyancy is significant ( $p < 0.01$ ). The indirect paths from Need for competence and Need for relatedness to psychological well-being through academic achievement motivation are as well significant ( $p < 0.01$ ). Bootstrapping

analysis confirmed that academic buoyancy and academic achievement motivation serve as full mediators in the relationship between basic psychological needs and psychological well-being. Table 4 presents the final model fit indices.

**Table 4**

*Fit indices of the final research model for the psychological well-being model*

Index	Acceptable Threshold	Measurement Model	Result
$\chi^2$	Non-significant	$p = 0.15$	optimal
$\chi^2/df$	$3 <$	1.54	optimal
GFI3.	$0.90 \geq$	0.98	optimal
CFI4.	$0.90 \geq$	0.98	optimal
IFI5.	$0.90 \geq$	0.98	optimal
RMR6.	$0.05 \geq$	2.82	suboptimal
RMSEA7.	$0.08 \geq$	0.048	optimal

As seen in Table 4, All fit indices of the final research model (except RMR, which is not in a favorable condition and does not pose a problem for model fit given that all other indices are favorable) are in a favorable condition compared to the acceptable level of (Wang & Wang, 2012). Hence, the final model is considered acceptable. Therefore, according to the results presented in Tables 3 to 5, the research hypothesis that academic buoyancy and academic achievement motivation play a mediating role in the relationship between basic psychological needs and psychological well-being is confirmed that, academic buoyancy plays a full mediating role for the relationship between autonomy and psychological well-being and academic achievement motivation plays a full mediating role for the relationship between the need for competence and need for relationships and psychological well-being.

#### 4. Discussion and Conclusion

The present study investigated the mediating role of academic buoyancy and academic achievement motivation in the relationship between basic psychological needs and psychological well-being among students at Al-Qadisiyah University. The findings revealed that the need for autonomy indirectly influenced psychological well-being through academic buoyancy, while the needs for competence and relatedness affected psychological well-being indirectly through academic achievement motivation. These results support the assumptions of Self-Determination Theory (SDT), which posits that the satisfaction of autonomy,

competence, and relatedness drives adaptive motivational and emotional outcomes that ultimately enhance well-being (Kermavnar et al., 2024; Slemp et al., 2024). In the current study, when students experienced a greater sense of autonomy, they showed higher levels of buoyancy—the ability to recover from everyday academic challenges—which in turn contributed to their psychological well-being. Similarly, students who felt competent and socially connected demonstrated higher academic achievement motivation, which mediated their sense of accomplishment and well-being.

The finding that autonomy predicted academic buoyancy aligns with previous research emphasizing autonomy as a foundation for self-regulated learning and emotional adaptability. Students who perceive control over their learning tend to exhibit stronger persistence and flexibility when facing academic setbacks (Hutomo & Kurniawati, 2024; Khodashahi, 2025). This pattern supports the argument that autonomy fosters intrinsic motivation, enabling students to view academic difficulties as opportunities for growth rather than as threats to self-esteem. Furthermore, studies have shown that autonomy satisfaction strengthens positive emotions and promotes psychological resilience in academic environments (Asfa & Abolmaali Alhosseini, 2022; Mahmoudi et al., 2022). By engaging in autonomous behaviors, students internalize their goals and maintain engagement despite challenges—thereby developing buoyant coping mechanisms that enhance well-being. The present findings also correspond with those of (Fakharian et al., 2020), who found that emotional climate



and self-efficacy are significant predictors of buoyancy and academic engagement.

The mediating effect of academic buoyancy in the autonomy–well-being relationship also aligns with findings from (Collie et al., 2015), who reported that buoyant students maintained higher motivation and performance across time. In line with SDT, the satisfaction of autonomy provides the psychological energy that underpins adaptive self-regulation and a proactive stance toward academic demands. In the Iraqi higher education context, where students may face systemic stressors such as limited institutional support or resource scarcity, buoyancy functions as a psychological buffer that enables students to transform autonomy into well-being. Moreover, similar results have been found by (Veiskarami et al., 2019), who reported that self-efficacy and basic psychological needs jointly predict buoyancy, indicating that students' belief in their competence and their sense of agency mutually reinforce their capacity for recovery from academic pressure. Hence, buoyancy serves as a central mechanism linking autonomy satisfaction with sustainable well-being in demanding academic contexts.

The study also found that competence and relatedness needs influenced well-being indirectly through academic achievement motivation. This result is consistent with SDT, which asserts that competence satisfaction reinforces self-efficacy and promotes mastery-oriented motivation, while relatedness fosters persistence by creating a sense of belonging and emotional security (Sheikholeslami et al., 2019; Slemp et al., 2024). In educational settings, students who feel competent are more likely to pursue challenging goals, demonstrate sustained effort, and derive satisfaction from progress (Gholamali Lavasani et al., 2011; Weiner, 2010). Similarly, relatedness satisfaction enhances interpersonal motivation, encouraging students to internalize academic norms through supportive social connections (Hossein Mardi et al., 2022). These results echo the work of (Yasami Nejad et al., 2014) and (Pakdaman Savoji et al., 2013), who demonstrated that social and motivational support improve achievement motivation and academic performance among adolescents.

The current findings corroborate the results of (Saleem et al., 2023), who confirmed that subjective vitality mediates the relationship between basic psychological need satisfaction and well-being. The present study extends this line of evidence by showing that academic achievement motivation—similar to subjective vitality—translates need satisfaction into emotional flourishing. Students who feel competent and related are more motivated to excel, and this

motivation generates positive emotions of accomplishment and self-worth, contributing to psychological well-being. Likewise, (Nejati-Garae, 2023) emphasized that motivation operates as an internalized process that sustains engagement, whereas (Nemati et al., 2022) showed that vitality and well-being are influenced by students' perceptions of supportive classroom environments. Together, these findings reinforce the view that competence and relatedness satisfaction promote academic motivation, which in turn enhances well-being through a sense of progress and personal efficacy.

The study also confirmed that academic buoyancy and achievement motivation jointly serve as full mediators in the relationship between psychological needs and well-being, meaning that need satisfaction alone may not directly predict well-being without activating these mediating processes. This finding supports the theoretical proposition that the influence of psychological needs on well-being operates through context-specific psychological mechanisms (Asfa & Abolmaali Alhosseini, 2022; Parchami Khoram et al., 2022). In the academic domain, buoyancy and motivation provide such mechanisms, reflecting adaptive self-regulatory patterns. This interpretation is supported by (Hutomo & Kurniawati, 2024), who demonstrated that fulfillment of psychological needs fosters academic engagement, and by (Fadji et al., 2024), who found that well-being outcomes depend heavily on motivational and social mediators. Hence, buoyancy and motivation can be viewed as functional outcomes of need satisfaction that act as proximal predictors of well-being.

Moreover, the findings correspond with (Zhong, 2024) and (Yigit & Çakmak, 2024), who emphasized that well-being is a multidimensional construct influenced by both internal psychological factors and contextual academic conditions. Students' emotional regulation, perseverance, and sense of meaning—captured through buoyancy and motivation—serve as essential pathways that convert psychological resources into sustained well-being. In the same vein, (Derakhshan et al., 2012) showed that family emotional climate indirectly influences academic vitality through self-concept, underscoring the broader principle that motivational variables mediate between environmental support and psychological outcomes. The present findings thus contribute to an integrative understanding of well-being as an emergent product of interdependent motivational and emotional systems.

From a cross-cultural perspective, these results resonate with studies in diverse educational systems, confirming the universality of SDT's propositions while acknowledging

cultural variations in the relative strength of each need. For instance, in collectivist contexts, relatedness may play a more dominant role in sustaining motivation and well-being (Mahmoudi et al., 2022). In contrast, in Western contexts characterized by individualism, autonomy is more closely linked to self-esteem and intrinsic motivation (Slemp et al., 2024). The current findings from Iraq suggest a balanced pattern in which both autonomy and relatedness significantly influence student outcomes but through different mediating pathways—buoyancy and motivation, respectively. This aligns with (Nafar et al., 2023), who reported that psychological needs predict optimism and well-being through self-acceptance and vitality, demonstrating the integrative function of both personal and social dimensions of need fulfillment.

In addition, the results extend previous findings by confirming that need satisfaction not only supports well-being but also shapes students' goal orientations and adaptive learning strategies. Students who experience competence and autonomy satisfaction are more likely to adopt mastery-oriented goals and interpret failure as part of the learning process (Azadikhah et al., 2018; Kordloo & Behrangi, 2020). Consequently, they are less vulnerable to academic stress and more capable of sustaining motivation over time. (Hejazi et al., 2015) similarly found that intrinsic motivation mediates the link between need satisfaction and life satisfaction, suggesting that internalized motivation processes are critical in translating psychological resources into enduring well-being. Taken together, these findings highlight the importance of motivational quality rather than quantity; it is not merely having goals that matters but pursuing them for self-determined reasons grounded in personal values and competencies.

The consistency between the current findings and prior studies reinforces the theoretical validity of the proposed model. The significant mediation of buoyancy and achievement motivation supports the hierarchical nature of SDT, wherein basic psychological needs influence contextual motivational states, which in turn predict domain-specific outcomes like well-being (Slemp et al., 2024; Veiskarami et al., 2019). Moreover, this hierarchical mediation model aligns with (Fazli, 2019), who conceptualized academic vitality as the capacity to sustain energy and enthusiasm in learning activities. By confirming similar patterns in Iraqi university students, this study provides cross-cultural evidence for SDT's assumptions and suggests that fostering buoyancy and motivation may serve

as effective pathways for promoting well-being in educational contexts characterized by external challenges.

Overall, the findings underscore that psychological well-being in university students is not an isolated construct but the product of a dynamic interplay between needs satisfaction, motivational regulation, and emotional adaptability. When students' psychological needs are met, they develop self-determined motivation and resilience, which collectively lead to greater life satisfaction, purpose, and academic success. The mediating roles identified in this study provide a theoretical and empirical framework for designing interventions aimed at improving students' well-being through need-supportive and motivationally enriched educational environments.

This study, like other correlational investigations, has certain limitations. First, data were collected through self-report questionnaires, which may have introduced common method bias and social desirability effects. Although standard validity and reliability checks were performed, self-reported perceptions of motivation, buoyancy, and well-being could be influenced by momentary mood or response tendencies. Second, the study focused exclusively on students at Al-Qadisiyah University, limiting the generalizability of the findings to other institutions or cultural contexts within Iraq. Differences in educational resources, socio-economic status, and university climate could alter the strength of the observed relationships. Third, the cross-sectional design prevents causal inferences; while structural modeling suggests directional paths, longitudinal or experimental studies would be necessary to confirm causal mediation effects. Finally, other potentially relevant mediators—such as self-efficacy, academic identity, or emotional regulation—were not included, which may explain additional variance in psychological well-being.

Future studies should employ longitudinal or mixed-method designs to examine how the satisfaction of psychological needs and motivational processes evolve over time and predict long-term well-being outcomes. Including qualitative approaches could provide deeper insights into students' lived experiences and contextual challenges that shape buoyancy and motivation. Expanding the sample to include multiple Iraqi universities or cross-national comparisons would also clarify cultural influences on the SDT model. Future research might test intervention programs aimed at fostering autonomy-supportive teaching, mastery-oriented feedback, and peer mentoring, assessing their effects on buoyancy and motivation. Additionally, examining the role of digital learning environments in

satisfying or thwarting psychological needs could provide valuable implications for online education and hybrid instructional models.

Based on the findings, universities should implement policies that strengthen the satisfaction of students' autonomy, competence, and relatedness. Academic advisors and faculty members can promote autonomy by allowing students to participate in curriculum-related decisions and by offering flexible learning choices. Building competence through mastery-based assessments, constructive feedback, and scaffolded learning tasks can increase motivation and confidence. Encouraging collaborative learning and mentorship can enhance relatedness and foster a sense of belonging. Furthermore, integrating workshops on stress management, goal-setting, and self-regulated learning into academic curricula can cultivate buoyancy and intrinsic motivation. By nurturing these psychological and motivational foundations, educational institutions can enhance students' psychological well-being, resilience, and academic success in the long term.

#### Authors' Contributions

Authors contributed equally to this article.

#### Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

#### Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

#### Acknowledgments

We would like to express our gratitude to all individuals helped us to do the project.

#### Declaration of Interest

The authors report no conflict of interest.

#### Funding

According to the authors, this article has no financial support.

#### Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

#### References

- Asfa, A., & Abolmaali Alhosseini, K. (2022). Prediction of academic procrastination based on basic psychological needs with mediation of psychological wellbeing in undergraduate students. *Educational Psychology, 18*(65), 23-42. <https://doi.org/10.22054/jep.2023.53037.3034>
- Azadikhah, M., Talepasand, S., & Kianersi, F. (2018). Testing Multidimensional And Hierarchical Model Of School Motivation Questionnaire. *Training & Learning Researches (Daneshvar Raftar), 15*(1 (27)), 11-22. <https://www.sid.ir/paper/236026/en>
- Besharat, M. A. (2013). The Basic Needs Satisfaction in General Scale: Reliability, validity, and factorial analysis. *Quarterly of Educational Measurement, 4*(14), 147-168. [https://jem.atu.ac.ir/article\\_90\\_en.html](https://jem.atu.ac.ir/article_90_en.html)
- Collie, R. J., Martin, A. J., Malmberg, L. E., Hall, J., & Ginns, P. (2015). Academic buoyancy, student's achievement, and the linking role of control: A cross-lagged analysis of high school students. *The British Journal of Educational Psychology, 85*(1), 113-130. <https://doi.org/10.1111/bjep.12066>
- Derakhshan, M., Yousefi, S., & Najarpourian, A. (2012). The relationship between family emotional climate and academic vitality with regard to the mediating role of academic self-concept: Structural equation modeling. *Teaching and Learning Research, 16*(66), 56-37.
- Fadji, A. W., Khumalo, I. P., Wissing, M. P., & Appiah, R. (2024). A bibliometric review of positive psychology and well-being research in Africa. *Frontiers in psychology, 15*, 1384362. <https://doi.org/10.3389/fpsyg.2024.1384362>
- Fakharian, J., Yaghoobi, A., Zargham, H., & Mohagheghi, H. (2020). Predicting Academic Buoyancy based on Family Emotional Climate, Academic Engagement, and Academic Self-Efficacy. *medical journal of mashhad university of medical sciences, 63*(2), 2391-2401. <https://sid.ir/paper/950405/en>
- Fazli, A. (2019). *Academic Vitality*. First edition, Tehran: Norouzi Publications.
- Gholamali Lavasani, M., Khezri Azar, H., Amani, J., & Alizadeh, S. (2011). Academic Achievement: The Role of Basic Psychological Needs And Identity Styles. *Training & Learning Researches (Daneshvar Raftar), 18*(1), 25-38. <https://sid.ir/paper/236022/en>
- Hejazi, E., Salehnajafi, M., & Amani, J. (2015). The Mediating Role Of Intrinsic Motivation On The Relationship Between Basic Psychological Needs And Life Satisfaction. *Contemporary psychology, 9*(2), 77-88. <https://sid.ir/paper/120129/en>
- Hossein Mardi, A. A., Ghorban Shiroodi, S., Zarbakhsh Bahri, M. R., & Tizdast, T. (2022). The Relationship of Academic Engagement, School Engagement and School Belonging with Academic Achievement by Mediated the Academic Achievement Motivation in Male Students. *Journal of Sociology of Education, 7*(2), 178-189. <https://sid.ir/paper/1062646/en>
- Hutomo, B. A., & Kurniawati, F. (2024). Importance of basic psychological needs satisfaction in higher education: A systematic literature review. *G-Couns: Jurnal Bimbingan Dan*

- Konseling*, 9(1), 233-246.  
<https://doi.org/10.31316/gcouns.v9i1.6326>
- Kermavnar, T., Avsec, A., Huang, S., & Desmet, P. M. A. (2024). Assessing basic/fundamental psychological need fulfillment: systematic mapping and review of existing scales to foster cumulative science. *Frontiers in psychology*, 15, 1427478. <https://doi.org/10.3389/fpsyg.2024.1427478>
- Khodashahi, F. (2025). The Relationship Between Basic Psychological Needs and Goal Orientation with Pupils' Academic Buoyancy. *Recent Innovations in Psychology*, 2(1), -. <https://doi.org/10.22034/rip.2024.464404.1040>
- Kordloo, A., & Behrangi, M. R. (2020). The effect of intellectual scaffolding on educational management in the application of new educational technologies on academic motivation and academic achievement in science courses for female students in the fifth grade of elementary school. *Management and Educational Perspective*, 2(1), 19-33. <https://doi.org/10.22034/jmep.2020.231073.1012>
- Lanza, S. T., Whetzel, C., & Bhandari, S. (2024). Health and Well-Being Among College Students in the United States During the COVID-19 Pandemic: Daily Diary Study. *Interactive Journal of Medical Research*, 13, e45689. <https://doi.org/10.2196/45689>
- Mahmoudi, A., Ensafadaran, F., & Kakaieh, H. (2022). Investigating the Effects of Satisfaction of Basic Psychological Needs on the Identity Crisis of Students. *Iranian Journal of Culture and Health Promotion*, 6(2), 315-322. <http://ijhp.ir/article-1-515-fa.html>
- Nafar, Z., Mazoosaz, A., Bagheri, H., & Shojaei, M. (2023). Investigating the role of self-acceptance and mental vitality in relation to psychological needs on optimism and psychological well-being of students in Tehran. *A New Approach to Children's Education Quarterly*, 5(1), 128-139. <https://doi.org/10.22034/naes.2022.375057.1284>
- Nejati-Garae, E. (2023). *Educational Motivation*. First edition, Tehran: Farnam Publications.
- Nemati, S., Badri-Gargari, R., & Katourani, A. (2022). The relationship between psychological well-being and academic vitality with students' perceptions of the classroom environment. *Journal of School Psychology*, 11(1), 117-131. <https://doi.org/10.22098/jsp.2022.1508>
- Pakdaman Savoji, A., Ganji, K., & Ahmadzadeh, M. (2013). The Effect of Life Skills Training (LST) on Achievement Motivation and Academic Achievement of Students. *Refah Journal*, 12(47), 245-265. <http://refahj.uswr.ac.ir/article-1-1131-fa.html>
- Parchami Khoram, M., Imani, S., & Ansari, D. (2022). Predicting Psychological Well-Being Based on Basic Psychological Needs: The Mediating Role of Social Networks Addiction. *RBS*, 20(2), 317-328. <https://doi.org/10.52547/rbs.20.2.317>
- Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, 69, 716-727. <https://doi.org/10.1037/0022-3514.69.4.719>
- Saleem, M., Javaid, H., & Nisar, T. (2023). Basic psychological need satisfaction and students' well-being: the mediating role of subjective vitality. *Iranian Rehabilitation Journal*, 21(3), 543-552. <https://doi.org/10.32598/irj.21.3.1920.1>
- Sheikholeslami, R., Yazdani, F., & Razavi Estahbanati, Z. (2019). Psychometric Properties Of Basic Psychological Needs Satisfaction And Frustration Scale. *Journal of Psychology*, 23(1 (89)), 66-82. <https://sid.ir/paper/54551/en>
- Slemp, G. R., Field, J. G., Ryan, R. M., Forner, V. W., Van den Broeck, A., & Lewis, K. J. (2024). Interpersonal supports for basic psychological needs and their relations with motivation, well-being, and performance: A meta-analysis. *Journal of personality and social psychology*, 127(5), 1012-1037. <https://doi.org/10.1037/pspi0000459>
- Veiskarami, H. A., Mir Drikvand, F., Ghara Veysi, S., & Soleymani, M. (2019). On the Relationship Of Academic Self-Efficacy With Academic Buoyancy: The Mediating Role Of Basic Psychological Needs. *Journal of Educational Sciences*, 12(47), 141-158. <https://sid.ir/paper/183617/en>
- Wang, J., & Wang, X. (2012). *Structural Equation Modeling: Applications using Mplus*. Chichester: John Wiley & Sons. <https://doi.org/10.1002/9781118356258>
- Weiner, B. (2010). An attributional theory of motivation and emotion. *Psychological review*, 92(4), 244-256. <https://doi.org/10.1037//0033-295X.92.4.548>
- Yarmohammadi, M., Mohamadi, A., & Noghabi, R. (2019). Comparison the Effect of Teaching Based on Individual and Group Concept Mapping on Educational Motivation and Achievement. *Biquarterly Journal of Cognitive Strategies in Learning*, 7(12), 189-211. <https://doi.org/10.22084/j.psychogy.2019.16773.1796>
- Yasami Nejad, P., Taheri, M., Golmohammadian, M., & Ahadi, H. (2014). The relationship between self-regulation, achievement motivation and academic achievement of female high school students in Tehran. *Research on Education and Learning*, 10(2), 325-338.
- Yiğit, B., & Çakmak, B. Y. (2024). Discovering Psychological Well-Being: A Bibliometric Review. *Journal of Happiness Studies*, 25(5), 1-24. <https://doi.org/10.1007/s10902-024-00754-7>
- Zebing, W. (2019). Academic motivation, engagement, and achievement among college students. *College Student Journal*, 53, 99-112. <https://www.ingentaconnect.com/content/prin/csj/2019/00000053/00000001/art00011>
- Zhong, T. (2024). Physical activity motivations and psychological well-being among university students: a canonical correlation analysis. *Frontiers in Public Health*, 12, 1442632. <https://doi.org/10.3389/fpubh.2024.1442632>