International Journal of Asian Social Science
ISSN(e): 2224-4441
ISSN(p): 2226-5139
DOI: 10.55493/5007.v15i11.5674
Vol. 15, No. 11, 430-440

URL: www.aessweb.com

The relative contribution of mental toughness and mindfulness to quality of life

Emad Al Zoubi[1+]
Omar Al-Adamat[2]

[1]*Al Balqa' Applied University, Al-Salt, Jordan.*
Email: demad73@bau.edu.jo
[2]*Ministry of Education, Amman, Jordan.*
Email: Adamat88@gmail.com

(+ Corresponding author)

Article History
Received: 2 September 2025
Revised: 22 October 2025
Accepted: 29 October 2025
Published: 7 November 2025

Keywords
Educational well-being
Family well-being
Mental toughness
Mindfulness
Psychological well-being
Quality of life.

ABSTRACT

This study aims to examine the relative contribution of mental toughness and mindfulness to quality of life among university students, considering their psychological, educational, and familial well-being. A sample of 259 students from Al-Balqa Applied University in Jordan participated in the study. A quantitative approach was employed, utilizing three self-developed instruments: the Mental Toughness Scale, the Mindfulness Scale, and the Quality of Life Scale. Data were analyzed using correlation and regression techniques to explore the relationships between the variables. The results revealed significant positive correlations between the dimensions of mental toughness (commitment, control, and challenge) and quality of life domains (family, psychological, and educational). Similarly, mindfulness dimensions (awareness, monitoring, consciousness, and judgment) were positively associated with quality of life. The combined dimensions of mental toughness and mindfulness explained 66.7% of the variance in overall quality of life, which was statistically significant at the 0.05 level. The findings demonstrate that mental toughness and mindfulness significantly predict university students' quality of life, particularly in psychological, educational, and family domains, highlighting their combined role in promoting holistic well-being. The study offers practical implications for educators, counselors, and mental health professionals by emphasizing the need to incorporate mindfulness and mental toughness training into university support programs to improve students' overall quality of life and psychological resilience.

Contribution/ Originality: This study contributes to the existing literature by simultaneously examining mental toughness and mindfulness as predictors of multidimensional quality of life. It is one of the few studies that have investigated these constructs collectively, offering a nuanced understanding of their relative impact on psychological, educational, and familial well-being within a university student population.

1. INTRODUCTION

The cognitive components of a learner are crucial factors in achieving psychological, social, and academic adjustment. Cognitive processes directed towards academic activities occupy a central position in fostering positive adaptation and integration into educational and learning activities to achieve value in academic performance. Mental toughness and mindfulness are important concepts related to cognitive components. Kobasa (1979) indicates that mental toughness represents a means by which individuals overcome the negative or stressful outcomes of events. Mental toughness manifests in various forms across specific behavioral domains. Clough and Strycharczyk (2012) emphasize that individuals with mental toughness maintain a high level of self-control, self-confidence, and the ability to manage stress and anxiety, as well as the capacity to compete effectively. Coulter, Mallett, and Gucciardi (2010)

describe mental toughness as the result of values, attitudes, emotions, perceptions, and skills acquired through experience, which determine an individual's thinking and response to pressures and challenges in a consistent and effective manner. Clough and Strycharczyk (2012) define mental toughness as the quality that significantly determines how individuals effectively handle challenges, stress, and psychological pressure regardless of prevailing circumstances. Gucciardi, Hanton, Gordon, Mallett, and Temby (2015) describe mental toughness as the ability to perform at high levels of personal performance to achieve goals and ambitions despite various challenges and pressures.

Jones, Hanton, and Connaughton (2007) propose a set of core traits of mental toughness, including possessing internal fortitude that enhances an individual's sense of ability to achieve goals, control situations, not succumb to challenges, adapt, and face any changes, distractions, or threats under pressure, and using failure to achieve success. Clough, Gaizauskas, Piao, and Wilks (2002) presented a model of mental toughness that includes four factors: Challenge, which involves seeking opportunities for self-development; Commitment, which is the ability to successfully complete tasks despite problems or obstacles; Control, which includes two elements: Emotional Control, the ability to manage anxiety and not reveal emotions to others, and Life Control, the belief in being influential without others controlling one's life; and Confidence, which includes two elements: Confidence in Abilities, the belief in individual qualities with reduced dependence on external standards, and Interpersonal Confidence, the ability to interact assertively with minimal intimidation in social contexts. Gucciardi, Gordon, and Dimmock (2009) view mental toughness as consisting of four components: hope, which is the expectation of success. According to the model by Gucciardi et al. (2009), consistency in achieving goals is a fundamental idea, and self-belief in the ability to achieve goals is a significant aspect of mental toughness. Optimism, the generalized expectation that good things will happen, influences not only feelings and emotions but also decisions regarding struggle or surrender. Individuals with high mental toughness handle stress better. Nes and Segerstrom (2006) found that optimism is associated with more adaptive responses to stress. Perseverance, a form of persistence and enthusiasm for hard work when facing challenges despite feelings of fatigue or frustration, is considered a characteristic of mental toughness, reflecting consistency in achieving individual goals and not easily giving up in the face of difficulties or problems. Resilience, positive adaptation to risks or difficulties, and the ability to maintain consistent levels of performance mean dealing with resilience as a trait that enables an individual to adapt to environmental changes or challenges.

In addition to mental toughness, mindfulness is a significant concept related to cognitive processes. It involves voluntarily directing an individual's attention to the present moment and being open to experiences (Williams, Teasdale, Segal, & Kabat- Zinn, 2007). It is also a flexible state in mental activity characterized by openness to new experiences and innovation. (Langer & Moldoveanu, 2000). Kabat-Zinn (2003) suggests that mindfulness is characterized by moment-to-moment awareness of experience without judgment, patience, acting rationally, trust, not rushing results, acceptance, and non-reactivity. Mindfulness involves the following processes (Baer, 2003).

- Observing: Noticing or being present with internal and external experiences such as sensations, perceptions, and feelings.
- Describing: The ability to verbally describe internal experiences.
- Acting with awareness: Being present in one's current activities.
- Non-judging: Not making evaluations about internal experiences, maintaining a non-evaluative stance towards thoughts and feelings.
- Non-reactivity: Not reacting to internal experiences, allowing thoughts and feelings to come and go.

Mental toughness and mindfulness are associated with numerous variables, one of which is quality of life. Quality of life is an essential goal and is linked to an individual's assessment of their level of happiness. It is a flexible and comprehensive concept encompassing all aspects of an individual's health, where there is no ideal or universal model for determining quality of life. It is a relative concept influenced by many factors, primarily cognitive skills related to cognitive processes and the level of fulfillment of an individual's primary needs. An individual organizes their life and

sets their ambitions based on what is available to them and the level of their personal needs fulfillment. Additionally, an individual's experiences play a decisive role, reflecting on how they perceive and evaluate their life as either good and desirable or painful and harsh (Ruzevicius, 2014). Bonomi, Patrick, Bushnell, and Martin (2000) define quality of life as a broad concept related to an individual's health and psychological state, social relationships, and interaction with the environment in which they live. Costanza et al. (2007) define quality of life as the level of fulfillment of human needs and the degree of satisfaction or dissatisfaction with various aspects of life.

Widar, Ahlström, and Ek (2004) identified four indicators to measure quality of life: psychological indicators, which include the absence of psychological illness or adaptation to illness if present, and the feeling of happiness and satisfaction; social indicators, which include the ability to build positive social relationships and engage in social and recreational activities; professional indicators, which include job satisfaction and adaptation; and physical indicators, which include physical health and adaptation to physical illness if present.

Mental toughness and mindfulness are associated with various psychological and cognitive variables, including quality of life. The results of the study by Haghighi, Saki, Mohaddesi, Yavarian, and Salami (2013) revealed a statistically significant relationship between psychological toughness and quality of life in three areas: psychological, social, and environmental. The study confirmed that psychological toughness can predict the level of quality of life. The results of the study by Pagnini, Bercovitz, and Phillips (2018) indicated a positive correlation between mindfulness and psychological well-being, and a negative correlation between mental focus, obsessive-compulsive disorder, depression, and anxiety. The results of the study by Lazali and Sabah (2022) indicated the possibility of predicting quality of life among university students through their psychological toughness, which explains 16% of the variations in quality of life. The results of the study by Alomari and Hella (2023) also indicated a correlation between the dimensions of mindfulness and the dimensions of academic quality of life. Additionally, the results of the study by Al-Shammari (2024) indicated a statistically significant positive correlation between the overall score of psychological toughness and all dimensions of quality of life.

From the previous presentation of studies that addressed mental toughness and mindfulness and their relationship to quality of life, we note the limited studies that addressed these variables together. The current study is distinguished by addressing these three variables collectively to determine the relative contribution of mental toughness and mindfulness to the different dimensions of quality of life.

1.1. Study Questions

1. Is there a statistically significant correlation at the level of (α=0.05) between the variables of mental toughness, mindfulness, and quality of life among university students?
2. Is there a statistically significant explained variance at the level of (α=0.05) in the quality of life and its sub-dimensions attributed to mental toughness and mindfulness and their sub-dimensions among university students?

2. METHODOLOGY AND PROCEDURES

Study Sample: The study sample consisted of 259 students from Al-Balqa Applied University, enrolled in bachelor's degree programs during the second semester of the academic year 2023/2024. They were selected using a simple random sampling method.

2.1. Study Tools

The following scales were used in this study.

First: Mental Toughness Scale: The mental toughness scale was constructed by referring to the following studies: Bartone (2007); Wiebe (2017) and Kobasa, Maddi, Puccetti, and Zola (1985). The final version of the scale consisted of 15 items distributed across three dimensions: commitment, control, and challenge. The psychometric properties of

the scale were verified as follows:

- Construct validity was assessed by calculating the correlation coefficient of the items with the dimension to which they belong and the correlation coefficient of the items with the scale as a whole, using Pearson's correlation coefficient.
- · The correlation coefficients of the items with their respective dimensions ranged from 0.61 to 0.76, and the correlation coefficients of the items with the overall scale ranged from 0.59 to 0.74, all of which are statistically significant at the level of α=0.05. These values enhance the construct validity of the scale and indicate that the items of the scale measure what they are intended to measure.
- To verify the reliability of the scale, internal consistency coefficients (Cronbach's alpha) were calculated for the sub-dimensions, and the reliability coefficients were 81.7, 80.4, and 80.8 for the sub-dimensions of the scale, which are considered acceptable reliability coefficients.

Second: Mindfulness Scale: The mindfulness scale was constructed by referring to the following studies: Baer, Smith, Hopkins, Krietemeyer, and Toney (2006); Langer and Moldoveanu (2000); Cardaciotto, Herbert, Forman, Moitra, and Farrow (2008) and Alzubi and Al-Adamat (2022). The final version of the scale consisted of 20 items distributed across four dimensions: awareness, monitoring, consciousness, and judgment. The psychometric properties of the scale were verified as follows.

- Construct validity was assessed by calculating the correlation coefficient of the items with the dimension to which they belong and the correlation coefficient of the items with the scale as a whole, using Pearson's correlation coefficient.
- The correlation coefficients of the items with their respective dimensions ranged from 0.60 to 0.75, and the correlation coefficients of the items with the overall scale ranged from 0.59 to 0.71, all of which are statistically significant at the level of α=0.05. These values enhance the construct validity of the scale and indicate that the items of the scale measure what they are intended to measure.
- To verify the reliability of the scale, internal consistency coefficients (Cronbach's alpha) were calculated for the sub-dimensions, and the reliability coefficients were (82.5, 82.8, 80.6, 80.8) for the sub-dimensions of the scale, which are considered acceptable reliability coefficients.

Third: Quality of Life Scale: The quality-of-life scale was constructed by referring to the following studies: Fox (2003); Bigelow, Brodsky, Stewart, and Olson (1982) and Bonomi et al. (2000). The final version of the scale consisted of 15 items distributed across three dimensions: family and social quality of life, psychological quality of life, and educational quality of life. The psychometric properties of the scale were verified as follows:

- Construct validity was assessed by calculating the correlation coefficient of the items with the dimension to which they belong and the correlation coefficient of the items with the scale as a whole, using Pearson's correlation coefficient.
- · The correlation coefficients of the items with their respective dimensions ranged from 0.56 to 0.73, and the correlation coefficients of the items with the overall scale ranged from 0.54 to 0.72, all of which are statistically significant at the level of α=0.05. These values enhance the construct validity of the scale and indicate that the items of the scale measure what they are intended to measure.
- To verify the reliability of the scale, internal consistency coefficients (Cronbach's alpha) were calculated for the sub-dimensions, and the reliability coefficients were 83.4, 82.7, and 81.6 for the sub-dimensions of the scale, which are considered acceptable reliability coefficients.

3. RESULTS AND DISCUSSION

Results of the first question: Is there a statistically significant correlation at the level of (α=0.05) between the variables of mental toughness, mindfulness, and quality of life among university students?

Table 1. Correlation coefficients between mental toughness, mindfulness, and quality of life dimensions.

Mental toughness scale	Mindfulness scale commitment	Quality of life scale control	Challenge	Total score	Awareness	Monitoring	Consciousness	Judgment	Total Score	Family quality	Psychological quality	Educational quality	Total score
Commitment	1	0.695**	0.598**	0.885**	0.518**	0.430**	0.506**	0.394**	0.593**	0.444**	0.600**	0.593**	0.652**
Control		1	0.582**	0.886**	0.656**	0.394**	0.544**	0.307**	0.611**	0.463**	0.791**	0.627**	0.769**
Challenge			1	0.827**	0.532**	0.507**	0.560**	0.441**	0.652**	0.481**	0.558**	0.493**	0.613**
Total score				1	0.658**	0.509**	0.618**	0.436**	0.712**	0.533**	0.755**	0.662**	0.786**
Awareness					1	0.377**	0.599**	0.402**	0.774**	0.367**	0.637**	0.545**	0.629**
Monitoring						1	0.505**	0.411**	0.698**	0.372**	0.319**	0.317**	0.396**
Consciousness							1	0.532**	0.851**	0.501**	0.488**	0.498**	0.586**
Judgment								1	0.778**	0.375**	0.309**	0.316**	0.392**
Total score									1	0.519**	0.567**	0.542**	0.647**
Family quality										1	0.528**	0.455**	0.773**
Psychological quality											1	0.663**	0.911**
Educational quality												1	0.815**
Total score													1

Note: * Statistically significant at the level of (α=0.05).

**statistically significant at the level of (α=0.01).

Table 2. Results of the Hierarchical multiple regression analysis of the sub-dimensions of the quality-of-life scale on the sub-dimensions of the variables of mental toughness and mindfulness collectively.

Predicted sub-dimensions of the quality of life scale	Cumulative explained variance R^2	F Value	Statistical significance of the F-value	Predictor Sub-dimensions of mental toughness and mindfulness	Constant value A	Regression coefficient value B	Standardized regression coefficient value β	t value	Statistical significance of the regression coefficient
Family quality of life	0.347	14.6	0.000	Commitment	-0.226	0.116	0.073	0.948	0.344
				Control	0.241	0.192	2.307	0.022	
				Challenge	0.243	0.170	2.321	0.021	
				Awareness	-0.119	-0.091	-1.221	0.223	
				Monitoring	0.087	0.051	.808	0.420	
				Consciousness	0.321	0.240	3.206	0.002	
				Judgment	0.122	0.101	1.595	0.112	
Psychological quality of life	.662	12.75	0.000	Commitment	-0.047	0.071	0.050	0.898	0.370
				Control	0.668	0.595	9.935	0.000	
				Challenge	0.151	0.117	2.234	0.026	
				Awareness	0.218	0.186	3.490	0.001	
				Monitoring	-0.102	-0.067	-1.463	0.145	
				Consciousness	-0.015	-0.012	-0.227	0.820	
				Judgment	0.015	0.014	.311	0.756	
Educational quality of life	0.476	9.084	0.003	Commitment	0.269	0.336	.247	3.592	0.000
				Control	0.293	0.272	3.651	0.000	
				Challenge	0.074	0.061	.925	0.356	
				Awareness	0.168	0.150	2.256	0.025	
				Monitoring	-0.068	-0.047	-0.826	0.410	
				Consciousness	0.142	0.124	1.851	0.065	
				Judgment	0.002	0.002	0.029	0.977	
Overall quality of life	0.667	6.824	0.010	Commitment	-0.009	0.157	0.128	2.335	0.020
				Control	0.445	0.460	7.740	0.000	
				Challenge	0.155	0.140	2.690	0.008	
				Awareness	0.111	0.110	2.070	0.039	
				Monitoring	-0.040	-0.030	-0.672	0.502	
				Consciousness	0.122	0.118	2.216	0.028	
				Judgment	0.041	0.044	.978	0.329	

3.1. Statistically Significant at the Level of (α=0.01)

It is evident from Table 1 that there is a statistically significant correlation between the dimensions of mental toughness (commitment, control, and challenge) and the dimensions of quality of life (family quality, psychological quality, and educational quality), with correlation coefficients ranging from 0.444 to 0.791. Additionally, a statistically significant correlation exists between the dimensions of mindfulness (awareness, monitoring, consciousness, and judgment) and the dimensions of quality of life (family quality, psychological quality, and educational quality), with correlation coefficients ranging from 0.309 to 0.637. To determine the explanatory power of the dimensions of mental toughness (commitment, control, and challenge) and mindfulness (awareness, monitoring, consciousness, and judgment) in the quality of life dimensions (family quality, psychological quality, and educational quality), a hierarchical multiple regression analysis was conducted as shown in the referenced study Table 2.

Results of the second question: Is there a statistically significant explained variance at the level of (α=0.05) in the quality of life and its sub-dimensions attributed to mental toughness and mindfulness and their sub-dimensions among university students?

To answer this question, a hierarchical multiple regression analysis was conducted for the variable of quality of life and its sub-dimensions, each separately, on the variables of mental toughness and mindfulness and their sub-dimensions collectively, as shown in Table 2.

Table 2 presents the results of the hierarchical regression analysis of the dimensions of quality of life (family quality of life, psychological quality of life, and educational quality of life) on the dimensions of mental toughness and mindfulness, respectively (commitment, control, challenge, awareness, monitoring, consciousness, and judgment). The table summarizes the results in terms of the cumulative explained variance (R^2), the parameters of the regression equation: the constant (A), the unstandardized regression coefficient (B), the standardized regression coefficient (β), and the statistical significance tests. The interpretation of the table will focus on the cumulative explained variance for each dimension of quality of life, attributed to the combined dimensions of mental toughness and mindfulness, and the contribution of each dimension through the standardized beta value.

The results in Table 2 show that the cumulative explained variance in family quality of life, attributed to the combined dimensions of mental toughness and mindfulness (commitment, control, challenge, awareness, monitoring, consciousness, and judgment), is 34.7% and is statistically significant at the level of (α=0.05). Based on the standardized beta value of the regression coefficient, we observe the contribution of each dimension of mental toughness and mindfulness to family quality of life. The control and challenge dimensions of mental toughness contributed to family quality of life, with control increasing family quality of life by 0.1920 standardized units for each one-unit increase in control, statistically significant at the level of (α=0.05). The challenge dimension increased family quality of life by 0.1700 standardized units for each one-unit increase in challenge, statistically significant at the level of (α=0.05). The consciousness dimension of mindfulness contributed to family quality of life by 0.240 standardized units for each one-unit increase in consciousness, statistically significant at the level of (α=0.05).

The results in Table 2 also show that the cumulative explained variance in psychological quality of life, attributed to the combined dimensions of mental toughness and mindfulness, is 66.2% and is statistically significant at the level of (α=0.05). The control and challenge dimensions of mental toughness contributed to psychological quality of life, with control increasing psychological quality of life by 0.5950 standardized units for each one-unit increase in control, statistically significant at the level of (α=0.05). The challenge dimension increased psychological quality of life by 0.117 standardized units for each one-unit increase in challenge, statistically significant at the level of (α=0.05). The awareness dimension of mindfulness contributed to psychological quality of life by 0.1860 standardized units for each one-unit increase in awareness, statistically significant at the level of (α=0.05).

The results in Table 2 further show that the cumulative explained variance in educational quality of life, attributed to the combined dimensions of mental toughness and mindfulness, is 47.6% and is statistically significant at the level of (α=0.05). The commitment and control dimensions of mental toughness contributed to educational quality of life,

with commitment increasing educational quality of life by 0.2470 standardized units for each one-unit increase in commitment, statistically significant at the level of (α=0.05). The control dimension increased educational quality of life by 0.272 standardized units for each one-unit increase in control, statistically significant at the level of (α=0.05). The awareness dimension of mindfulness contributed to educational quality of life by 0.1500 standardized units for each one-unit increase in awareness, statistically significant at the level of (α=0.05).

Finally, from Table 2, the cumulative explained variance in overall quality of life, attributed to the combined dimensions of mental toughness and mindfulness, is 66.7% and is statistically significant at the level of (α=0.05). All dimensions of mental toughness (commitment, control, and challenge) contributed to overall quality of life, with commitment increasing overall quality of life by 0.1280 standardized units for each one-unit increase in commitment. The control dimension increased overall quality of life by 0.460 standardized units for each one-unit increase in control. The challenge dimension increased overall quality of life by 0.140 standardized units for each one-unit increase in challenge, all statistically significant at the level of (α=0.05). The awareness and consciousness dimensions of mindfulness also contributed to overall quality of life, with awareness increasing overall quality of life by 0.1100 standardized units for each one-unit increase in awareness, statistically significant at the level of (α=0.05). The consciousness dimension contributed to the overall quality of life by 0.1180 standardized units for each one-unit increase in consciousness, statistically significant at the level of (α=0.05).

These results can be interpreted in light of the influence of cognitive processes on the dimensions of quality of life. The skills associated with mental toughness, such as the ability to commit, control different life goals, and challenge obstacles that may hinder the achievement of those goals, help students achieve personal balance and self-regulation in an appropriate manner. This directly influences their cognitive development, enabling them to engage in various life activities with full will and control, which in turn helps them achieve a high level of quality of life, whether on the familial, social, psychological, or educational levels. In this context, Jones et al. (2007) indicated that the core components of mental toughness help individuals develop self-confidence, which in turn increases their sense of ability to achieve goals, control situations, not give in to challenges, adapt to situational changes, work under pressure, and use failure to achieve success. These results are consistent with the findings of Haghighi et al. (2013), which showed a statistically significant relationship between psychological toughness and quality of life in three areas: psychological, social, and environmental. The study confirmed that psychological toughness can predict the level of quality of life. Similarly, these findings align with those of Lazali and Sabah (2022), which indicated the possibility of predicting the quality of life among university students through their psychological toughness, explaining 16% of the variations in quality of life. Additionally, these results are in agreement with Al-Shammari (2024), who found a statistically significant positive correlation between the overall score of psychological toughness and all dimensions of quality of life.

On the other hand, the skills related to mindfulness, such as the ability to be aware, monitor, be conscious, and judge, positively impact students' ability to adapt to the conditions of familial, social, and educational life. These skills also enhance their ability to respond to psychological and personal demands, supporting their capability to achieve the highest level of quality of life in familial, social, educational, and psychological domains. The higher the ability to positively interact and influence others, the stronger and more stable the engagement in academic activities. This aligns with the findings of Pagnini et al. (2018), which indicated a positive correlation between mindfulness and psychological well-being, and a negative correlation between mental focus, obsessive-compulsive disorder, depression, and anxiety. These results also align with those of Alomari and Hella (2023), who indicated a correlation between the dimensions of mindfulness and the dimensions of academic quality of life.

4. CONCLUSION

These results indicate that cognitive skills related to mental toughness and mindfulness play a significant role in improving the quality of life in various areas (family, psychological, and educational). For example, commitment,

control, and challenge are important factors in achieving a better quality of life, as are awareness and consciousness. It can be concluded that mental toughness and mindfulness are essential factors that significantly contribute to improving the quality of life in different areas: family, psychological, and educational. The ability to commit, control, and challenge, along with awareness and consciousness, plays a pivotal role in enabling individuals to effectively deal with life challenges and enhance their sense of well-being. These results underscore the importance of developing these skills in educational and training programs to improve the quality of life for students.

4.1. Recommendations

1. Based on the results obtained from this study, the following recommendations can be made to enhance the quality of life in the family, psychological, and educational domains among university students.
2. Design training programs to develop mental toughness and mindfulness: These programs should include specific units to develop skills such as commitment, control, challenge, awareness, and consciousness.
3. Organize interactive activities that enhance students' ability to think critically and manage difficult situations.
4. Establish and activate psychological support units within universities to provide necessary assistance and counseling to students, thereby increasing their level of awareness and control over their lives.
5. Integrate daily life skills into the curriculum, ensuring that educational programs include life skills that enhance students' ability to adapt to daily challenges and pressures.

Continuous evaluation and improvement of educational and training programs that support the quality of life in all its aspects to ensure their effectiveness and to work on their continuous improvement.

4.2. Limitations

This study has several limitations that should be considered. First, the sample was limited to 259 students from Al-Balqa Applied University in Jordan, which may restrict the generalizability of the findings to students from other universities or different cultural and educational contexts. Additionally, the study relied on self-reported measures to assess mental toughness, mindfulness, and quality of life, which may introduce social desirability bias or subjective misinterpretations affecting response accuracy. Furthermore, given that the study was conducted in a Jordanian educational context, cultural factors might have played a role in shaping students' perceptions of mental toughness, mindfulness, and quality of life. Future research should consider using larger and more diverse samples, incorporating objective or mixed-method assessments, conducting longitudinal studies, and exploring additional moderating and mediating variables to provide a more comprehensive understanding of the factors affecting quality of life.

Funding: This study received no specific financial support.
Institutional Review Board Statement: This study was approved by the Institutional Review Board of Al Balqa' Applied University, Al-Salt, Jordan. Informed verbal consent was obtained from all participants, and all data were anonymized to protect participant confidentiality.
Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.
Competing Interests: The authors declare that they have no competing interests.
Authors' Contributions: Both authors contributed equally to the conception and design of the study. Both authors have read and agreed to the published version of the manuscript.

REFERENCES

Al-Shammari, T. (2024). Psychological hardiness and its relationship with quality of life for students of the College of Basic Education in the State of Kuwait. *Journal of Studies and Educational Researches, 4*(10), 110-151.

Alomari, E., & Hella, A. (2023). Mindfulness and its relationship to the quality of academic life in the light of distance education on a sample of master's students at Taif University. *Journal of Educational and Psychological Sciences, 7*(44), 82-99. https://doi.org/10.26389/AJSRP.M130923

Alzubi, E., & Al-Adamat, O. (2022). Mindfulness and Its relationship to moral anxiety among adults. *Dirasat: Human and Social Sciences*, *49*(4), 390-399.

Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical psychology: Science and Practice*, *10*(2), 125-143. https://doi.org/10.1093/clipsy.bpg015

Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment*, *13*(1), 27-45. https://doi.org/10.1177/1073191105283504

Bartone, T. (2007). Harnessing hardiness-psychological resilience in persons and organizations. Industrial College of the Armed Forces National Defense University Washington, DC, USA college students. *Social Behavior and Personality*, *26*(1), 51-56.

Bigelow, D. A., Brodsky, G., Stewart, L., & Olson, M. (1982). *The concept and measurement of quality of life as a dependent variable in evaluation of mental health services. In W. Tash & G. Stahler (Eds.), Innovative approaches to mental health evaluation*. New York: Academic Press.

Bonomi, A. E., Patrick, D. L., Bushnell, D. M., & Martin, M. (2000). Validation of the United States' version of the world health organization quality of life (WHOQOL) instrument. *Journal of Clinical Epidemiology*, *53*(1), 1-12. https://doi.org/10.1016/S0895-4356(99)00123-7

Cardaciotto, L., Herbert, J. D., Forman, E. M., Moitra, E., & Farrow, V. (2008). The assessment of present-moment awareness and acceptance: The Philadelphia Mindfulness Scale. *Assessment*, *15*(2), 204-223. https://doi.org/10.1177/1073191107311467

Clough, P., Gaizauskas, R., Piao, S. S., & Wilks, Y. (2002). *Measuring text reuse*. Paper presented at the Proceedings of the 40th Annual Meeting of the Association for Computational Linguistics.

Clough, P., & Strycharczyk, D. (2012). *Developing mental toughness: Improving performance, wellbeing, and positive behavior in others*. United Kingdom: Kogan Page.

Costanza, R., Fisher, B., Ali, S., Beer, C., Bond, L., Boumans, R., . . . Farley, J. (2007). Quality of life: An approach integrating opportunities, human needs, and subjective well-being. *Ecological Economics*, *61*(2-3), 267-276. https://doi.org/10.1016/j.ecolecon.2006.02.023

Coulter, T. J., Mallett, C. J., & Gucciardi, D. F. (2010). Understanding mental toughness in Australian soccer: Perceptions of players, parents, and coaches. *Journal of Sports Sciences*, *28*(7), 699-716. https://doi.org/10.1080/02640411003734085

Fox, S. W. (2003). *Validation and testing of the Fox Simple Quality of Life Scale*. United States: Virginia Commonwealth University.

Gucciardi, D. F., Gordon, S., & Dimmock, J. A. (2009). Advancing mental toughness research and theory using personal construct psychology. *International Review of Sport and Exercise Psychology*, *2*(1), 54-72. https://doi.org/10.1080/17509840802705938

Gucciardi, D. F., Hanton, S., Gordon, S., Mallett, C. J., & Temby, P. (2015). The concept of mental toughness: Tests of dimensionality, nomological network, and traitness. *Journal of Personality*, *83*(1), 26-44. https://doi.org/10.1111/jopy.12079

Haghighi, H., Saki, K., Mohaddesi, H., Yavarian, R., & Salami, L. (2013). A survey on the relationship between psychological hardiness and quality of life in caretaker employed women of the Urmia University of Medical Sciences and health care services. *Journal of Urmia Nursing & Midwifery Faculty*, *11*(5), 385-391.

Jones, G., Hanton, S., & Connaughton, D. (2007). A framework of mental toughness in the world's best performers. *The Sport Psychologist*, *21*(2), 243-264. https://doi.org/10.1123/tsp.21.2.243

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: past, present, and future. *Clinical Psychology: Science and Practice*, *10*(2), 144–156. https://doi.org/10.1093/clipsy.bpg016

Kobasa, S. C. (1979). Stressful life events, personality, and health: an inquiry into hardiness. *Journal of Personality and Social Psychology*, *37*(1), 1–11. https://doi.org/10.1037/0022-3514.37.1.1

Kobasa, S. C. O., Maddi, S. R., Puccetti, M. C., & Zola, M. A. (1985). Effectiveness of hardiness, exercise and social support as resources against illness. *Journal of Psychosomatic Research*, *29*(5), 525-533. https://doi.org/10.1016/0022-3999(85)90086-8

Langer, E., & Moldoveanu, M. (2000). The construct of mindfulness. *Journal of Social Issues*, *56*(1), 1-9. https://doi.org/10.1111/0022-4537.00148

Lazali, S., & Sabah, A. (2022). Psychological hardness as a predictor of quality of life for university students - Field study at the University of Al-Jilali in Bonama, Khamis Milianaa. *Al-Shamel Journal of Educational and Social Sciences*, *4*(2), 252-268.

Nes, L. S., & Segerstrom, S. C. (2006). Dispositional optimism and coping: A meta-analytic review. *Personality and Social Psychology Review*, *10*(3), 235-251. https://doi.org/10.1207/s15327957pspr1003_3

Pagnini, F., Bercovitz, K. E., & Phillips, D. (2018). Langerian mindfulness, quality of life and psychological symptoms in a sample of Italian students. *Health and Quality of Life Outcomes*, *16*(1), 29. https://doi.org/10.1186/s12955-018-0856-4

Ruzevicius, J. (2014). *Quality of life and of working life: Conceptions and research.* Paper presented at the 17th Toulon-Verona International Conference, August 28-29, 2014, Liverpool John Moores University, England.

Widar, M., Ahlström, G., & Ek, A. C. (2004). Health-related quality of life in persons with long-term pain after a stroke. *Journal of Clinical Nursing*, *13*(4), 497-505. https://doi.org/10.1046/j.1365-2702.2003.00815.x

Wiebe, D. J. (2017). Hardiness and health. In M. Gellman& J.R. Turner (Eds.), Encyclopedia of Behavioral Medicine. In (pp. 1-3). New York: Springer

Williams, M., Teasdale, J., Segal, Z., & Kabat- Zinn, J. (2007). *The art of feeling good.* Istanbul: Diogenes Publishing.