

Mindfulness, healthy life skills and life satisfaction in varsity athletes and university students

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Abstract. *Study Objectives:* The present study aimed to investigate the differences in the perception of mindfulness, healthy life skills, and life satisfaction in varsity athletes and university students. Analyzing the correlations between the variables was another aim. *Materials and Method:* The study was designed as a cross-sectional quantitative study, and the study sample consisted of 379 university students from Gazi University. In the study, to collect data Mindful Attention Awareness Scale (MAAS), Healthy Life Skills for University Students Scale, and Satisfaction with Life Scale were used together. In analyzes of the data, independent samples t-test, Partial correlation, and Simple Linear Regression analyzes were used. *Results:* Results showed that varsity athletes reported significantly higher scores in the importance given to health sub-dimension and life satisfaction regarding group comparisons. On the other hand, there were no significant differences in mindfulness, healthy nutrition, health literacy, and health priority sub-dimensions. Regarding correlations, mindfulness, healthy life skills, and life satisfaction were correlated, and mindfulness significantly predicted healthy life skills and life satisfaction more for non-athlete students. *Conclusion:* This study showed that varsity athletes attach more importance to health and have higher life satisfaction than non-athletes. However, further research is still recommended.

Keywords: Mindfulness, Satisfaction with Life, Healthy Life Behaviors, University Students, Varsity Athletes

Introduction

Owning a well-shaped and healthy life requires balanced psychology, body, and mind. To achieve this, many people try to care about their nutritional attitudes and exercise regularly. From this perspective, mindfulness is thought to be a growing modern phenomenon that helps individuals have a physically and mentally healthier life (1). Mindfulness helps to reduce all types of suffering and to increase well-being. Moreover, it is considered a skill that allows us to be more active about the things occurring now (2). Besides, mindfulness is a way of directing attention by

regulating the focus and helps individuals control their negative features and discover and realize their positive aspects by focusing on them (3-4).

The concept of mindfulness appears in three different forms in the literature. It is used to describe three situations: first, a way of expressing a theoretical structure, second, practices aimed at raising awareness such as meditation, and finally, a psychological process (conscious awareness) (2). According to Brown and Ryan (2003), "attention and awareness are relatively constant normal functioning features. On the other hand, mindfulness can be considered enhanced attention to and awareness of current experience or

present reality” (5). More specifically, open or receptive awareness and attention are described as the core characteristic of mindfulness. Baer et al. (2006), described five components of mindfulness as; observe, describing, acting with awareness, nonjudgment, and non-react (6).

As stated before, mindfulness helps individuals to control their negative features as well as to discover and realize their positive aspects by focusing on them. When mindfulness is coupled with health, health awareness, and healthy life behaviors come into question. Because mindfulness has an intentional character and always requires attention directed to a specific event (2). So, individuals with higher mindfulness are expected to have higher health awareness and to have developed better healthy life skills. Shortly, health has been identified as the absence of disease and the ability to adapt and self-manage (7). According to Pender (1996), improving health means “self-control of the individual, gaining health behaviors and carrying them out for a long time and willingness to carry them out” (8).

Unlike healthy life behaviors, unhealthy life behaviors affect the development of undesirable and unpleasant situations such as obesity (9). According to Kelly et al. (2011), unhealthy life behaviors include insufficient physical activity, sedentary lifestyle, increased consumption of fast-food, increased meal portions, and insufficient fruit and vegetable consumption (10). Studies showed that mindfulness-based interventions positively affect reducing these unhealthy behaviors (11-13). According to Gilbert and Waltz (2010), although changing health habits can be a frustrating and challenging task, a non-judgmental, self-compassionate attitude fostered through mindfulness practice could aid an individual in persisting with a behavior change program (14).

Life satisfaction has been described as a psychological state that is generally related to an individual’s psychological well-being. However, it is not to be confused with measuring the individual’s quality of life (15). Moreover, as with health, mindfulness affects life satisfaction as well. For instance, a study conducted on 305 undergraduate students showed that mindfulness directly predicts well-being and indirectly predicts well-being through improved sleep quality (16).

A more recent study presented that greater life satisfaction was associated with higher levels of mindfulness and more positive core self-evaluations (17). Similarly, according to Bajaj and Pande’s (2016) study results, mindfulness predicted life satisfaction and affected as indices of subjective well-being (18). So, in the present study, we examined the differences in the perceptions of mindfulness, healthy life skills, and life satisfaction of athlete and non-athlete university students. Besides, analyzing the correlations between the variables was another aim.

Materials and Method

Participants

The study sample consisted of 379 university students from Gazi University. Participants representing the athlete group of the study were selected according to the purposive sampling method. The criteria for selection were to be a licensed varsity athlete and to compete in the inter-university competitions. The participants representing the non-athlete group were chosen according to the random sampling method. Descriptive statistical information about the participants was given in Table 1.

Data Collection

Mindful Attention Awareness Scale (MAAS)

The original scale was developed by Brown and Ryan in (2003) to measure the individuals’ daily general tendency to be aware of and be mindful of experiences in life. The scale consisted of one-dimension with 15 items (e.g., “I find it hard to focus on what is going on right now”). The answers given to the scale are evaluated with a 6-point Likert type scale (1= almost always, 6= almost never) (5). The scale was adapted to Turkish by Özyeşil et al. in (2011) using explanatory and confirmatory factor analysis methods. In their study, Özyeşil et al. (2011) found that the scale’s internal consistency coefficient as .80 (19). In the present study, we calculated Cronbach’s Alpha value as .79.

Table 1. Demographic Characteristics of the participants

	Athletes (N=228)		Non-athletes (N=151)	
	Mean / %	Std. Deviation	Mean / %	Std. Deviation
Female	36.8%	-	30.5%	-
Male	63.2%	-	69.5%	-
Age (year)	20.45	6.54	27.87	8.15
Height (cm)	170.17	10.99	173.72	8.47
Weight (kg)	68.44	15.48	73.66	14.05

Healthy Life Skills for University Students

Genç and Karaman initially developed the scale in (2019) to measure university students' healthy life skills. The scale has four sub-dimensions and twenty-one items. Sample items include "I stay away from negative behaviors that put my health at risk" (importance given to health), "I eat a balanced diet for my health" (healthy nutrition), "I try to find resources on what to do for my health" (health literacy), "Being healthy is among my priorities" (health priority). The answers given to the scale are evaluated with a 4-point Likert type scale (1 = strongly disagree, four = strongly agree). In their study, Genç and Karaman (2019) found the scale's internal consistency coefficient as .90 (20). Within the scope of this study, the internal consistency coefficient of the scale was calculated as .89.

Life Satisfaction Scale

The original scale was developed by Diener et al. in (1985). The scale consisted of one-dimension with five items (e.g., "Until now, I have had the essential things I have wanted from my life."). The answers given to the scale are evaluated with a 5-point Likert type scale (1 = completely disagree, 5 = completely agree). Higher points indicate higher life satisfaction (21). The scale was adapted to Turkish by Dağlı and Baysal in 2016. In their study, Dağlı and Baysal (2016) found the internal consistency coefficient for the scale as .80 (22). In this study, the internal consistency coefficient of the scale was determined as .84.

Statistical Analysis

In the analysis of the data first, skewness and kurtosis values were checked to determine which tests to use. Accordingly, descriptive statistics were presented as mean and Standard deviation. Comparisons among the groups were performed using the independent samples t-test. Partial correlation and Simple Linear Regression analyses were conducted between variables, and partial correlation analyses were controlled for varsity athlete or non-athlete. To test the scales' construct validity, Confirmatory Factor Analysis (CFA) was performed, and the fit indices were examined.

Results

Table 2 shows the skewness and kurtosis values of the scales. According to analyze results both skewness and kurtosis values were calculated within the range of -1.5/+1.5. So, it was determined that the data had a normal distribution and were suitable for parametric tests (23).

Table 3 shows the fit indicates of the scales. According to analyze results, all scales had acceptable fit or perfect fit indicates (24-28).

The descriptive statistics are given in Table 4. Regarding group comparison, we found that varsity athletes reported significantly higher scores in the importance given to health sub-dimension and life satisfaction.

Table 2. Skewness and Kurtosis values

Scale	Skewness	Kurtosis
Mindful Attention Awareness Scale (MAAS)	.366	.383
Healthy Life Skills for University Students	-.811	.205
Life Satisfaction Scale	-.894	.696

Table 3. CFA results for the scales

Scale	χ^2/df	RMSEA	RMR	GFI	AGFI	SRMR	NFI	CFI
MAAS	3.30	.078	.018	.91	.87	.061	.91	.93
HLSUS	3.28	.078	.028	.87	.83	.063	.94	.95
LSS	4.40	.095	.032	.98	.93	.027	.98	.99
Suggested value (Goodness of fit)	$\leq 5 =$ Acceptable	$\leq .10 =$ Acceptable	$\leq .05 =$ Perfect	$\geq .80 =$ Acceptable $\geq .95 =$ Perfect	$\geq .80 =$ Acceptable $\geq .90 =$ Perfect	$\leq .08 =$ Perfect $\leq .05 =$ Acceptable	$\geq .90 =$ Perfect	$\geq .90 =$ Perfect

Notes: MAAS = Mindful attention awareness scale, HLSUS = Healthy life skills for university students, LSS= Life satisfaction scale

Table 4. Descriptive statistics and comparison between the sub-dimensions

	Varsity athletes (N=228)		Non-athletes (N=151)		t-test
	Mean	SD	Mean	SD	p
Mindfulness	3.26	0.84	3.28	0.90	0.783
The importance given to health	3.66	0.38	3.55	0.44	0.014*
Healthy nutrition	3.48	0.49	3.43	0.50	0.378
Health literacy	2.99	0.74	3.12	0.63	0.068
Health priority	3.85	0.32	3.81	0.36	0.217
Life satisfaction	3.68	0.80	3.43	0.97	0.009*

* $p < .05$

Table 5. Partial correlations between the variables in the study for athlete and non-athlete sub dimensions

	1	2	3	4	5	6
1 Mindfulness	1.000	.253**	.219**	.116*	.165**	.188**
2 The importance given to health		1.000	.693**	.524**	.543**	.292**
3 Healthy nutrition			1.000	.584**	.472**	.389**
4 Health literacy				1.000	.352**	.327**
5 Health priority					1.000	.266**
6 Life satisfaction						1.000

Partial correlation test controlling for being varsity athlete/non-athlete ** $p < 0.01$; * $p < 0.05$

Table 5 shows the partial correlation analyses between mindfulness, healthy life skills sub-dimensions, and life satisfaction. In the test, being a licensed varsity athlete/non-athlete was the control parameter. Results showed that mindfulness and healthy life skills were positively correlated, ranging from 0.116 (mindfulness – health literacy) to 0.253 (mindfulness - importance given to health). Besides, there was a positive correlation between mindfulness and life satisfaction ($r = 0.188$). Furthermore, healthy life skills and life satisfaction were positively correlated, ranging from 0.266 (health priority – life satisfaction) to 0.389 (healthy nutrition – life satisfaction).

Table 6 presents the simple linear regression results. According to analyzed results mindfulness significantly predicts importance given to health ($F_{(1-227)} = 8.591, p < .05$), healthy nutrition ($F_{(1-227)} = 6.645, p < .05$) and health priority ($F_{(1-227)} = 4.606, p < .05$) for the varsity athletes. However, mindfulness does not significantly predict health literacy ($F_{(1-227)} = .051, p > .05$), and life satisfaction ($F_{(1-227)} = 3.011, p > .05$). On the other hand, mindfulness significantly predicts impor-

tance given to health ($F_{(1-150)} = 18.127, p < .05$), healthy nutrition ($F_{(1-150)} = 13.489, p < .05$), health literacy ($F_{(1-150)} = 18.777, p < .05$), health priority ($F_{(1-150)} = 5.851, p < .05$) and life satisfaction ($F_{(1-150)} = 12.059, p < .05$) for the non-athlete participants.

Discussion

In the present study, we aimed to analyze the differences in the perceptions of mindfulness, healthy life skills, and life satisfaction of varsity athletes and university students as well as the correlations between the phenomena. According to the analyzed results, first, we found no significant difference in the perception of mindfulness for both groups. However, when we examine the literature, we see studies that reported mindfulness as a beneficial factor for student-athletes (29). Supporting this hypothesis, Gross et al. (2018) noticed that compared to psychological skills training, mindfulness-acceptance-commitment (MAC) program participants

Table 6. Simple Linear Regression results

		Dependent variables														
Factor		IGH			HN			HL			HP			LS		
		β	t	P	β	t	P	β	t	P	β	t	P	β	t	P
Varsity athletes	MS	.19	2.93	.00	.16	2.57	.01	-.01	-.22	.82	.14	2.14	.03	.11	1.73	.08
	R	.191			.169			.015			.141			.115		
	R ²	.037			.029			.000			.020			.013		
	F	8.591			6.645			.051			4.606			3.011		
	p	.004			.011			.822			.033			.084		
	Factor		IGH			HN			HL			HP			LS	
Non-Athletes	MS	.32	4.25	.00	.28	3.67	.00	.33	4.33	.00	.19	2.41	.01	.27	3.47	.00
	R	.329			.288			.335			.194			.274		
	R ²	.108			.083			.112			.038			.075		
	F	18.127			13.489			18.777			5.851			12.059		
	p	.000			.000			.000			.017			.001		

Notes: MS = Mindfulness, IGH = Importance given to health, HN = Healthy nutrition, HL = Health Literacy, HP = Health priority, LS = Life satisfaction

demonstrated reduced generalized anxiety, eating concerns, psychological distress, and increased psychological flexibility from post-intervention to one-month follow-up (30). Second, analyzed results showed that varsity athletes had significantly higher scores in the importance given to health sub-dimension. So, we can say that athlete participants give more importance to health and thereby had a better healthy life skill. However, there were no significant differences in healthy nutrition, health literacy, and health priority sub-dimensions. When we examine the literature, we see that some of the present results are compatible with the literature; however, it is possible to see studies with different results. For instance, in their study Süel et al. (2009) reported that when compared to sedentary counterparts, student basketball players had a healthier nutritional attitude (31). Moreover, studies have shown that athlete university students' nutritional attitudes are positive (32). In support of our results, Aktaş Üstün et al. (2020) reported no significant difference in athletic and sedentary university students' healthy nutritional attitudes (33). Third, analyzed results showed that varsity athletes reported significantly higher scores in life satisfaction. Supporting our results, studies showed that athlete students have a higher life satisfaction than non-athlete students (34). Besides, according to Wilson (2016), life satisfaction significantly correlates with athletic identity (35).

Analyze results also showed that the three variables, mindfulness, healthy life skills, and life satisfaction, were correlated. Besides, mindfulness significantly predicted life satisfaction and healthy life skills for both groups. However, this prediction is found to be higher for non-athlete participants. It can be said that this result stems from the necessity of non-athlete students having higher mindfulness to have higher healthy life skills and life satisfaction. When we examine the literature, we can see that previous research has demonstrated that mindfulness correlates with positive health skills and health behaviors in general (36), including healthy eating (37-39). Besides, studies showed that mindfulness influences a variety of health indices and quality of life (40).

Conclusion

The present study showed that varsity athletes give more importance to health and have higher life satisfaction than non-athlete counterparts. Mindfulness, healthy life skills, and life satisfaction positively correlated with both athletes and non-athletes. Furthermore, mindfulness significantly predicted healthy life skills and life satisfaction for both groups; however, this prediction was higher for non-athlete university students.

Limitations and Future Studies

The present paper demonstrated original and interesting results on associations in mindfulness, healthy life skills, and life satisfaction in a sample of varsity athletes and university students, however; has some limitations. The first limitation was the sample size. Although the sample size was sufficient for analyses, it is recognized that larger numbers would enhance statistical power. Second, the data collection tools were self-report measures and the study was cross-sectional. They, therefore, do not reflect developmental changes, and in some occasions, this can cause restriction of advanced findings. So, future studies should focus on the current results with larger samples and different study designs to establish cause and effect.

Conflicts of Interest

The authors declare that there is no conflict of interest in this manuscript.

References

1. Öz S. The effects of mindfulness training on students' 12 speaking anxiety, willingness to communicate, level of mindfulness and 12 speaking performance. Bahçeşehir University Master Thesis 2017.
2. Germer CK. Mindfulness: what is it? what does it matter? In Germer CK, Siegel RD, Fulton PR (Eds.). *Mindfulness and psychotherapy* (pp. 3-27). New York: Guilford Press 2005.

3. Crane RS, Brewer J, Feldman C, et al. What defines mindfulness-based programs? The warp and the weft. *Psychological Medicine* 2017; 47: 990–999.
4. Guerra J, García-Gómez M, Turanzas J, et al. A brief Spanish version of the child and adolescent mindfulness measure (CAMM). A dispositional mindfulness measure. *International Journal of Environmental Research and Public Health* 2019; 16(8).
5. Brown KW, Ryan RM. The benefits of being present: mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology* 2003; 84: 822–848; doi: 10.1037/0022-3514.84.4.822
6. Baer R, Smith GT, Hopkins J, et al. Using self-report assessment methods to explore facets of mindfulness. *Assessment* 2006; 13: 27–45.
7. Huber M, Green L, Jadad AR, et al. How should we define health? *BMJ* 2011; 343: 1–3; doi: 10.1136/bmj.d4163.
8. Pender NJ. *Health promotion in nursing practice* (3rd ed.). Connecticut: Appleton & Lange Stanford 1996.
9. Cha E, Braxter BJ, Crowe JM, et al. Understanding how overweight and obese emerging adults make lifestyle choices. *Journal of Pediatric Nursing* 2016; 31: 325–332.
10. Kelly SA, Melynk BM, Jacobson DL. Correlates among healthy lifestyle cognitive beliefs, healthy lifestyle choices, social support, and healthy behaviors in adolescents: implications for behavioral change strategies and future research. *Journal of Pediatric Care* 2011; 25(4): 216–223; doi: 10.1016/j.pedhc.2010.03.002.
11. Kabat-Zinn J. *Full catastrophe living: using the wisdom of your body and mind to face stress, pain, and illness*. New York: Bantam Dell 1991.
12. Carlson LE, Speca M, Patel KD, et al. Mindfulness-based stress reduction in relation to quality of life, mood, symptoms of stress and levels of cortisol, dehydroepiandrosterone sulfate (DHEAS) and melatonin in breast and prostate cancer outpatients. *Psych neuroendocrinology* 2004; 29: 448–474.
13. Greeson JM. Mindfulness research update: 2008. *Complementary Health Practice Review* 2009; 14: 10–18; doi: 10.1177/1533210108329862
14. Gilbert D, Waltz J. Mindfulness and health behaviors. *Mindfulness* 2010; 1: 227–234; doi: 10.1007/s12671-010-0032-3
15. Malinauskas R. The associations among social support, stress, and life satisfaction as perceived by injured college athletes. *Social Behavior and Personality* 2010; 38: 741–752.
16. Howell AJ, Digdon NL, Buro K, et al. Relations among mindfulness, well-being, and sleep. *Personality and Individual Differences* 2008; 45: 773–777; doi: 10.1016/j.paid.2008.08.005
17. Jianfang T, Wu Y, Hongwei M, et al. Adolescents' core self-evaluations as mediators of the effect of mindfulness on life satisfaction. *Social Behavior and Personality* 2016; 44(7): 1115–1122; doi: 10.2224/sbp.2016.44.7.1115
18. Bajaj B, Pande N. Mediating role of resilience in the impact of mindfulness on life satisfaction and affect as indices of subjective well-being. *Personality and Individual Differences* 2016; 93: 63–67; doi: 10.1016/j.paid.2015.09.005
19. Özyeşil Z, Arslan C, Kesici , et al. Adaptation of the mindful attention awareness scale into Turkish. *Education and Science* 2011; 36(160).
20. Genç A, Karaman F. Üniversite öğrencilerinde sağlıklı yaşam becerileri ölçeği'nin geliştirilmesi. *İstanbul Gelişim Üniversitesi Sağlık Bilimleri Dergisi* 2019; 7: 656–669.
21. Diener E, Emmons RA, Larsen RJ, et al. The satisfaction with life scale. *Journal of Personality Assessment* 1985; 49(1): 71–75.
22. Dağlı A, Baysal N. Yaşam doyumu ölçeğinin Türkçe'ye uyarlanması: geçerlik ve güvenirlik çalışması. *Elektronik Sosyal Bilimler Dergisi* 2016; 15(59): 1250–1262.
23. Tabachnick BG, Fidell LS. *Using multivariate statistics* (6 ed.). New York: Pearson 2012.
24. MacCallum RC, Browne MW, Sugawara HM. Power analysis and determination of sample size for covariance structure modeling. *Psychological methods* 1996; 1(2).
25. Brown TA. *Methodology in the social sciences. Confirmatory factor analysis for applied research* (2nd ed.). The Guilford Press 2015.
26. Hooper D, Coughlan J, Mullen M. Structural equation modelling: guidelines for determining model fit. *Articles* 2, 2008
27. Harrington D. *Confirmatory factor analysis*. New York: Oxford University Press 2009.
28. Kline RB. *Principles and practice of structural equation modeling*. (4th ed.). The Guilford Press 2015
29. Wolanin AT, Gross MB. Mindfulness-and acceptance-based approaches with college student-athletes. In *The mindfulness-informed educator* (pp. 169-186). Routledge 2016.
30. Gross M, Moore MZ, Gardner FL, et al. An empirical examination comparing the mindfulness-acceptance-commitment approach and psychological skills training for the mental health and sport performance of female student athletes. *International Journal of Sport and Exercise Psychology* 2018; 16(4): 431–451; doi: 10.1080/1612197X.2016.1250802
31. Süel E, ahin İ, Korkmaz C, et al. Comparison of nutritional knowledge and habits of basketball players in young men's basketball group matches in Turkey and young sedentaries in the same age group. *Journal of Human Sciences* 2009; 6(2): 239–251.
32. Yıldırım İ, Yıldırım Y, Ersöz Y, et al. Egzersiz bağımlılığı, yeme tutum ve davranışları ilişkisi. *CBÜ Bed Eğt Spor Bil Dergisi* 2017; 12(1): 43–54.
33. Aktaş Üstün N, Üstün ÜD, Işık U, et al. Health belief regarding leisure time physical activity and nutritional attitude: are they related in athletic and sedentary university students. *Progress in Nutrition* 2020; 22: 156–160; doi: 10.23751/pn.v22i1-S.9810

34. Hossein G, Ali O, Iesa H, et al. Comparison of life satisfaction between the athlete and non-athlete students: the effect of gender. *Woman & Study of Family* 2009; 2(5): 87–96.
35. Wilson, M. Differences in depression, anxiety, and life satisfaction between intercollegiate athletes, intramural participants, and non-athletes. *Western Kentucky University Masters Theses & Specialist Projects* 2016.
36. Kimberly C, Roberts MA, Danoff-Burg S. Mindfulness and health behaviors: is paying attention good for you? *Journal of American College Health* 2010; 59(3): 165–173; doi: 10.1080/07448481.2010.484452
37. Grinnell S, Greene G, Melanson K, et al. Anthropometric and behavioral measures related to mindfulness in college students. *Journal of American College Health* 2011; 59(6): 539–545; doi: 10.1080/07448481.2011.555932
38. Murphy MJ, Mermelstein LC, Edwards KM, et al. The benefits of dispositional mindfulness in physical health: a longitudinal study of female college students. *Journal of American College Health* 2012; 60(5): 341–348; doi: 10.1080/07448481.2011.629260
39. Kurtipek S, Güngör NB, Esentürk OK, et al. The mediating role of nutrition knowledge level in the effect of mindfulness on healthy nutrition obsession. *Progress in Nutrition* 2020; 22: 138–145; doi: 10.23751/pn.v22i1-S.9807
40. Bränström R, Duncan LG, Moskowitz JT. The association between dispositional mindfulness, psychological well-being, and perceived health in a Swedish population-based sample. *British Journal of Health Psychology* 2011; 16: 300–316; Doi: 10.1348/135910710X501683

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