



Exploring the Relationship Between Nutrition Knowledge and Mental Well-Being: Research on Master Athletes Participating in Recreational Marathons

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Submitted: 20 March 2023; Accepted: 18 April 2023; Published: 03 May 2023

ABSTRACT

The present descriptive correlational study attempted to unlock the relationship between nutrition knowledge and mental well-being among master athletes participating in the 44th Istanbul Marathon. Using the convenience sampling technique, we recruited 137 master athletes, 19 females (13.9%) and 118 males (86.1%), competing in the said marathon. Besides, we collected the data using a demographic information form, the Nutrition Knowledge Level Scale for Adults (basic nutrition and nutrition-health knowledge and dietary preferences preference), and the Warwick-Edinburgh Mental Well-being Scale. Then, we utilized descriptive statistics, Pearson's correlation analysis, and stepwise regression analysis to analyze the data. All analyses were performed on the SPSS 24.0 program, and a p-value of < 0.05 was considered statistically significant. The regression analysis revealed that the participants' nutrition knowledge and dietary preferences significantly predicted their mental well-being. The relationships between nutrition knowledge, dietary preferences, and mental well-being seem to be intricate and multifaceted. Yet, previous evidence supports the idea that proper nutrition and mental well-being are positively correlated in athletics. Similarly, our findings indicated that sustaining a healthy diet and dietary preferences can contribute to athletes' mental well-being, particularly in events demanding endurance (e.g., marathons). A well-balanced, nutrient-rich, and hydrating diet not only aids in training and recovery but also improves mental well-being. Therefore, athletes should implement a periodized, individualized plan prioritizing a variety of foods to satisfy their caloric needs.

Keywords: *Nutrition, mental-well-being, recreation, master athletes*

INTRODUCTION

Thanks to its inclusive and unifying nature with its multidisciplinary dynamics, sports always brings people together regardless of language, religion, race, or gender.

Institutions and organizations often desire to capitalize on the said extraordinary impact of sports by reaching and mobilizing the masses with the help of exclusive events to attain several purposes

such as community socialization, economic resource generation, promotion of the city, and the contribution to public health. In this sense, the “Istanbul Marathon” organized by the Istanbul Metropolitan Municipality annually may be shown as one of the greatest events held in our country. The event, which used to be called the Intercontinental Eurasia Marathon in 1979, was renamed to “Istanbul Marathon” to promote Istanbul city. It was announced that a total of 50,000 runners participated in the 2022 Istanbul Marathon, 7,500 in the category of 42K, 22,500 in the category of 15K, and 30,000 in the public race (Url-1). As of November 5, 2023, the Istanbul Marathon has become one of the selection events for the World Masters Marathon Championship (Abbott World Marathon Majors Wanda Age Group World Championships). In other words, runners aged 40 years and older can now qualify for the World Masters Marathon Championship with their ranks in the Istanbul Marathon. Overall, thanks to its deep-rooted history of more than 40 years, it can be claimed that the Istanbul Marathon has become a traditional sports feast for athletics, the international sports world, Istanbulites, and running enthusiasts.

We believe in the importance of bringing a multifaceted perspective to athletes in such high-participation sports. To put it another way, exploring how athletes maintain their physical and mental health in such events is likely to guide both athletes and marathon organizers and further research on the subject. Therefore, the present study explored the relationship between nutrition knowledge and mental well-being among the athletes participating in the Istanbul Marathon in 2022.

Mental Well-being

The World Health Organization (WHO) describes mental well-being as “a state of well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community” (WHO, 2014). Accordingly, the definition not only refers to a lack of psychological disorders but also emphasizes one’s functionality.

The previous research on mental well-being documented that individuals with greater mental well-being have much better physical and psychological health and higher quality of life (Keyes, 2002; Keyes et al., 2010). Moreover, it was previously revealed that one with robust mental well-being has stronger bodily immunity, higher creativity, healthier relationships, and longer life and contributes more to their work environment (Lyubomirsky, King, & Diener, 2005). Therefore, it can confidently be asserted that mental well-being is a significant factor at the individual, environmental, and social levels to allow one to live physically and psychologically healthy.

Nutrition Knowledge

Conscious nutrition seems essential in maintaining individual and public health and improving the recovery rate of diseases (Çakırca & Avcu, 2017). Health-focused policies of states and international organizations (e.g., the United Nations) aim to raise awareness in societies regarding healthy nutrition through a set of nutrition guides. Improving public health also demands leading a healthy life and exhibiting health-promoting behaviors through acquiring relevant nutrition knowledge. Nutrition knowledge often covers dietary, the health-disease relationship, nutrient sources of foods, and nutritional recommendations (Miller & Cassady, 2015). It is only through nutrition education that one can know about the proper and individualized diet, the health-nutrition relationship, how to protect nutritional health in food processes, how to adjust their diet in case of illness, and appropriate dietary habits (Baysal et al., 2008). It was reported that adopting appropriate dietary behaviors is directly linked with sufficient nutrition knowledge (Denke, 2001).

While it is commonly believed that having nutrition knowledge is important for maintaining a healthy diet and lifestyle, previous research has suggested otherwise, which may be due to the possibility that nutrition knowledge is not being accurately measured (Batmaz, 2018). In the study, adult subjects participating in the Istanbul Marathon were asked to evaluate their nutrition

knowledge regarding basic nutrition and dietary preferences.

METHODS

Research Design and Sample

We adopted a descriptive correlational design in this study. While descriptive studies allow for collecting, describing, and presenting data for the focus-of-interest subject (Büyüköztürk et al., 2008), the correlational design aims to reveal any change and the degree of the change in two or more variables with respect to each other (Karasar, 2023). On the other hand, we designated the target population of the research as individuals participating in marathons organized by Istanbul Metropolitan Municipality. Using the convenience sampling technique (Yıldırım & Şimşek, 2018), we recruited a total of 138 voluntary marathon runners participating in the 44th Istanbul Marathon in 2022. After excluding missing or erroneous data, we considered the data of 137 participants in the study.

Data Collection Tools

To gather the participants' demographic characteristics, we utilized a demographic information form that covers questions about their gender, previous participation in the

Istanbul Marathon, the first-time recreational event, and previous education on healthy nutrition (Table 1).

Then, we measured the participants' perceptions of basic nutrition and dietary preferences with the help of the Nutrition Knowledge Level Scale for Adults (NKLSA). Designed by Batmaz, this 32-item tool consists of two subscales: basic nutrition (20 items) and dietary preferences (12 items) and is scored on a 5-point Likert-type scale ranging from 0 (Strongly Disagree) to 4 (Strongly Agree). It should be noted that the negative statements in the scale are reverse-scored. In the original study, the author categorized the subscale scores as poor (<45 for basic nutrition and <30 for dietary preferences), moderate (45-55 for basic nutrition and 30-36 for dietary preferences), good (56-65 for basic nutrition and 37-42 for dietary preferences), and excellent (>65 for basic nutrition and >42 for dietary preferences) (Batmaz, 2018).

Finally, we measured the participants' well-being using the Warwick-Edinburgh Mental Well-being Scale (WEMWBS), developed by Tennant et al. (2007) and adapted into Turkish by Keldal (2015). The 14-item scale is also scored on a 5-point Likert-type scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The internal consistency of the scale was reported to be .89 in the adaptation study (Keldal, 2015).

TABLE 1: Participants' Demographic Characteristics

	Variable	n	%
Gender	Female	19	13.9
	Male	118	86,1
	Total	137	100.0
Previous participation in the Istanbul Marathon	Yes	97	70.8
	No	40	29.2
	Total	137	100.0
First-time recreational event	Sports event	113	82.5
	Artistic event	9	6.6
	Cultural event	5	3.6
	Touristic event	10	7.3
	Total	137	100.0
Previous education on healthy nutrition	Yes	83	60.6
	No	54	39.4
	Total	137	100.0

n = number; % = percentage

Statistical Analysis

Although the Kolmogorov-Smirnov test yielded significant results for the data distribution, histogram curves demonstrated no extreme deviations in the scores from a normal distribution. In addition, skewness and kurtosis values were found to fall within the range of +1.5 and -1.5. Tabachnick and Fidell (2013) assume normality of distribution when skewness and

kurtosis values of data fall within the mentioned range (Table 2). In this regard, we adopted parametric analyses to analyze the data. Accordingly, we utilized descriptive statistics, Pearson’s correlation analysis, and stepwise regression analysis. All analyses were performed on the SPSS 24.0 program, and a p-value of < 0.05 was considered statistically significant.

TABLE 2: Distribution of the Participants’ Scores on the Data Collection Tools

	N	Skewness	Kurtosis	p
NKLSA - Basic Nutrition	137	.522	.557	.000
NKLSA - Dietary Preferences	137	-.054	-.106	.020
WEMWBS	137	-.308	.338	.000

FINDINGS

TABLE 3: Descriptive Statistics of Participants’ Scores

Scales	Min.	Max.	M±SD
NKLSA - Basic Nutrition	27	79	50.68±8.80
NKLSA - Dietary Preferences	20	48	33.61±5.28
WEMWBS	42	70	59.39±7.25

N = 137

While the participants’ mean scores were 50.68 (SD = 8.80) and 33.61 (SD = 5.28) on the basic nutrition and dietary preferences subscales, respectively, they scored 59.39 (SD = 7.25) on the WEMWBS (Table 3).

TABLE 4: Correlations Between the Participants’ Scores

		1	2	3
NKLSA - Basic Nutrition 1	r	1		
	p	-		
NKLSA - Dietary Preferences 2	r	.238	1	
	p	.005	-	
WEMWBS 3	r	.452**	.416**	1
	p	.000	.000	-

*p < 0.05; **p < 0.01; N = 137

The correlation analysis yielded moderate positive relationships between mental well-being and basic nutrition (r = .452; p < .01) and dietary preferences (r = .416; p < .01). In other words, the

findings imply that as the more knowledge one has about basic nutrition and dietary preferences, the greater mental well-being they have.

TABLE 5: Regression Analysis Results

Model	Predictors	R	R2	F	df	β	p
1	(Constant) NKLSA – Basic Nutrition	.452	.204	19.088	1/135	.452	.000**
2	(Constant) NKLSA – Dietary Preferences	.498	.248	14.792	2/134	.487	.000**

* $p < 0.05$; ** $p < 0.01$; $N = 137$

Table 5 presents the stepwise regression analysis results. Accordingly, both models designed to reveal the predictors of mental well-being were significant. Specifically, the basic nutrition variable entered in the first step of the analysis significantly predicted mental well-being ($R^2 = .204$; $F(1/135) = 19.088$; $p < .01$) and explained about 20% of the total variance in mental well-being. The contribution of the dietary preferences variable entered in the second step to the model was also found to be significant ($R^2 = .248$; $F(2/134) = 14.792$; $p < .01$) and contributed about 5% to the variance explained in the model. All in all, basic nutrition and dietary preferences variables explained about 25% of the total variance in mental well-being.

DISCUSSION AND CONCLUSION

The present study attempted to reveal the relationship between nutrition knowledge and mental well-being among master athletes participating in the 44th Istanbul Marathon. The previous evidence indicated a positive association between fundamental nutrition and mental health in sports, particularly marathons. Moreover, adequate nutrition was found to improve health-related quality of life by preventing malnutrition and dietary deficiency disease and promoting optimal functioning (Amarantos et al., 2001). In addition, it was reported that vegetarian and vegan endurance runners were healthier than their omnivorous counterparts (Wirnitzer et al., 2018). The quality-of-life scores of vegetarian or vegan endurance runners were found to be comparable to those of omnivorous endurance runners (Boldt et al., 2018). Besides, it was previously discovered that dietary intake and nutritional status are the

factors significantly influencing mental health and the onset of psychiatric disorders (Lim et al., 2016). Diet and nutrition have significant effects on mood and mental health, according to another study (Muscaritoli, 2021).

The adoption of a well-balanced diet with adequate nutrients and hydration was shown to not only aid in training and recuperation but also positively influence mental health in athletics, particularly in endurance events. The International Society of Sports Nutrition (ISSN) advises ultramarathon athletes to implement a periodized, individualized plan prioritizing a variety of foods to satisfy their caloric needs (Tiller et al., 2019). The importance of proper nutrition for mental health is further emphasized by research indicating that dietary interventions and specific dietary patterns can have a positive impact on mental health outcomes in athletics, notably marathons. According to a study, dietary interventions that increase access to healthful foods can lessen the symptoms of poor mental health (Roca et al., 2017). In addition, a diet of the Mediterranean variety, which is rich in fruit, vegetable, whole grains, and healthy fats, was found to be linked with a lower incidence of depression (Tiller et al., 2019).

Our findings revealed basic nutrition and dietary preferences to be significant predictors of mental well-being. While basic nutrition explains about 20% of the variance in mental well-being, dietary preferences contribute an additional 5% to the model. Therefore, it can confidently be claimed that maintaining a healthy diet and dietary preferences is likely to contribute to mental well-being. It should be noted that the relationships between these variables and mental well-being are rather complex and multifaceted; thus, further

research is needed to understand these relationships fully.

Moreover, the COVID-19 pandemic has had both direct and indirect effects on the physical and mental health of student-athletes (Grubic et al., 2021). Dietary intake is essential for maintaining health and determining endogenous sustenance for endurance exercise (Passos et al., 2019). Even college athletic programs recognize the individual contributions of nutrition and mental health to performance and employ sports dietitians and psychologists (McCabe, Ketcham, & Hall, 2021). Yet, one should remember that nutrition is crucial not only for human body composition and physiology but also for mood, mental health, and cognitive performance (Businaro, 2022). Although previous research demonstrated substantial physiological effects of high-energy foods on performance, their psychological effects seem to be understudied (Karahanoğlu, 2022). On the other hand, mental fortitude was found to be a trait-like personality dimension related to the demands of sports and exercise (Crust & Clough, 2005; Brace, George, & Lovell, 2020). Moreover, the relevant literature hosts a plethora of studies associating mental and physical health benefits with recreational road running (Schuurman, Rosenkrantz & Lear, 2021).

In conclusion, based on the evidence presented in this study, athletes, instructors, and sports nutritionists may be recommended:

to adopt a periodized, individualized plan prioritizing a variety of foods to satisfy their caloric needs.

to ensure a diet that contains sufficient macronutrients, micronutrients, and fluids to support training and recovery.

to promote the adoption of a Mediterranean-style diet to reduce the incidence of melancholy.

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