

THE IMPACT OF BEHAVIOR, MOTIVATION AND FOOD PREFERENCES ON THE QUALITY OF LIFE

FLAVIU STELIAN DUȘA¹, DANA BĂDĂU², STANCIU NICOLAE³ KLARA BRÎNZANIUC⁴

^{1,2,3,4}University of Medicine and Pharmacy, Tîrgu-Mureș

Keywords: quality of life, food, behaviour, BMI, health.

Abstract: Quality of life is closely related to the health status of an individual and is influenced by eating habits and patterns, physical activity, working environment, recreation, etc. During March - July 2017, we conducted a survey which included 326 students, whose mean age was \pm SD 22.02 \pm 2.63 years. The aim of the study was to highlight the impact of the quality of life on food behavior based on the results of a survey which also assessed the relationship between weight, waist and BMI by subject and sample type. The assessment was based on a 20-item-questionnaire apropos of the impact of the quality of life on food behaviors. Statistical processing of the questionnaire resulted statistically significant values, $p < 0.05$. The study highlights the respondents' limited knowledge concerning healthy eating habits and their partially appropriate nutritional behavior according to dietary needs based on scientific facts.

INTRODUCTION

Our life is the result of choices we make, blaming people around us, the environment or other external factors means giving these things the power to control us.

Quality of life is closely related to our health status. It is influenced by our behavior regarding food style, sports activity, workplace, the way we can or cannot relax or the way we know how to choose or distinguish between right or wrong.

Quality of life includes dimensions such as physical, mental or social health that can be influenced by our personal experiences or expectations from life. These domains have an objective and a subjective side. The subjective side supports self-assessment as a lifestyle and the objective side is determined by our health status.

In the framework of these two domains, we have to establish and maintain a healthy lifestyle and assume a self-regulating role in the care of our health.

Quality of Life is a main element used in health components: activities planning, financial plan, and decision-making.(1)

The origin and evolution of eating disorders has a multifactorial etiopathology, important to consider the psychological, developmental, biological, social and cultural environment of each and every one of us.(2)

Diet quality scores or indices that aim to evaluate compliance to dietary guidelines may be particularly valuable for assessing the relationship between nutrition knowledge and dietary intake.(3)

Eating behavior tendencies, emotional eating (EE), uncontrolled eating (UE) and cognitive restraint (CR), are associated with various indicators of physical and mental health.(4) The interaction between environmental characteristics, behavior eating and fitness profile, psychical state and metabolism of energy have had major influences in the energy balance of body.(5)

Individual differences in food likes and desires develop throughout life because of differing food experiences and attitudes. Food desires and intake are an outcome of interactions between these cues and more stable individual physiological and psychological characteristics.(6)

Unhealthy dietary habits, sedentary lifestyles and lack of physical activity are the main threats to some health disorders, such as obesity. Maintaining good health is imperative for a better performance in both routine household work and office work. The results of this study can aid the formulation and organization of dietary and fitness plans for any socioeconomic class.(7)

Body Mass Index (BMI), the weight and height ratio that helps determine the weight category, is considered to be a major determinant of health status.

We can define eating behavior as a total set of behavior of an individual concerning food consumption. Behavior change theories and models, validated within the field of dietetics, offer systematic explanations for nutrition-related behavior change. They are integral to the nutrition care process, guiding nutrition assessment, intervention, and outcome evaluation.(8)

More and more studies were published in the last decades accounting on the enormous health benefits of physical exercise. Physical exercise has multiple benefits; it controls body weight, precludes becoming overweight and provides a good physical condition. Besides physical exercise, eating behavior is also important for both conditioning personal evolution and health status. The review of the specialty literature highlighted numerous researches aimed at studying the impact of quality of life in relation to food behavior. The novelty of this study relies on the fact that besides eating habits we also evaluated the respondents' motivations and preferences.

PURPOSE

The aim of the present research was to highlight the impact of quality of life on food behavior through a multiple-response questionnaire. We also wanted to highlight the relationship between weight, waist and BMI by subject type and sample.

MATERIALS AND METHODS

Participants: The study comprised 326 subjects, students at the University of Medicine and Pharmacy, Tîrgu

²Corresponding author: Dana Badau, Str. Gh. Marinescu, nr. 38, Tîrgu-Mureș, România, E-mail: dana.badau@umftgm.ro, Phone: +40723 198391
Article received on 11.10.2017 and accepted for publication on 28.11.2017
ACTA MEDICA TRANSILVANICA December 2017;22(4):9-12

Mureş, with mean age \pm SD 22.02 \pm 2.63 years. The sample structure comprised: 60 (18.4%) male and 266 (81.6%) female respondents. Concerning their origins: 85 (26.1%) come from rural areas and 241 (73.9) from urban areas. The ratio of declared behaviors n (%) was: choleric 60 (18.4%), phlegmatic, 31 (9.5%), melancholic 16 (4.9%), sanguine 103 (31.6%), no idea 116 (35.6%). All the participants of this study were volunteers.

Procedure: The research was carried out during March – July 2017. The evaluation targeted a survey based on a questionnaire concerning the impact of quality of life according to food behaviors. We used a 20-item multiple-response questionnaire. We used *Google Form* to compile the questionnaire and the respondents were granted access to it by an online platform.

Statistical analyses. The obtained data were statistically processed with SPSS 20. To assess the relevance and the effect sizes the number and percentage of subjects in relation to the criteria of responses were calculated (table no. 1). The statistical analysis included: the arithmetic mean, the standard deviation(SD), Pearson Correlation (r); the student t-test, the significance threshold p, for $p < .05$ and the effect size (d) and for the assessed normality data we used one-Sample Kolmogorov-Smirnov Test (Z) (table no. 2).

RESULTS

The statistical processing of the results proved to be statistically significant for $p < .05$. The study group provided a total mean value of (mean \pm SD): waist 168.24 \pm 7.95 cm; weight 53.88 \pm 14.58 kg; BMI 19.00 \pm 4.83. The Pearson Correlation highlighted a statistically significant correlation for $p=0.01$, waist and weight $r=.330$; waist and gender $r=.623$; weight and BMI $r=.716$; weight and gender $r=.266$; gender and waist $r=.623$; and for $p=0.05$ between origin and (environment) BMI $r=.113$.

Table no. 1. Descriptive statistics of waist, weight and BMI parameters according to gender and origin

Items	Gender - Origin	N	Mean \pm SD	Mean \pm SD	t	p
Waist (cm)	M	60	178.66 \pm 5.79	168.24 \pm 7.95	381.94	.000
	F	266	165.89 \pm 6.32			
	Rural	85	167.31 \pm 8.12			
	Urban	241	168.57 \pm 7.56			
Weight (kg)	M	60	62.03 \pm 18.08	53.88 \pm 14.58	66.71	.000
	F	266	52.04 \pm 13.02			
	Rural	85	56.17 \pm 13.17			
	Urban	241	53.07 \pm 14.98			
BMI	M	60	18.41 \pm 4.77	19.00 \pm 4.83	71.01	.000
	F	266	19.13 \pm 4.84			
	Rural	85	19.92 \pm 4.04			
	Urban	241	18.68 \pm 5.04			

N – number; t – one simply t test; p – value of Sig. 2-tailed

The main incentive for the first item "What does food mean for you?" was necessity, and the least motivating categories are tradition and socialization.

Table no. 2. The statistical analysis of responses according to the scale on each item of the questionnaire assessing the quality of life according to food behavior

Items	Response weighting n (%)												
	criteria	necessity	pleasure	survival	tradition	relaxation	socialization						
What does food mean for you?	criteria												
	n (%)	189(58)	88(27)	33(10.1)	4(1.2)	8(2.5)	4(1.2)						
Are you aware of how many calories does the food you consume contain?	criteria	Yes			No								
	n (%)	118(36.2)			208(63.8)								
Do you avoid tempting foods?	criteria	Yes			No								
	n (%)	116(35.6)			210(64.4)								
Do you regularly eat breakfast?	criteria	Yes		No			Sometimes						
	n (%)	175(53.7)		54(16.6)			97(29.8)						
Do you regularly eat lunch?	criteria	Yes		No			Sometimes						
	n (%)	238(73)		16(4.9)			72(22.1)						
Do you regularly eat dinner?	criteria	Yes		No			Sometimes						
	n (%)	214(65.6)		17(5.2)			95(29.1)						
Do you frequently eat something between main meals?	criteria	Yes		No			Sometimes						
	n (%)	186(57.1)		28(8.6)			112(34.4)						
Where do you serve main meals?	criteria	a	b	c	d	e	f	g	h	i	j	k	l
	n (%)	289 (88.7)	18 (5.5)	2 (0.6)	1 (0.3)	1 (0.3)	1 (0.3)	1 (0.3)	1 (0.3)	1 (0.3)	1 (0.3)	1 (0.3)	1 (0.3)
Are you on a special diet?	criteria	Yes			No								
	n (%)	34(10.4)			292(89.6)								
Do you prefer foods of vegetable-origin rather than of animal-origin?	criteria	Yes		No			Both						
	n (%)	78(23.9)		89(27.3)			159(48.8)						
Do you like fatty foods?	criteria	Yes		No			It depends on the food type						
	n (%)	27(8.3)		157(48.2)			142(43.6)						

PUBLIC HEALTH AND MANAGEMENT

What kind of fats do you use to prepare meals?	criteria	oil	butter	margarine	fat		
	n (%)	263(80.7)	52(16)	2(0.6)	9(2.8)		
Do you like sweets?	criteria	Yes	No	Yes, I feel sometimes an exaggerated desire	Yes, but not exaggeratedly		
	n (%)	133(40.8)	15(4.6)	72(22.1)	106(32.5)		
Do you drink much sweetened beverages?	criteria	Yes		No		Sometimes	
	n (%)	191(58.6)		50(15.3)		85(26.1)	
How many teaspoons of sugar do you use in a cup of coffee/tea?	criteria	Non		1 teaspoon	2 spoons	3 spoons	>3 spoons
	n (%)	101(31)		88(27)	104(31.9)	28(8.6)	5(1.50)
How much white bread do you consume per day?	criteria	1 slice	2 slices	3-4 slices	5-6 slices	>6 slices	Non
	n (%)	73(22.4)	63(19.3)	65(19.9)	23(7.1)	7(2.1)	95(29.1)
How much whole wheat bread do you consume per day?	criteria	1 slice	2 slices	3-4 slices	5-6 slices	>6 slices	Non
	n (%)	97(29.8)	65(19.9)	48(14.7)	6(1.8)	4(1.2)	106(32.5)
Do you like salty food?	criteria	Yes			No		
	n (%)	201(61.7)			125(38.3)		
Do you ever eat excessive amounts of food?	criteria	Often	During exam sessions		Rarely	In anger	
	n (%)	64(19.6)	64(19.6)		184(56.4)	14(4.3)	
How many cups of coffee or tea do you drink a day?	criteria	1 cup	2 cups	3-4 cups	5-6 cups	>6 cups	Not a consumer
	n (%)	188(48.5)	54(16.6)	11(3.4)	3(0.9)	1(0.3)	99(30.4)

n - number of respondents; *a*-canteen; *b*-home; *c* -restaurant; *d* - fast-food, *e*-work, *f*-anywhere I can, *g*-at my workplace, *h*-workplace & home, *i*-at work, *j*-at work, university during breaks, home; *k* -catering; *j* -another place.

Table no. 3. Descriptive statistics for the results of the questionnaire assessing the quality of lice according with food behavior

Items	Mean	SD	One simple t test		Kolmogorov-Smirnov Test	
			t	p	Z	p
What does food mean for you?	1.6687	1.02014	29.535	.000	5.844	.000
Do you know how many calories regular foods contain?	1.6380	.48131	61.448	.000	7.439	.000
Do you avoid tempting foods?	1.6442	.47950	61.911	.000	7.496	.000
Do you regularly serve breakfast?	1.7607	.88289	36.008	.000	6.182	.000
Do you regularly serve lunch?	1.4908	.83292	32.316	.000	8.165	.000
Do you regularly serve dinner?	1.6350	.90394	32.657	.000	7.497	.000
Do you frequently eat something between main meals?	1.7730	.93018	34.415	.000	6.637	.000
Where do you serve main meals?	2.0583	.61242	60.683	.000	8.856	.000
Are you on a special diet?	.4724	1.79165	4.761	.000	8.217	.000
Do you prefer foods of vegetable-origin instead of animal-origin?	2.2485	.81689	49.697	.000	5.578	.000
Do you like fatty foods?	2.3528	.62863	67.576	.000	5.127	.000
What kind of fats do you use to prepare meals?	1.2546	.60731	37.300	.000	4.978	.000
Do you like sweets?	2.4632	1.31156	33.909	.000	4.978	.000
Do you drink much sweetened beverages?	1.6748	.86208	35.078	.000	6.663	.000
How many teaspoons of sugar do you use in a cup of coffee/tea?	2.2270	1.03061	39.015	.000	3.496	.000
How much white bread do you consume per day?	3.3466	1.93894	31.164	.000	3.716	.000
How much whole wheat bread do you consume per day?	3.2239	2.08486	27.920	.000	4.219	.000
Do you like salty food?	1.3834	.48697	51.294	.000	7.241	.000
Do you ever eat excessive amounts of food?	2.4540	.85361	51.907	.000	6.250	.000
How many cups of coffee or tea do you drink a day?	2.7914	2.19777	22.932	.000	5.253	.000

a. Test distribution is Normal. Z – value of Kolmogorov-Smirnov Test.

According to the questionnaire, most of the respondents: serve main meals at the canteen or at home; are not aware of the number of calories in common foods; do not avoid tempting meals; regularly serve breakfast, lunch and dinner; snack between meals; are not on a special diet; prefer both vegetable- and animal-origin meals; do not like fatty foods; often use oil for cooking; like sweets; consume much sweetened drinks; put two teaspoons of sugar in the coffee/ tea; do not consume bread, and those who consume resume to one slice of bread; like salted foods; rarely eat food in excessive quantities, usually they eat more during exam session; drink a cup of coffee per day.

Statistical processing of the questionnaire for the sample of respondents highlighted that the results are statistically significant for $p < 0.05$, the mean \pm SD of the questionnaire was 1.978 ± 0.681 , t (df 19) 12.97, p_{value} 0.000 where the average minimum value was 0.47 and the average maximum value was 3.35. The normality of data was statistically significant for all items according to the results highlighted by the Kolmogorov-Smirnov Test.

DISCUSSIONS

Numerous studies have highlighted poor quality-of-life as a result: incorrect eating habits, obesity, inadequate diet behaviors, reduced physical activity, etc.

A study involving 236 subjects highlighted the fact that obesity issues are related to familial and environmental factors, including incorrect eating habits.(9)

A study conducted during 2010-2011 with the aim of evaluating the dietary habits of 200 students and assessing the extent to which nutritional standards for energy and essential nutrients in the daily food rations are kept concluded that daily food rations of students were characterized by low energy value.(10)

A telephone survey conducted in 4714 individuals aged 12-75 years through multiple logistic models was conducted to identify the associations between awareness on these recommendations and behavior. This study concluded that eating habits and physical activity are positively associated with awareness on nutritional recommendations, mainly acquired via nutritional information and educational actions.(11)

Another study including elderly people of the following age groups: 60-67, 68-79 and 80+ as well as three groups of countries representing Western, Southern and Central-Eastern Europe identified enhanced health status as the most common benefit of healthy and correct eating, including normal function of body and found that physical activity stimulation and adequate nutrition are also crucial domains for a well-defined public health policy oriented towards healthy ageing.(12)

A survey about eating behavior, fitness and lifestyle, included 1262 adults, indicated a strong motivations for healthy eating habits, the subjects preferred fresh and healthy fruit, vegetables and food.(13)

It is very important for the subjects of clinical research are to understand the potential costs and benefits of their participation.

CONCLUSIONS

The study reveals a partial knowledge of respondents regarding the influences and implications of what comprises a healthy, rigorous and scientific food behavior in relation to age, gender, health, motor behavior and somatic parameters. Food behavior plays an important role in the quality of life and the anthropometric parameters of people.

The study highlights only partial knowledge of healthy eating habits, most of the study subjects having only partially

adequate dietary behavior according to dietary needs on scientific bases.

In conclusion, it would be particularly useful for chronic disease prevention programs, especially those related to nutrition and diabetes, as well as to cardiovascular diseases, along with health education, to influence healthy food habits especially in young people.

The combination of these steps with the prescription of sports activities that allow the maintenance of good health, but also recovery from some of the aforesaid diseases, should be promoted by health specialists, in the same way with other educational factors in schools, universities, civil societies, etc.

REFERENCES

1. Koch T. Life quality vs the 'quality of life': assumptions underlying prospective quality of life instruments in health care planning, *Soc Sci Med.* 2000;51(3):419-27.
2. Juli MR. Analysis of multi-instrumental assessment of eating disorders: comparison between anorexia and bulimia. 2012;24(Suppl 1):S119-24.
3. Spronk I, Kullen C, Burdon C, O'Connor H. Relationship between nutrition knowledge and dietary intake. *Br J Nutr.* 2014;111(10):1713-26.
4. Pentikäinen S, Arvola A, Karhunen L, Pennanen K. Easy-going, rational, susceptible and struggling eaters: A segmentation study based on eating behaviour tendencies. *Appetite.* 2017;S0195-6663(16)30990-4.
5. Rebello CJ, Greenway FL. Reward-Induced Eating: Therapeutic Approaches to Addressing Food Cravings. *Adv Ther.* 2013;33(11):1853-1866.
6. Mela DJ. Determinants of food choice: relationships with obesity and weight control. *Obes Res.* 2001;9(Suppl 4):249S-255S.
7. Raza L, Ali TM, Hasnain A. Comparison Of Dietary Practices And Body Mass Index Among Educated Housewives And Working Women In Karachi. 2017;29(2):293-297.
8. Spahn JM, Reeves RS, Keim KS, Laquatra I, Kellogg M, Jortberg B, Clark NA. State of the Evidence Regarding Behavior Change Theories and Strategies in Nutrition Counseling to Facilitate Health and Food Behavior Change. *J Am Diet Assoc.* 2010;110(6):879-891.
9. Weker H. Simple obesity in children. A study on the role of nutritional factors. *Med Wieku Rozwoj.* 2006;10(1):3-191.
10. Głodek E, Gil M. Evaluation of the nutrition model in students of university in Rzeszow, *Rocz Panstw Zakl Hig.* 2012;63(3):313-7.
11. Escalon H, Beck F, Bossard C. Connection between the knowledge of the recommendations of the National Nutrition and Health Program and patterns of eating behaviour and physical activity. *Rev Epidemiol Sante Publique.* 2011;61(1):37-47.
12. Sowa A, Tobiasz-Adamczyk B, Topór-Mądry R, Poscia A, la Milia DI. Predictors of healthy ageing: public health policy targets. *BMC Health Serv Res.* 2016;16(Suppl 5):289.
13. Naughton P, McCarthy SN, McCarthy MB. The creation of a healthy eating motivation score and its association with food choice and physical activity in a cross sectional sample of Irish adults. *Int J Behav Nutr Phys Act.* 2015;12:74.
14. Purcaru D, Preda A, Popa D, Moga MA, Rogozea L. Informed Consent: How Much Awareness Is There? *PLoS ONE.* 2014;9(10): e110139.