

USE OF DIETARY SUPPLEMENTS FOR WEIGHT LOSS IN OBESE PATIENTS IN ZONGULDAK,
TURKEY

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Abstract

Background: Obesity is a prevalent and worldwide health problem . The most common weight loss method preferred by obese individuals is dietary supplements. This study was performed in order to determine the dietary supplements used by obese individuals for weight loss and to examine the barriers to informing health personnel on supplement use.

Materials and Methods: This descriptive study was performed in the Endocrinology and Diabetes Polyclinic at the Endocrinology and Metabolic Diseases Department of the Health Application and Research Center of the Bulent Ecevit University. The sample consisted of 151 patients randomly selected from among the 755 people using the simple randomization method.

Results: In the study, 33.6% of the obese individuals were found to use dietary supplements for weight loss. Women, people with no chronic diseases, people who exercised regularly, and people who underwent regular health check-ups were found to prefer dietary supplements at a greater rate ($p < 0.05$). It was found that 82.5% of the obese individuals used dietary supplements without informing health personnel.

Conclusion: One thirds of obese individuals were using dietary supplements for weight loss, while the majority of supplement users did not inform health personnel. To increase patient safety, the patients using dietary supplements should be closely monitored, and the use of dietary supplements should be evaluated on a routine basis.

Key Words: Obesity, dietary supplement, weight loss, Turkey

Introduction

Obesity is defined by the World Health Organization (WHO) as abnormal or excessive fat accumulation in the body which harms health. Obesity is a prevalent and worldwide health problem and is the fifth most important reason for global deaths (<http://www.who.int/mediacentre/factsheets/fs311/en/>(Access date:26.08.2016). Each year at least 2.8 million adults die because of being obese or overweight (Chandresekaran et al., 2012). According to the Turkey Diabetes Prevalence Studies TURDEP I (1998) and TURDEP II (2010), the prevalence of obesity has increased from 22.3% to 31.2% in Turkey. On the other hand, 37.5% of the Turkish population is overweight (Satman I and TURDEP-II Study Group (http://www.turkendokrin.org/files/file/TURDEP_II_2011.pdf)(Access date: 26.08.2016) Clinical guidelines state that successful weight loss and maintenance can only be achieved through lifestyle changes such as reducing calorie intake and increasing physical activity level (Pillitteri et al., 2008). However, due to lack of time and sedentary lifestyles, these two methods cannot be regularly practiced (Chandresekaran et al., 2012). Considering that such lifestyle changes are relatively difficult to implement, the demand for dietary supplements are introduced in commercials with big claims and these products can easily be obtained without prescriptions. A limited number of studies have investigated the effectiveness and reliability of dietary supplements but the numbers of studies in this area have increased (Saper et al., 2004; Pillitteri et al., 2008; Berg and Walsh, 2013).

Thus, it can be said that obese patients enter the search for alternative health approaches for weight loss (Bertish et al., 2008). It has been reported that obese individuals prefer complementary and alternative medicine methods (CAM) such as herbal products, dietary supplements, yoga, acupuncture, acupressure, homeopathy, and hypnotherapy, with dietary supplements being the most common method (Steyer and Ables, 2009). The Dietary Supplement Health and Training Law (DSHEA) (1998) has defined a dietary supplement as a product supplementing foodstuff.

In the USA, after a death in 1962, it has become law that the effectiveness of a dietary supplement should be proven before being marketed. The American Food and Drug Administration manages all aspects of the production, product characteristics, reliability, and post marketing monitoring of dietary supplements (Dwyer et al., 2005; Decker and Lee, 2010; Erdogan and Cinar, 2014).

In the USA, among healthy adults, the prevalence of the use of dietary supplements varies between 15.2% (Blanck et al., 2007) and 33.9% (Pillitteri et al., 2008). However, when the literature is examined, only two studies on the CAM usage of obese individuals for weight loss could be found, and no studies on dietary supplement use could be found at all. In these studies, individuals mostly used CAM methods and dietary supplements without the knowledge of health personnel (Blanck et al., 2007; Bertish et al., 2008). It can be said that the evidence supporting these methods for weight loss are not at satisfying levels (Pittler and Ernst, 2005). For this reason, if a patient wants to use dietary supplements for weight loss, it should be recommended that he/she uses methods that have evidence for quality, safety, and effectiveness and patients should be monitored for the side effects of these methods as well as their beneficial effects. This study was planned and carried out due to the lack of studies on the topic. The current study aimed to determine the dietary supplements used by obese individuals for weight loss and to examine the barriers to informing health personnel on supplement use.

Materials and Methods

Design, Setting, and Sample

This descriptive study was performed in the Endocrinology and Diabetes Polyclinic at the Endocrinology and Metabolic Diseases Department of the Health Application and Research Center of the Bulent Ecevit University. The universe of the study consisted of 755 obese patients presenting at the Endocrinology and Diabetes Polyclinic between January 2016 and June 2016. The sample of the study consisted of 151 patients randomly selected from among the 755 people using the simple randomization method. Patients who were 18 years of age and above, were diagnosed with obesity, had no mental or communication problems, and volunteered to participate in the study were included in the sample. The height and weight measurements were performed by a polyclinic nurse, and BMI's were calculated. The exercise levels of the individuals were questioned in line with the suggestions of the Center of Disease Control and Prevention (CDC) as 2.5 hours of middle intensity aerobic activity per week (brisk walking) and 2 hours or more of muscle strengthening exercises working out all major muscle groups a week (legs, hips, back, abdomen, torso, shoulders, and arms) (<http://www.cdc.gov/physicalactivity/basics/adults/index.htm>) Access date: December, 2015)

Data collection

Data was collected using a questionnaire which was administered face-to-face and which included questions on socio-demographic characteristics, dietary supplement usage, dietary supplement types used by patients, and other questions about dietary supplement usage. A total of 21 questions were asked. Data collection took approximately 15 minutes. The height and weight measurements, as well as the BMI calculations of the patients presenting at the polyclinic were performed by a diabetes nurse.

Ethical Considerations

Prior to the study, written permission was taken from the Bulent Ecevit University Clinical Research Ethical Board. Each patient was informed about the study and written informed consent was taken from the patients.

Statistical analysis

By using the SPSS 11.5 package software for data analysis, the percentage, average and chi-square tests were conducted. The level of statistical significance was accepted as $p < 0.05$.

Results

The mean age of the individuals was 41.48 ± 7.41 , while 64.2% were female, and most of them were elementary school graduates (23.8%), housewives (39.7%), and married (73.5%) people with medium income levels (66.9%). It was found that 42.4% of the obese individuals had chronic diseases, with diabetes being the most widespread. The mean BMI of the obese individuals was 40.82 ± 3.33 . Almost half (56.3%) of the individuals received drug treatments and had routine check-ups (53.7%), whereas 34.4% performed regular exercise. In this context, the exercise levels of the individuals were questioned in line with the suggestions of the Center of Disease Control and Prevention (CDC) as 2.5 hours of middle intensity aerobic activity per week (brisk walking) and 2 hours or more of muscle strengthening exercises working out all major muscle groups a week (legs, hips, back, abdomen, torso, shoulders, and arms).

The characteristics of the obese individuals regarding dietary supplement use were given in Table 1. In our study, 33.6% of obese individuals were found to use dietary supplements for weight loss. The most commonly used supplements were found to be commercial names gano excel (41%) and herbalife (37.2%), form teas (33.3%), and

commercially named FX15 (29.4%) containing zinc, vitamin C, grape seed extract, and green tea extract and, weight loss pills (11.7%) containing acai extract, green tea, vitamin C, and soya oil. It was determined that 53% of the individuals reported to benefit from these products, while 62% stated that they came to no harm. Also, 62.82% of the individuals stated that they used these products on a daily basis (87.8%) for 4 months and more. As it can be seen in Table 1, 82.3% of the obese individuals used these products without the knowledge of health personnel. The reasons for not telling health personnel about supplement use included health personnel not asking about the use of dietary supplements (68.6%), not feeling the need to tell (37.2%), health personnel not approving (23.52%), and thinking that health personnel would not have any information on the subject (17.6%). The sources where the obese individuals learned about the products were family-friends (54.9%), media/TV (21.6%), drugstores (21.6%), and the Internet (17.64%). The purchases of the products were made from drugstores (39%), pharmacies (31%), and the Internet (29%). It was found that 88.3% of the obese individuals stated that they partially or wholly benefited from the products (Table 1)

Table 1: The characteristics of the obese individuals regarding dietary supplement use

Variable name	N=51	%
Use of dietary supplements		
	Yes	51
	No	100
		33,6
		65,8
Commercially name of the dietary supplement*		
	Gano excel	21
	Herbalife	19
	Form tea	17
	FX15	15
	Weight loss pill	6
	Green tea	5
	Rosemary tea	3
	Kombu tea	1
		41,0
		37,2
		33,3
		29,4
		11,7
		9,8
		5,8
		2
Benefiting	Yes	27
	No	7
	Partially	17
		53,0
		13,7
		33,3
Harm	Yes	3
	No	32
	Partially	16
		6,0
		62,7
		31,3
Health personnel knowledge	Yes	9
	No	42
		17,65
Reason if no*	Doesn't ask	35
	Don't need to	19
	Wouldn't approve	12
	No information	9
		68,62
		37,25
		23,52
		17,64
Who recommended the product*	Family/friends	28
	Media/TV	11
	Drugstore	11
	Internet	9
	Health personnel	2
	Pharmacy	2
		54,9
		21,5
		21,5
		17,64
		3,9
		3,9
Purchase	Internet	15
	Drugstore	20
	Pharmacy	16
	3 months or less	19
	4 months or more	32
	Everyday	43
		29,4
		39,2
		31,4
		37,2
Use duration	4 months or more	32
	Everyday	43
		62,8
		87,8
Use frequency	1-3 days a week	8
		12,2

*More than one option was selected.

The factors related to the dietary supplement use of obese individuals based on sociodemographic characteristics were given in Table 2. It was found that women preferred dietary supplements more often ($p < 0.03$), while supplement use did not show significant differences according to age, educational level, income level, social security, occupation, and marital status ($p > 0.05$).

Table 2: The factors related to the dietary supplement use of obese individuals based on sociodemographic characteristics

Variables	Dietary Supplement Did not use (n=100)	Dietary Supplement Used (n=51)	p
Age (years)			
18-39	32 (60.4)	21 (39.6)	0.35
40 and above	68 (69.4)	30 (60.4)	
Gender			
Female	59 (60.8)	38 (39.2)	0.03
Male	41 (75.9)	13 (24.1)	
Marital status			
Single	26 (35.6)	14(35.0)	0.49
Married	74 (66.7)	37(33.3)	
Education			
Literate	6 (2.0)	2 (1.3)	0.67
Elementary	42 (7.2)	19 (27.8)	
High school	30 (68.8)	20 (31.3)	
College	22 (66.2)	10 (33.8)	
Social security			
Yes	98(67.1)	48 (32.9)	0.33
No	2(40.0)	3 (60.0)	
Level of income			
Poor	10 (9.8)	4 (7.8)	0.06
Moderate	72 (63.8)	29 (56.9)	
Good	18 (17.5)	18 (35.3)	

The use of dietary supplements by obese individuals according to other characteristics was given in Table 3. In our study, individuals with no chronic diseases were found to use dietary supplements more often ($p=0.00$). When other characteristics were examined, it was found that BMI did not affect dietary supplement use, with those who regularly exercise and those who go for routine check-ups preferring the use of such products more often ($p=0.01$).

Table 3: The use of dietary supplements by obese individuals according to other characteristics

Variables	Dietary Supplement Did not use (n=100)	Dietary Supplement used (n=51)	P
Presence of a chronic disease			
Yes			0.01
No	49 (48.6)	15 (29.4)	
	51 (50.4)	36 (70.6)	
Attending regular check-ups			
Yes	47(59.5)	35(40.5)	0.01
No	53(76.8)	16 (23.2)	
Regular exercise			
Yes	27 (53.8)	24 (46.2)	0.02
No	73 (72.7)	27 (27.3)	
BMI	40.82±3.33	39.96±7.11	0.48

Discussion

In the current study, 33.6% of obese individuals were found to use dietary supplements for weight loss. Similarly, in the USA, among healthy adults, the prevalence of the use of dietary supplements varies between 15.2% (Blanck et al., 2007) and 33.9% (Pillitteri et al., 2008). This finding shows that the level of dietary supplement use in our sample is similar to developed countries, suggesting that the approaches to the problem could be similar as well.

In this study, it was seen that women more commonly preferred dietary supplements, while age, educational level, income level, social security, occupation, and marital status were not related to dietary supplement use. Similarly, Blanck, Amariles, and Pillitteri have also reported that overweight and obese women more commonly used complementary therapies and products (Amariles et al., 2006; Blanck et al., 2007; Pillitteri et al., 2008). In studies

regarding the use of complementary methods and dietary supplements among healthy adults, dietary supplement use was reported to be higher in those with lower education levels (Pillitteri et al., 2008), lower income levels (Blanck et al., 2007; Pillitteri et al., 2008) those with no social security (Pillitteri et al., 2008) and those between 18 and 34 years of age (Blanck et al., 2007). Consistent with our findings, Blanck et al. (2017) found that dietary supplement use for weight loss was not associated with educational level in healthy adults. In studies evaluating the use of CAM methods in various populations, CAM use was found not to be affected by sociodemographic characteristics including age, gender, marital status, education, and income level (Erdogan et al., 2012; Erdogan et al., 2013). In the present study, it was found that sociodemographic characteristics other than gender were not associated with dietary supplement use, which is in line with previous studies conducted with various populations (Erdogan et al., 2012; Erdogan et al., 2013). In the current study, individuals with no chronic disease were found to use dietary supplements at higher rates, and when other characteristics were examined, it was determined that BMI did not affect dietary supplement use, while people who regularly exercised and who attended routine check-ups more often preferred to use dietary supplements. In previous studies conducted with different groups, individuals with chronic diseases were reported to use CAM methods at higher rates (Loera et al., 2007; Erdogan et al., 2013; Falci et al., 2016; Erdogan et al., 2017). In the present study, individuals with no chronic disease were found to more commonly use dietary supplements. In a study where Sharpe et al. examined the use of CAM methods for weight loss in adults, it was reported that adults with heart disease, diabetes, or hypertension did not use any CAM methods (Sharpe et al., 2007). This result is inconsistent with our results as well as with other findings in the literature. The reason behind this inconsistency may be related to the fact that our sample was different from Sharpe et al.'s group. Additionally, there have been many news in the media regarding the life threatening results of the use of such dietary supplements by obese individuals. Individuals with chronic diseases may not be using these supplements since they are afraid of the interactions the supplements may have with their drug treatment. Moreover, since most of the obese individuals use these products without the knowledge of health personnel, those with chronic diseases may avoid using such methods due to health complications.

Clinical guidelines state that successful weight loss and maintenance is only possible through lifestyle changes such as reducing calorie intake and increasing physical activity (Pillitteri et al., 2008). When we questioned the exercise levels of obese individuals, we found that those who exercised more commonly used dietary supplements. Participants who engaged in regular exercise also used these products. This finding suggests that these participants are determined to lose weight and want to use non pharmacological methods as well. Similarly, in Sharpe et al.'s study, participants who exercised for weight control were found to use CAM methods at higher rates (Sharpe et al., 2007). In a study conducted with obese individuals, Amariles et al. reported that exercise level did not affect CAM usage (Amariles et al., 2006). This study does not support the findings of our study, which may be explained by the differences in both sample size and the questioning method.

In the current study, BMI was found not to affect dietary supplement use. In studies where dietary supplement and CAM method use for weight control in normal adults were evaluated, people who were mildly obese (Bertish et al., 2008) and overweight (Sharpe et al., 2007) were found to use more CAM methods for weight loss (Bertish et al., 2008) whereas obese individuals were found to prefer dietary supplements more often (Pillitteri et al., 2008). It can be concluded that dietary supplement use increased as BMI increased. The results of previous studies are not in line with our findings. The reason behind this inconsistency may be explained by the fact that our entire sample consisted of obese individuals.

In the present study, individuals who attended regular check-ups were found to use dietary supplements at higher rates. Individuals without chronic diseases also preferred this supplement. The majority of our sample was also found to use supplements without the knowledge of health personnel. Thus, the fact that these products were preferred by people who attended regular check-ups and who had no chronic diseases may be explained by the fear experienced by patients due to the possible side effects of dietary supplements.

In the literature, both in studies performed in different disease groups (Kara, 2009; Erdogan et al. 2012; Erdogan et al., 2013) and in this study, people who used dietary supplements and CAM methods were found to largely do so (82.3%) without the knowledge of health personnel, taking the supplements in conjunction with drug treatment and not informing their doctors because their use of herbal supplements was never questioned by health personnel (Kara, 2009).

When the reasons for not telling health personnel about dietary supplement use were questioned, the reasons were listed as health personnel not asking about the use of dietary supplements, not feeling the need to tell, health personnel not approving, and thinking that health personnel would not have any information on the topic. In Blanck et al.'s study, only one thirds of the individuals reported dietary supplement use to health personnel, and in Bertisch et al.'s study 38-42% of the individuals reported dietary supplement use to health personnel (Blanck et al., 2007; Bertisch et al., 2008). These results were in parallel to our study. The provision of the products was made from drugstores (39%), pharmacies (31%), and the Internet (29%), and individuals mostly learned about these products from friends and family. In previous studies performed with different patient groups, patients were reported to learn about CAM methods from other patients, family and friends, the Internet, TV, health personnel, and drugstores (Erdogan et al., 2012; Erdogan et al., 2013). Dietary supplements, which are sold both with prescriptions and over the counter (OTC), have to be approved by the FDA before being presented to consumers (Erdogan and Cinar, 2014). This process of approval requires clinical studies to determine the reliability, effectiveness, possible interactions, and appropriate dosage of a drug. However, dietary supplements can be marketed without FDA approval and without scientific approval of their reliability or effectiveness. Today, various dietary supplements were shown to have drug interactions,

with ties to serious health risks (Pillitteri et al., 2008). Thus, usage without the knowledge of health personnel may cause unwanted situations. Since most of the patients using such methods would have strong beliefs regarding these methods, they may avoid talking with health personnel on the subject. Thus, health personnel should question CAM methods used and dietary supplement usage when taking anamnesis, be open in communication, and not be judgmental (Erdogan et al., 2014).

Conclusion

In this study it was found that one thirds of obese individuals were using dietary supplements for weight loss, and the majority of the sample used such supplements without the knowledge of health personnel. When it is considered that the majority of obese individuals do not report their use of such products to health personnel, it can be suggested that the dietary supplement use of obese individuals should be routinely evaluated in order to increase patient safety, monitor the patients using CAM methods, and provide holistic care. Women, those with no chronic diseases, those who exercised regularly, and those who underwent regular health check ups were found to prefer dietary supplements at a greater rate. When taking anamnesis, these characteristics of patients should be taken into consideration and their use of dietary supplements should be questioned, a field in the patient file should be formed for the use of these products, and the applications used should be recorded. Health personnel should evaluate the personal beliefs of patients regarding the use of such products, and monitor how care is affected when patients seek out such methods. If these methods are going to be recommended as part of a weight loss program, randomized controlled studies with well-planned methodologies should be performed in the future. Thus, health personnel should follow scientific studies with high evidence levels regarding the safety, effectiveness, and interactions of dietary supplements, and use their results to correctly direct healthy individuals/patients (Erdogan and Cinar, 2014; Erdogan et al., 2014).

Conflict of interest: The authors declare that they have no conflicting interests.

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References

1. Amariles, P., Gonzalez, L. and Giraldo, NA. (2006). Prevalence of self-treatment with complementary products and therapies for weight loss: A randomized, cross-sectional study in overweight and obese patients in Colombia. *Current Therapeutic Research*, 67: 66-78.
2. Berg, L. and Walsh, C. (2013). Herbal weight-loss products: how informed are we? *South African Journal of Clinical Nutrition*, 26:41-43.
3. Bertisch, SM., Wee, CC. and McCarthy, EP. (2008). Use of complementary and alternative therapies by overweight and obese adults. *Obesity (Silver Spring)*, 16:1610–15.
4. Blanck, HM., Serdula, MK., Gillespie, C., Galuska, DA., Sharpe, PA., Conway, JM., Khan, LK. and Ainsworth, BE. (2007). Use of Nonprescription dietary supplements for weight loss is common among Americans. *Journal of the American Dietetic Association*, 107: 441-447.
5. CDC. <http://www.cdc.gov/physicalactivity/basics/adults/index.htm> Access date: December, 2015)
6. Chandresekaran, CV., Vijayalakshmi, MA., Prakash, K., Bansal, VS., Meenakshi, J. and Amit, A. (2012). Review article: herbal approach for obesity management. *American Journal of Plant Sciences*, 3: 1003-14.
7. Decker, G. and Lee, CO. (2010). Complementary and alternative medicine (CAM) therapies in integrative Oncology. *Handbook of Integrative Oncology Nursing: Evidence-Based Practice*, 626-654.
8. Dwyer, OT., Allison, DB. and Coates, PM. (2005). Dietary supplements in weight reduction. *Journal of the American Dietetic Association*, 105: S80-S86.
9. Erdogan, Z. and Çınar, S. (2014). Oncology nursing, In: *Complementary and alternative approaches used in oncology*, Ed: Assoc. Dr. Gülbeyaz Can, Nobel Medical Bookstore. 275-288.
10. Erdogan, Z., Atik, DO. and Cinar, S. (2014). Complementary and alternative medicine methods in chronic renal failure. *Archives Medical Review Journal*, 23: 770-86.
11. Erdogan, Z., Cil, Akıncı, A., Emre, Yavuz, D., Kurtulus, Tosun, Z. and Atik, D. (2017). Use of complementary and alternative medicine methods among elderly people living in nursing homes. *Kafkas Journal of Medical Sciences*, 7:60–66.
12. Erdogan, Z., Çınar, S. and Şimşek, S. (2013). The relationship between hopelessness level and the use of complementary medicine methods in hemodialysis patients. *Spatula DD - Peer Reviewed Journal on Complementary Medicine and Drug Discovery*, 3:107–12.
13. Erdogan, Z., Oguz, S. and Erol, E. (2012). Use of complementary therapies in the patients with heart disease. *Spatula DD - Peer Reviewed Journal on Complementary Medicine and Drug Discovery*, 2: 135-39.
14. Falci, L., Zaixing, S. and Greenlee, H. (2016). Multiple chronic conditions and use of complementary and alternative medicine among US adults: Results from the 2012 National health interview survey. *Preventing Chronic Disease*, 13: 15050120.

15. Kara, B. (2009). Herbal product use in a sample of Turkish patients undergoing haemodialysis. *Journal of Clinical Nursing*, 18:2197-205.
16. Loera, JA., Ortizb, CR. and Kuo, YF. (2007). Predictors of complementary and alternative medicine use among older Mexican Americans. *Complementary Therapies in Clinical Practice*, 13: 224–31.
17. Pillitteri, JL., Shiffman, S., Rohay, JM., Harkins, AM., Burton, SL. and Wadden, TA. (2008). Use of dietary supplements for weight loss in the United States: results of a National Survey. *Obesity*, 16: 790–796.
18. Pittler, MH. and Ernst, E. (2005). Complementary therapies for reducing body weight: a systematic review. *International Journal of Obesity*, 29:1030–38.
19. Saper, RB., Eisenberg, DM. and Phillips, RS. (2004). Common dietary supplements for weight loss. *American Family Physician*, 70:1731-8.
20. Satman I ve TURDEP-II Çalışma Grubu http://www.turkendokrin.org/files/file/TURDEP_II_2011.pdf (Access date: 26.08.2016)
21. Sharpe, PA., Blanck, HM., Williams, JE., Ainsworth, BE. and Conway, JM. (2007). Use of complementary and alternative medicine for weight control in the United States. *Journal of Alternative and Complementary Medicine*, 13: 217–222.
22. Steyer, TE. and Ables, A. (2009). Complementary and alternative therapies for weight loss. *Primary Care*, 36:395-406.
23. WHO (2016). Obesity and overweight. <http://www.who.int/mediacentre/factsheets/fs311/en/> (Access date:26.08).