T.C. YEDİTEPE UNIVERSITY
INSTUTITE OF HEALTH SCIENCES
DEPARTMENT OF NUTRITION AND DIETETICS

INVESTIGATION THE EFFECT OF SNACKING BEHAVIOR ON BODY WEIGHT MANAGEMENT

MASTER THESIS

MERVE KINALI ÇIRAY

İstanbul- 2019

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SUPERVISOR

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Sağlık Bilimleri Enstitüsü Müdürü

DECLARATION

I hereby declare that this thesis is my own work and that, to the best of my knowledge

and belief, it contains no material previously published or written by another person nor material which has been accepted for the award of any other degree except where due acknowledgment has been made in the text.

Signature

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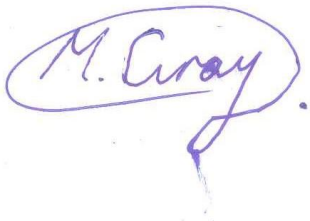

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SYMBOLS AND ABBREVIATIONS

WHO: World Health Organization

MoH: Turkish Ministry of Health

BMI: Basal Metabolic Index

NHANES: National Health and Nutrition Examination Survey

TURDEP: Turkish Diabetes Epidemiology Study

TEKHARF: Turkish Adult Risk Factor Survey

IOM: Institute of Medicine

EER: Estimated Energy Requirement

Max. **:** Maximum Value

Min. : Minimum Value

SD : Standard Deviation

ABSTRACT

Kınalı Çıray M. (2019). Investigation of The Effect of Snacking Behavior on Body Weight Management. Yeditepe University Institute of Health Sciences, Department of Nutrition and Dietetics, Master Thesis, Istanbul.

Snacking is a common eating behavior, however, the effects of snacking whether positive or detrimental on health still unclear. It is because of the etymologic problem of the snack definition since it depends on the culture of the perception of society that consumed. In Turkey, snacking is considered energy-dense nutrient poor foods whereas eating between meals is considered healthy eating habits. The purpose of this study to investigate the effect of snacking behavior on body weight management. A total 103 subjects (women: 85; men: 18) who applied to Istanbul Florence Nightingale Hospital nutrition department voluntarily accepted to participate this research. The mean age of participants was 33,9±6,7 (21-53). Pregnant and lactated women, patient with diabetes were excluded from the study. The data form was applied to all participants to assess their eating behavior and general characteristics. Anthropometric measurements and body composition analysis were done by the dietitian with Tanita BC 418. Participants divided into two groups depending on snacking status. Weight status was evaluated by using body weight, BMI, body fat percent and fat mass in the 1^{st} and 4^{th} session during the one-month nutrition consultation.

At the end of the study, it was found that there was significant association between snacking and weight status. Although the reduction in weight, BMI, body fat was found a significant in both groups, dropped rate of body weight, BMI, and body fat mass was significantly higher in snackers. It is believed that snacking is a successful strategy for achieving weight control among overweight/obese individuals.

Keywords: snacking, meal frequency, weight management, eating pattern, eating habits

ÖZET

Kınalı Çıray M. (2019). Ara Öğün Tüketiminin Kilo Kontrolüne Etkisinin İncelenmesi. Yeditepe Üniversitesi Sağlık Bilimleri Enstitüsü, Beslenme ve Diyetetik Anabilim Dalı, Master Tezi, İstanbul.

Ara öğün yaygın bir yeme davranışı olmasına rağmen sağlık üzerine olan etkisi kesin olarak açıklanmamıştır. Bunun nedeni ara öğün tanımının etimolojik bir problem olup tüketildiği toplumlardaki atıştırma alışklanlığı yani 'snacking' ile karıştırılmasıdır. Türkiye'de ara öğün; sağlıklı bir beslenme davranışı olarak algılanırken, atıştırma; enerjisi yüksek besin değeri düşük yani sağlıksız besinleri kapsamaktadır. Bu çalışmanın amacı sağlıklı ara öğün tüketiminin kilo kontrolü üzerine etkisinin belirlenmesidir. Çalışma, İstanbul Florence Nightingale Hastanesi'nin Beslenme ve Diyet bölümüne başvuran, çalışmaya katılmaya gönüllü, yaş ortalaması 33,9±6,7 (21-53) olan 85 kadın ve 18 erkek toplam 103 birey ile yürütülmüştür. Hamile ve emzikli kadınlar ve diyabet rahatsızlığı olan kişiler çalışmaya dahil edilmemiştir. Uygulanan bilgi formu katılımcıların genel özellikleri ve beslenme alışkanlıklarını içermektedir. Antropometrik ölçümler diyetisyen tarafından Tanita BC 418 vücut kompoziyonu analiz cihazıyla yapılmıştır. Katılımcılar ara öğün tüketen ve tüketmeyenler olarak ikiye ayrılmıştır ve sonrasında birinci ve dördüncü diyetisyen görüşmesindeki vücut kütlesi, beden kitle indeksi, vücut yağ yüzdesi ve yağ kütlesi değişimleri karşılaştırılmıştır.

Çalışmanın sonucunda, ara öğün tüketiminin kilo kontrolü üzerine istatistiksel olarak önemli derecede etkisi olduğu gözlemlenmiştir. Ara öğün tüketen ve tüketmeyen iki grupta da kilo, beden kitle indeksi ve yağ kütlesinde düşüş gözlenmiş olmasına rağmen bu düşüşün ara öğün tüketenlerde anlamlı olarak daha yüksek oranda olduğu belirlenmiştir. Bu yüzden ara öğünün kilolu ve obez bireylerin kilo kontrolünde başarılı bir strateji olduğu düşünülmüştür.

Anahtar kelimeler: ara öğün, yeme sıklığı, kilo kontrolü, yeme örüntüsü, beslenme alışkanlıkları

1.INTRODUCTION

Snacking is a phenomenon eating practice that has been drastically increased in recent 25 years for all ages [1]. It has been reported by using National Health and Nutrition Examination Survey (NHANES) data that the number of adults who snack increased from 59% to 90% over the three decades. Snacking has been garnering notable attention not only for increasing in frequency but also energy contribution to the total daily intake. Snacking contributes roughly 25% of total energy intake in the USA, Canada, Brazil and even more in Finland (36-40%) [2].

According to NHANES data; the daily total energy intake has been increased in both men and women respectively by 115 kcal and 260 kcal from 1971 to 2010 [3]. It has been suggested by Sebastian, Cleveland and Goldman (2011) that the excessive energy intake has positive relationship with eating frequency particularly as a snacking occasion [4].

To date, the association between snacking and weight management is still unclear. Over the decades, numerous studies have conducted to evaluate the role of snacking or frequent eating on body weight, however, findings have yielded controversial [5]**.** The very first study in related to association between eating frequency and bodyweight conducted by Fabry et al. in 1964 with 379 adult men. The results have indicated that increasing eating frequency strongly associated with lower basal metabolic index (BMI) [6]. In contrast, Howerth et al. (2007) suggested that eating more than three meals per day has shown positive association with BMI [7]. Some evidences from observational studies in adolescents also supported that there was no association between snacking and BMI status [4].

The Academy of Nutrition and Dietetic (ACEND) position paper highlighted that a limited number of studies have evaluated the effect of eating patterns, snacking behavior on weight management and further research is needed to whether fewer or more meal/snacks induce weight loss and maintenance [8].

The aim of this study to make contribution to previous literature with investigating the effect of snacking behavior on body weight management. This study conducted with

103 adults (85 women, 18 men) who applied to Istanbul Florence Nightingale Hospital for nutrition consultation.

2.LITERATURE REVIEW

2.1. Eating Pattern Trends: Snacking, Meal Frequency

Social constraints and culture have a substantial impact on eating pattern including meal and snacking occasions all over a day. Traditionally, Western countries were engaging in eating three structured meals; breakfast, lunch and dinner [9], but recently increased eating frequency either as a snack or meal found remarkable. The study which was based on NHANES 2005-2006 data, supported that increased eating frequency is mostly related to snacking rather than meal occasion. According to this report; the percentage of snacking rose from 61 to 83% between 2005 and 2006, compared with 1977-1978 [10].

Children, adolescents and adults in various parts of Europe and the United States snack at least once and mostly several times a day [11]. According to NHANES data; the number of daily snacking occasions increased by almost one snack a day in last decade. Similarly, children`s daily energy intake increased by 27% in result to higher snacking occasion over the past several decades [11]. In the United States, the experimental study was conducted to determine snacking pattern among college students. In conclusion of this research; it was found that 20% of them eat morning snack, 54% of them eat afternoon snack while the majority, 73% of students eat evening snack after dinner [12].

2.1.1. Meal and Snack Definition

Several authors attempted to define meal and snack roughly, however, yet there is no universally accepted consensus what meal and snack constitutes in daily eating occasions [9]. Main meals are considered daily basis eating occasions that are consumed three times a day; in the morning as a breakfast, middle of the day as a lunch and end of the day as a dinner. Snacking is considered as any eating occasion outside of those main meals. Meals are usually consumed in larger and more varied food combinations in compared to snacking occasion. Moreover, meals are daily regular eating occasions whereas snack can be consumed any time of the day. Meal and snack can also be classified in regards to portion size, type and time of eating occasion. One study focused on time-based definition, for example, if eating occasion is occurred between 06.00 to 10.00, it can be defined as a

morning meal, breakfast. However, if it is consumed between 10.00 to 12.00, it is defined as a morning snack [13].

In the literature search; there are many other terms to define 'snacking' including; 'eating occasion', 'grazing', 'nibbling', 'supper' [5] and 'gouter' [14]. Eating frequency can be defined as the number of eating occasion in daily basis regardless of whether it is main meal or snack. Snacking and eating or meal frequency are used interchangeably in the literature [14].

2.1.2. The Typical Eating Pattern in Turkey

Traditionally, Turkish people eat three structured meals a day. Breakfast is usually consisting of white cheese, olives, egg, tomato, cucumber, bread and black tea and it is not uncommon to see people eating *simit* (bagel like bread) in hand throughout to day for any meal and snack alternative. Lunch is preferred as Turkish home-cooking stews, soups, salads along with bulgur, rice, bread and yogurt or, *ayran* (refreshing yogurt drink). Fast food also is an option for lunch break for most of workers and take-away eaters. Common eating-out items are *döner* (spinning meat), kebap which are served with pita bread as sandwiches or on plate, and *pide* (oven-cooked bread filled with vegetables, minced meat, cheese). Dinner is a kind of family gathering time of the day in Turkish culture and they usually eat soup as a starter, meat, fish or chicken dish as a main course, rice or bulgur as a side dish and followed by tea or Turkish coffee along with fruits and dessert. Particularly, a variety of pastries (*simit, pogaca, borek*), fresh and dried fruits, walnuts, roasted chickpea *(leblebi),* sunflower and pumpkin seeds are the most popular snack foods among Turkish people [15].

According to Turkish Diabetic Association (TURDEP) report; the prevalence of obesity among adults (≥20 y) has been increased from 22.3% to 31.2% over the 12 years [16]. Turkish eating pattern and lifestyle habits has been changed over the 20 years and it was thought to be a cause for increasing prevalence of obesity. Major determinants that affect individual's meal pattern and eating behavior have been identified as social, cultural, environmental and economic factors; which are including geography, education, socioeconomic status, immigration status, and industrialization [17].

According to Turkey Dietary Guidelines 2015 (TUBER); healthy eating pattern is required to include breakfast as other 2 main meals and 2 to 3 snacks for healthy adults. Nutrition therapy should accommodate recommendations for overweight/obese individuals including eating breakfast, having more snacks between meals. The guidelines highlighted that snack choices should be filled with nutrient-dense foods such as fresh fruits and vegetables, whole grains, low-fat yogurt and milk [18].

2.2. Weight Management

2.2.1 Energy balance

Energy balance is coordinated with the complex mechanism including physiologic, neural and biochemical determinants in the body. Energy intake is provided by food and beverages that are ingested while energy expenditure is referred the amount of energy (calorie) burned by physical performance of from breathing to digestion. Weight fluctuations occur due to the imbalance between the energy intake and energy output. Weight gain is characterized as a consequence of long-term positive energy balance in which calorie intake exceeds energy expenditure. In contrast, prolonged negative energy balance leads to weight loss in which calorie intake is below the energy expenditure [19]. The common and unwanted outcomes of energy imbalance are reveals as overweight and obesity development [20].

Weight loss can be achieved by decreasing energy intake with calorie-restricted diets, and increasing energy expenditure through exercise. According to American Dietetic Association (ADA); even 5-10% of weight loss in overweight and obese patients significantly improve clinical parameters related to type 2 diabetes (blood glucose, HgA1c) and cardiovascular disease (total cholesterol, blood pressure, low density lipoprotein) [21].

Dietary and exercise intervention should be based on attainable and realistic goals. Usual calorie restricted diet, ideally, 500-1000 kcal energy deficit diet below estimated energy needs expect 0.5 to 1 kg weight reduction per week. This strategy has been found successful if the patient shows adequate adherence to diet [21].

2.2.2. Estimated Energy Requirements

The Institute of Medicine (IOM) has developed Dietary Reference Intake for energy as Estimated Energy Requirements (EER). Aim of EER development; to be preventive of excess energy intake in regards to increased rate of obesity and overweight incidence and maintain healthy bodyweight with appropriate calorie intake [22]. This estimation was based on Resting Metabolic Rate (RMR) equations which include height, weight, age and gender and physical activity level (PAL). Median height and weight size used to reach normal BMI (kg/m^2); 21.5 for adult females and 22.5 for adult males. There is no specific reference height and weight chart for children and adolescent due to the uncompleted physiological development of the body [23]. The energy expenditure varies in some conditions such as acute or chronic diseases (fewer, cancer etc.), hormonal status (pregnancy, menstrual cycle etc.), and environmental factors (cold, tropical climates etc.). Hydration status was also found substantial on energy metabolism through increased lipolysis and decreasing calorie intake. Daniel and Popkin (2010) suggested that drinking more than 1L water per day has positive effect on loss of bodyweight, and body fat, reduction on waist circumference [24].

Estimation of energy requirements of healthy individuals has determined by gender, age, and physical activity level as presented in the Table 2.1. [23]. Estimated energy needs range between 1,600 kcal to 2,400 kcal for adult women and 2,000 kcal to 3,000 kcal for adult men. Estimated energy need is recommended between 1,000 to 2,000 calories for young children, and 1,400 to 3,200 calories for older children and adolescents. It was suggested that metabolism slows down as age and it may explain the decline of energy requirements for older adults. Moreover, it has been found that there was positive correlation between physical activity and energy expenditure [23].

Table 2.1. Estimated energy requirements [23]

MALES				FEMALES[d]			
AGE	Sedentary[a]	Moderately active[b]	Active[c]	AGE	Sedentary[a]	Moderately active[b]	Active[c]
2	1,000	1,000	1,000	2	1,000	1,000	1,000
3	1,000	1,400	1,400	3	1,000	1,200	1,400
4	1,200	1,400	1,600	4	1,200	1,400	1,400
5	1,200	1,400	1,600	5	1,200	1,400	1,600
6	1,400	1,600	1,800	6	1,200	1,400	1,600
7	1,400	1,600	1,800	7	1,200	1,600	1,800
8	1,400	1,600	2,000	8	1,400	1,600	1,800
9	1,600	1,800	2,000	9	1,400	1,600	1,800
10	1,600	1,800	2,200	10	1,400	1,800	2,000
11	1,800	2,000	2,200	11	1,600	1,800	2,000
12	1,800	2,200	2,400	12	1,600	2,000	2,200
13	2,000	2,200	2,600	13	1,600	2,000	2,200
14	2,000	2,400	2,800	14	1,800	2,000	2,400
15	2,200	2,600	3,000	15	1,800	2,000	2,400
16	2,400	2,800	3,200	16	1,800	2,000	2,400
17	2,400	2,800	3,200	17	1,800	2,000	2,400
18	2,400	2,800	3,200	18	1,800	2,000	2,400
19-20	2,600	2,800	3,000	19-20	2,000	2,200	2,400
21-25	2,400	2,800	3,000	21-25	2,000	2,200	2,400
26-30	2,400	2,600	3,000	26-30	1,800	2,000	2,400
31-35	2,400	2,600	3,000	31-35	1,800	2,000	2,200
36-40	2,400	2,600	2,800	36-40	1,800	2,000	2,200
41-45	2,200	2,600	2,800	41-45	1,800	2,000	2,200
46-50	2,200	2,400	2,800	46-50	1,800	2,000	2,200
51-55	2,200	2,400	2,800	51-55	1,600	1,800	2,200
56-60	2,200	2,400	2,600	56-60	1,600	1,800	2,200
61-65	2,000	2,400	2,600	61-65	1,600	1,800	2,000
66-70	2,000	2,200	2,600	66-70	1,600	1,800	2,000
71-75	2,000	2,200	2,600	71-75	1,600	1,800	2,000
76 and up	2,000	2,200	2,400	76 and up	1,600	1,800	2,000

2015-2020 Dietary Guidelines for Americans, Washington (DC)

[a] Sedentary means a lifestyle that includes only the light physical activity associated with typical day-to-day life.

[b] Moderately active means a lifestyle that includes physical activity equivalent to walking about 1.5 to 3 miles per day at 3 to 4 miles per hour, in addition to the light physical activity associated with typical day-to-day life

[c] Active means a lifestyle that includes physical activity equivalent to walking more than 3 miles per day at 3 to 4 miles per hour, in addition to the light physical activity associated with typical day-to-day life

[d] Estimates for females do not include women who are pregnant or breastfeeding.

2.2.2. Characterization of Weight Status

National Institutes of Health (NIH) suggests that several anthropometric and biochemical measurements are used to assess body fatness and weight status. The body mass index (BMI), Quetelet Index, is the most common measure to assess body weight status among adults. BMI can be calculated weight (in kilogram) divided by square of height (in meters). Waist circumference is used for assessing abdominal fat content; greater values are associated with increased risk for chronic disease. Table 2.2. is showing weight status classification in relative to increased risk for disease [25].

There is a bioelectrical impedance (BIA) analysis to assess percent body fat, total body water, and lean body mass. Normal body fat percentage reference range is determined as 8% to 24% in men and 21% to 35% for women. The difference of optimal percent body fat among genders is related to men's high muscle mass. Elite athletes were more prone to have lower percent body fat due to the greater muscle mass of their body [20].

Table 2.2. Classification of Weight Status by BMI and Waist Circumference [25]

	BMI	Obesity Class	Disease Risk*(Relative to Normal Weight and Waist Circumference)	
			Men ≤ 102 cm	> 102 cm
			Women ≤ 88 cm	> 88 cm
Underweight	<18.5		---	---
Normal†	18.6-24.9		---	---
Overweight	25.0-29.9		Increased	High
Obesity	30.0-39.9	I	High	Very High
	35.0-39.9	II	Very High	Very High
Extreme Obesity	≥40	III	Extremely High	Extremely High

*Disease risk for type 2 diabetes, hypertension and cardiovascular disease †Increased waist circumference can also be a marker for increased risk even in persons of normal weight.

2.3. The Role of Snacking on Weight Management

2.3.1. Snacking: Weight Management Intervention

Currently, nutrition studies have based on eating pattern and varying meal frequency beyond traditional eating pattern of three main meals. There is an increasing evidence that meal frequency has an impact on body weight control, hunger regulation, metabolic diseases, blood markers (i.e., lipid profiles) and overall health [26].

Some observational studies suggested that eating more frequently can be a successful intervention for weight loss and prevention of comorbidities of obesity [27]. A recent meta-analysis study suggested that increasing eating frequency has negative association with development of obesity, however, it was positively associated with energy intake [28]. Individuals who are consuming three traditional meals a day tend to have normal range in BMI (18,5-20 kg/m^2) while eating more than three meals associated with high BMI range BMI (>24,9 kg/m^2) [14].

Kant and Graubard (2015) conducted a study to identify difference between snack day and non-snack day in terms of dietary compensatory outcomes with 1917 men and 1860 women. In conclusion of the study, snacking was associated with decreasing calorie intake for the next eating episode and increase overall fruit consumption both in men and women [29].

It was found by Shahraki et al. (2007) that eating eight meal (nibbling) a day in compared to two meals (gorging) a day has significantly associated with lower total cholesterol, and low-density lipoprotein. Thus, snacking was thought to contribute positive outcome on lipid profile [30]. Further, eight week controlled study evaluated that there was no association between meal frequency and weight loss when compared to frequent feeding (3 meals +3 snacks/day) with traditional feeding pattern (3 meals/day) [31].

A recent study has been conducted with 205 office workers to assess the effect of eating habits on chronic disease development in Turkey. The research concluded with two results; female workers (45,7%) were more likely to have snack between meals than male workers (28%) and there was no significant relationship between snacking and weight status [32].

The cross-sectional study by Gunes et al. (2012) was conducted to evaluate the effect of eating habits on BMI with 2525 freshman university student in Turkey. In regards to weight status; majority of participants were normal and thin (n=1937) and others were obese/overweight (n=322). The study findings suggested that increasing eating and snacking frequency were inversely associated with BMI and preventive strategy for weight management for patients with overweight/obesity [33].

Snacking behavior has been evaluated by genders; female adults were more likely to eat between meals than male adults. Findings from cross-sectional study also indicated that eating frequency was inversely associated with body weight in males, however, no association was found in females [5].

2.3.2 Snacking: Cause A Concern for Obesity Development

Obesity is not only a national, but also global epidemic disease and it is also known as ”globesity” in the modern definition [34]. The prevalence of obesity, overweight and adiposity has been tripled in both men and women since 1975 in the world. According to World Health Organization (WHO), obesity is defined as excessive and abnormal fatness of the body which leads the inverse health outcomes including; type 2 diabetes, coronary heart disease, hypertension, dyslipidemia, sleep apnea, respiratory problems, certain cancers [35] and osteoarthritis [36].

Many of researches has been studying to understand what behind the fact of this worldwide epidemic disease and it is reported that environmental factors based on eating pattern and lifestyle habits may be associated with weight gain and eventually the increasing incidence of obesity [37]. Snacking is suggested to be a cause for increased obesity/overweight prevalence since this new trend has been increasing all over the world and it is prevalent eating behavior in all ages [38]. The new study by Mattes (2018) suggested that snacking is specifically cause for obesity since it contributes excessive energy intake, however, it was still unknown that how snacking might lead to weight gain [39].

A cross-sectional study has investigated increasing meal, eating and snacking frequency and it was also found positive association between frequency of eating and

obesity/overweight in the United States [40]. The prevalence of overweight or obesity and of abdominal obesity was decreased with increased snacking frequency and with increased percentage of energy from snacks [27]. In contrast, nowadays, snack foods are concerned to be cause of obesity epidemic. Recent observational study suggests that eating more than three meals lead to excess energy intake and simultaneously contribute to weight gain [26].

2.3.3. Snacking Pattern Recommendations and Initiatives

Snacking behavior can vary depending on the social and cultural norms, environmental factors, and personal preferences. Snack food categorization in terms of energy and nutrient density is important determinant to investigate the role of this eating pattern on weight management and overall health. Researchers who have used healthy snack found beneficial effect on weight loss or maintenance whereas energy dense nutrient poor snacks have found no or detrimental effect of snacking on body weight [41].

Fiber and protein rich foods particularly affect satiety if they are preferred in snacking occasion and may prevent overconsumption due to the long-term hungry state of person [21]. In contrary, snacking in absence of hunger [9] and with distractions (e.g. snacking in front of television or laptop) may lead to excessive energy intake due to the eating as usual in subsequent meal [41].

Snacking may also be an important strategy for meeting energy needs for increased physical activity and for meeting recommended intakes of shortfall nutrients with the consumption typical three meals throughout the day [27]. The evidence-based researches support that snack foods contribute to higher micronutrient intake including calcium, vitamin E, potassium, iron and folate [5]. Daily energy intake is decreasing with age and unintentional weight loss reveals among older adults due to the inadequate macro and micronutrient intake. Snacking also found to be beneficial to reach recommended nutrient intake especially for the protein requirement among elderly [42].

Culturally, snack foods have typically been characterized as low in micronutrient quality in American society, since most of food items primarily high in fat and added sugar [43] whereas snack food can be determined as a healthy eating occasion if it is low in fat and sodium. Eating more than three meals were associated with higher carbohydrate and fiber consumption, while energy from alcohol, protein and fat decreased [44]. In England,

snack foods are considered detrimental and corn chips, popcorn, crackers and cereal bars are popular snacks [5].

Some food companies have been started to take action to make their snack foods healthy because of the concerns about unhealthy snacks in developed countries. Some interventions have been applied to increase snack foods in dietary quality such as macro and micronutrient, vitamin and mineral fortification [45].

3.MATERIAL AND METHOD

3.1. Procedure and Sample

This study was conducted between 1st of April to 1st of December 2017 with 103 patients (85 women, 18 men) who were referred to outpatient nutrition counseling department of Istanbul Florence Nightingale Hospital. The study sample was chosen depending on exclusion criteria and willingness to be volunteer for this research. The mean age of participants was 33,9±6,7 (21-53). Pregnant and lactated women, patient with diabetes were excluded from the study as asked in the beginning of the consultation. This study was approved by the Bahcesehir University Ethical Committee with the protocol number of 22481095-020-575 on 03/05/2017 and written informant consent form was obtained from all participants.

All participants admitted to registered dietitian in order to weight management. In the first session, nutritional assessment has been done by dietitian to evaluate the patient's weight status and monitor initial BMI, bodyweight, fat mass and body fat percent. Patients were measured twice without shoes or heavy clothes on the first and fourth session with body composition analyzer (Tanita BC 418) by the registered dietitian. BMI was calculated with weight (kg)/height (m^2) equation. After the assessment; individualized diet plan was provided along with nutrition education tools and physical activity recommendations. Dietary meal plans were based on the patient's food preferences, nutritional needs, age, gender, weight, height and physical activity level. Weekly follow-up sessions were arranged in same day and time frame. Anthropometric measurements in 1st and 4th appointments were recorded to assess the difference of weight status for 1-month consultation period.

3.2. Data Form

This form consists of twenty-nine questions and applied in person after fourth session of nutrition counseling by researcher dietitian. Data form was applied to patients to reach their sociodemographic variables, anthropometric measurements, health and diet-related history and current eating pattern. The participants were divided into two group as 'snacker' and 'non-snackers' depending on the given answer of "Do you usually snack?" question in the data form.

3.3. Eating Pattern and Physical Activity Assessment

Dietary habits were identified through usual eating pattern questions which are in the data form. Participants were asked to choose breakfast, lunch, dinner and snack food preferences to determine their eating pattern. In regards to breakfast; there were 5 options. First one was Turkish breakfast which is consist of white cheese, olives, tomatoes, cucumber, egg, black tea and bread. Baked pastries were identified as local oven baked *simit* and *pogaca*, *acma* (savory buns).

In regards to lunch and dinner; there were 3 options. Home-cooking stew was described vegetable, chicken, or beef-based dishes along with grains like rice or bulgur pilaf. Fast food was identified as hamburger, *döner* (spinning meat) and kebab sandwiches. Diet menu is identified as salads topped with protein choices such as grilled meatballs, chicken breast, fish or cheese. There were 4 options for snacking occasion. Packaged energy-dense foods (biscuits, potato chips, chocolate); baked pastries (simit, pogaca, acma), dairy and dairy products (milk, yogurt, kefir), and fruits (dried or fresh fruits). In addition, one option was 'others' for all eating occasions, participants were asked to choose this if food was unspecified.

Physical activity status was determined by questioning about participation in regular exercise participation by the number of days in a week.

3.4. Data Analysis

SPSS 15.0 for Windows program was used to statistical analysis. Descriptive statistics; number and percentage were used for categorical variables whereas minimum-maximum, standard deviation and mean were used for numeric variables.

Student t test was used for numerical variable if the two independent group comparisons follow normal distribution. Mann Whitney U statistic was used if the groups did not show normal distribution. Chi-square ($\chi 2$) analysis was used for comparing the categorical variable ratio differences between the groups. A statistical significance level, alpha, was excepted $p < 0.05$.

4.RESULTS

Table 4.1. is showing baseline characteristics of present sample (n=103). Female population (82.5%) of the overall study was higher than male population (17.5%). The majority of study population (54.4%) were acquired Bachelor Degree. The average age of the sample was 33 (SD: 6.0). The mean BMI and weight of the overall sample were 26.1 kg/m^2 (SD=4.4) and 72 kg (SD:14.6), respectively. Cigarette smoking (30.1%) was slightly higher than alcohol consumption (27.2%) among study population (Table 3).

Table 4.1. General characteristics of overall study group

		n	%
Gender	Male	18	17,5
	Female	85	82,5
Mean age (y) ±SD (Median)		33,9±6,7 (21-53)	
Mean height (cm) ±SD (Median)		165,7±7,7 (148-195)	
Mean weight (kg) ±SD (Median)		72,0±14,6 (48-114)	
Mean BMI (kg/m^2) ±SD (Median)		26,1±4,4 (17,2-41,4)	
Marital status	Single	30	29,1
	Married	73	70,9
Education	Middle school	4	3,9
	High school	24	23,3
	Associate degree	10	9,7
	Bachelor degree	56	54,4
	Graduate or higher degree	9	8,7
Cigarette smoking		31	30,1
Alcohol consumption		28	27,2

Figure 1 is showing the daily water consumption of all participants and it can be seen that majority of study population drink 1 to 1.5 L/d (34.7%) or 1.5 to 2 L/d (35.6%) of water. 19.8% of total participants drink water less than 1L/d and 9.9% of the study group drink 2L/d or more water.

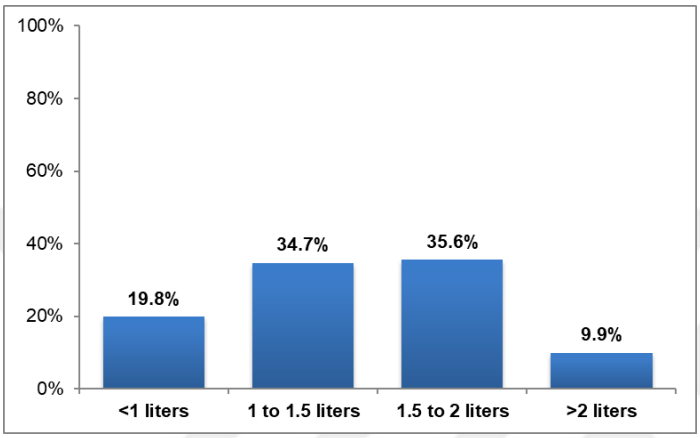


Figure 1. Daily water consumption of the study group

Figure 2 illustrates that 35.9% of participants were attending regular physical activity and 64.1% of population does not exercise.

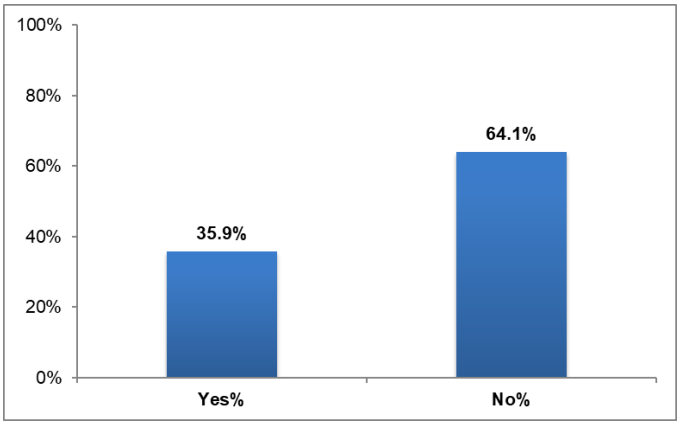


Figure 2. Regular physical activity attendance of the study group

Daily main meal consumption was evaluated in Figure 3. The highest attendance of meal occasion was seemed to be breakfast (91.3%), following with lunch (94.2%) and then dinner (80.6%).

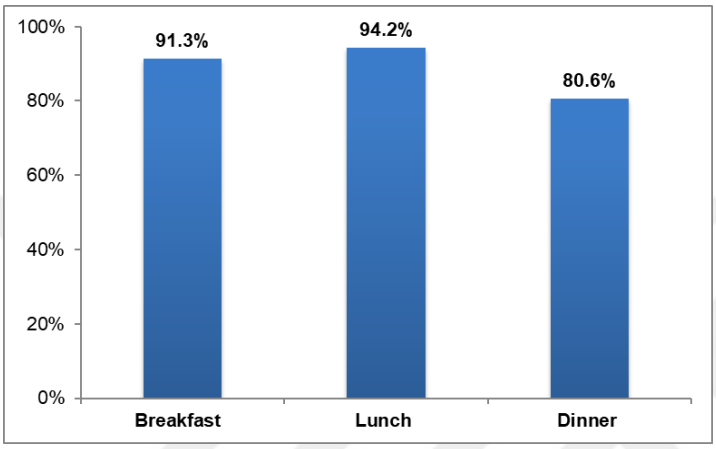


Figure 3. Daily main meal consumption of the study group

Typical Turkish breakfast was preferred by majority of population (74.5%). Baked pastries (14.9%) and breakfast cereals (7.4%) were the other choices among respondents, and one participant was reported with drinking only option for the breakfast (Figure 4).

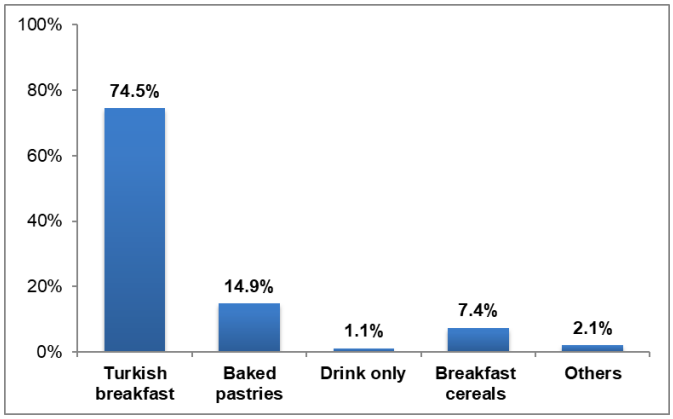


Figure 4. Breakfast food choices of the study group

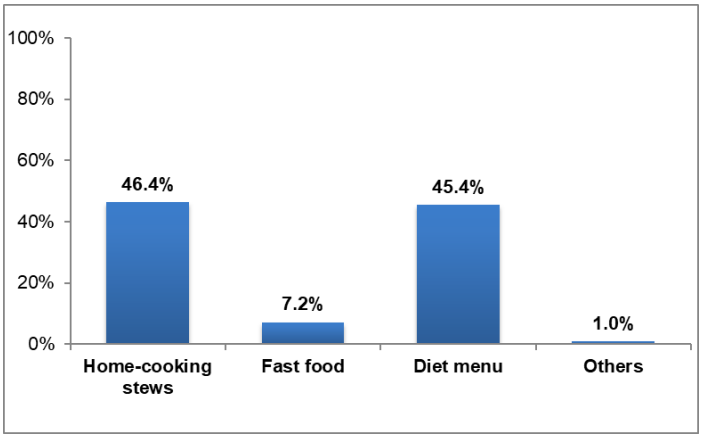
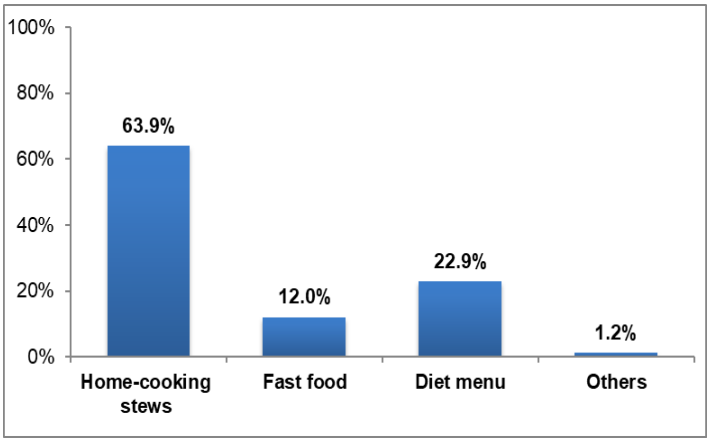


Figure 5. Lunch food choices of the study group

Daily lunch and dinner food choices of participants were evaluated. As shown in Figure 5, majority of population (46.4%) eat home-cooking stews as a lunch meal. Diet menu (45.4%) was the second common choice and fast food (7.2%) was the least preferred option among all participants. Figure 6 is showing dinner food choices; home-cooking stews (63.9%) were slightly more preferable in compared to diet menu (22.9%). Fast food



(12%) was the least likely option to be dinner among all participants.

Figure 6. Dinner food choices of the study group

Snacking behavior was evaluated in the study group, it may be seen by Figure 7 that 76.7% (n=79) of participants were snacker, and 23.3% (n=24) of them were non-snacker.

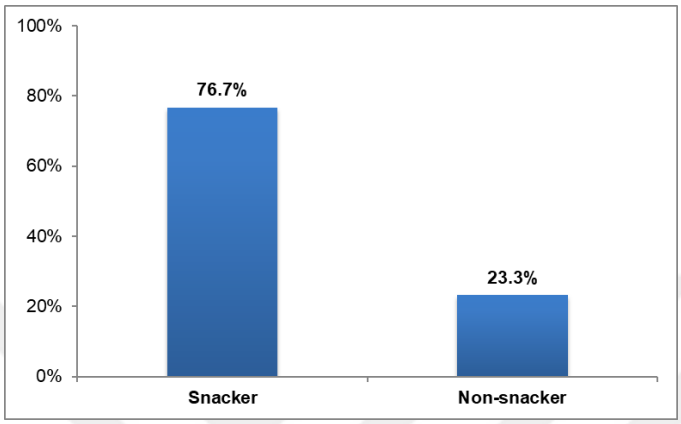


Figure 7. Snacking behavior assessment of the study group

Snacking patterns were evaluated in Figure 8 and it can be seen that fruits are the most popular snack items (44.2%) in the study group.

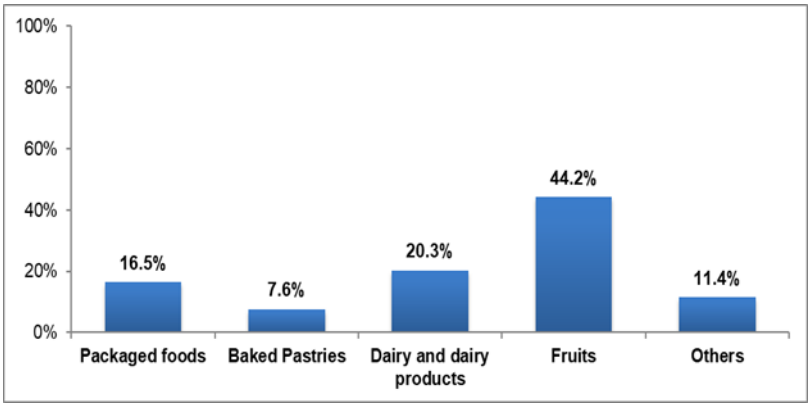


Figure 8. Snacking choices of the study group

Snacking occasion time frame were determined and participants were most likely to have snack in the afternoon (67.0%). This had been following by night (20.3%) and mid-morning (12.7%) snacking occasion (Figure 9).

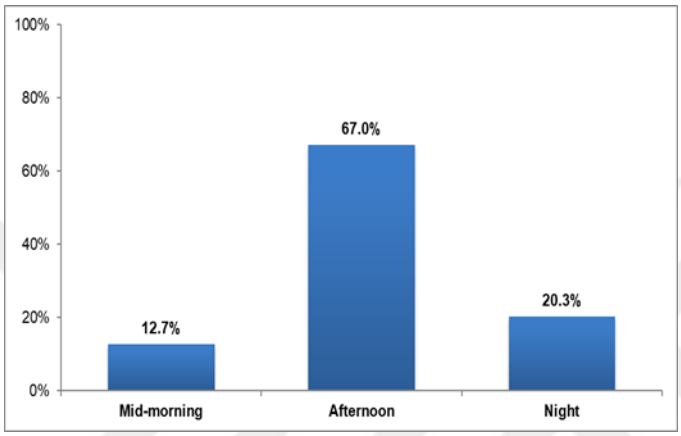


Figure 9. Snacking occasion time point preference of the study group

A summary of mean weight, BMI, percent body fat, and fat mass and changes in those values for overall sample are presented in Table 4.2. In this study, dropped rate of weight, BMI, and body fat mass were found statistically significant in both snacker and non-snacker groups for 1-month nutrition consultation ($p<0.05$). Also decrease in body weight, BMI, body fat mass values in snacker groups were significantly higher than non-snacker group ($p=0.016$ $p=0.018$ $p=0.049$).

Table 4.2. Determination of mean weight (kg), BMI, percent body fat, and fat mass change by snacker and non-snacker groups

	Snacker		**Non-snacker**		
	Mean±SD	Median	Mean±SD	Median	p
Baseline weight (kg)	74,2±15,5	70,9	74,6±17,6	71,15	0,873
Current weight (kg)	71,3±14,3	67,8	73,6±17,2	69,65	0,827
Weight change	-2,96±3,95	-1,7	-1,03±2,24	-1	**0,016**
p	<0,001		<0,001		
Baseline BMI (kg/m^2)	27,2±5,1	26,5	27,1±5,2	27	0,956
Current BMI (kg/m^2)	26,1±4,5	25,2	26,5±4,9	25,9	0,734
BMI change	-1,12±1,46	-0,6	-0,56±1,48	-0,4	**0,018**
p	<0,001		<0,001		
Baseline body fat (%)	32,0±7,1	33,7	31,2±8,8	29,55	0,598
Current body fat (%)	30,6±7,0	31,4	31,0±8,6	29,65	0,972
Body fat change (%)	-1,48±3,14	-1	-0,18±1,10	-0,2	0,092
p	<0,001		<0,001		
Baseline fat mass (kg)	24,2±9,0	23,2	23,8±10,3	22	0,598
Current fat mass (kg)	22,1±8,0	22,1	23,3±10,0	21,7	0,752
Fat mass change (kg)	-2,11±3,37	-1	-0,51±1,28	-0,45	**0,049**
p	<0,001		<0,001		

Table 4.3. is showing baseline characteristic of overall study group. There was no statistically significant difference between snacker group and non-snacker group in terms of general characteristic including baseline weight (kg), and BMI (kg/m^2).

Table 4.3. The general characteristics of participants by snacker and non-snacker group

		Snacker		Non-snacker		p
		n	%	n	%	
Gender	Male	12	15,2	6	25,0	0,356
	Female	67	84,8	18	75,0	
Mean age (y) ±SD (Median)		34,2±6,9 (35)		33,0±5,9 (32,5)		0,411
Mean height (cm) ±SD (Median)		165,5±7,2 (165)		166,2±9,4 (165)		0,888
Mean weight (kg) ±SD (Median)		71,5±13,8 (68)		73,4±17,2 (68,9)		0,966
Mean BMI (kg/m^2) ±SD (Median)		26,0±4,3 (25,2)		26,4±4,9 (25,8)		0,812
Marital status	Single	23	29,1	7	29,2	0,996
	Married	56	70,9	17	70,8	
Education	Middle school	4	5,1	0	0,0	0,346
	High school	17	21,5	7	29,2	
	Associate degree	7	8,9	3	12,5	
	Bachelor degree	42	53,2	14	58,3	
	Graduate or higher degree	9	11,4	0	0,0	
Cigarette smoking		23	29,1	8	33,3	0,693
Alcohol consumption		19	24,1	9	37,5	0,195

Table 4.4. is showing that non-snacker group's daily water consumption was meaningfully lower in comparison to non-snacker group. Majority of non-snackers (52,2%) were drinking less than 1L water/d whereas only n=8 (10.3%) of snackers were drinking less than 1L water/d. There was no statistically difference between snackers and non-snackers group in regards to physical activity status.

Table 4.4. Evaluation of water consumption and physical activity by snackers and non-snackers

		Snacker		**Non-snacker**		**p**
		n	%	n	%	
Daily water consumption	<1L	8	10,3	12	52,2	<0,001
	1 to 1.5 L	28	35,9	7	30,4	
	1.5 to 2 L	33	42,3	3	13,0	
	>2 L	9	11,5	1	4,3	
Regular physical activity	Yes	30	38,0	7	29,2	0,431
	No	49	62,0	17	70,8	
Regular physical activity (day/week) Mean±SD (Median)		1,57±1,95 (1)		1,00±1,06 (1)		0,424

The usual meal patterns of participants were evaluated by snacker and non-snacker. As shown in the Table 4.5, there was no statistically significant difference in meal patterns between two groups.

Table 4.5. Usual meal pattern assessment of snackers vs non-snackers

		Snacker		**Non-snacker**		**p**
Mean main meal/d ±SD (Min-Max)		2,78±0,52 (3)		2,63±0,65 (3)		0,202
		n	%	n	%	
Breakfast	Yes	72	91,1	22	91,7	1,000
	No	7	8,9	2	8,3	
Breakfast food choices	Typical Turkish Breakfast	56	77,8	14	63,6	0,117
	Baked pastries	8	11,1	6	27,3	
	Drink only	0	0,0	1	4,5	
	Breakfast cereals	6	8,3	1	4,5	
	Others	2	2,8	0	0,0	
Lunch	Yes	75	94,9	22	91,7	0,622
	No	4	5,1	2	8,3	
Lunch food choices	Home-cooking stews	32	42,7	13	59,1	0,448
	Fast food	5	6,7	2	9,1	
	Diet menu	37	49,3	7	31,8	
	Others	1	1,3	0	0,0	
Dinner	Yes	64	81,0	19	79,2	1,000
	No	15	19,0	5	20,8	
Dinner food choices	Home-cooking stews	42	65,6	11	57,9	0,185
	Fast food	5	7,8	5	26,3	
	Diet menu	16	25,0	3	15,8	
	Others	1	1,6	0	0,0	

5. DISCUSSION

Most of the nutrition researches which were related to the role of snacking on body weight concluded with unclear findings and the authors attributed this lack of consistency in snacking definition. It is not uncommon to identify different eating behavior among countries depending on culture, climate, and geography [13]. This may explain the absence of universally accepted definition of snacking behavior. Also, previous studies widely have focused on 'snack foods' without including individual's usual meal pattern. The purpose of the present study to elicit the impact of current snacking pattern on body weight management in Turkey. We determined the eating pattern of subjects (n=103) to assess their overall dietary habits.

As shown in Table 4.1. vast majority of participants was women (n=85 women; 18 men). The age range of subjects was between 21 to 53 years. In this study alcohol consumption was very low in study population (27.2%). Similarly, it was suggested by Turkish Adult Risk Factor Survey (TEKHARF) 2003-2004 that 84.9 % of respondents reported that they do not drink alcoholic beverages [17].

In this study, regular meal consumption rate was quite high: breakfast (91.3%), lunch (94.2%) and dinner (80.6%) (Figure 3). It was known that meal skipping is popular among adolescents and skipping breakfast strongly associated with higher BMI [46]. Hence, this meal pattern may lead to weight gain in other populations whereas not skipping meals may contribute decreasing body weight, BMI and body fat percent in this study.

According to Figure 7; snacking pattern was followed by 76.7% of participants who were under the nutrition consultation by dietitian. Snacking behavior was not preferred by 23.3% of participants. Figure 9 shows that the most popular time for snack was afternoon (67.1%). It was supported by Gunes et al. (2012); Turkish people were more likely to have snack in the afternoon, in contrast, mid-morning was very common snack time of the day in American society [33].

In this study, it was found that snacking is not unhealthy eating pattern as assumed to be, in contrary, snacker group found to be more successful in weight management when compared to non-snacker group. In Table 4.2, when we evaluated the body composition difference in two groups, body weight, BMI and body fat mass but not body fat percent

dropped rate were determined statistically significant in snackers (p=0.016 p=0.018 p=0.049, p=0.092).

Snacking behavior was suggested as a healthy nutrition intervention to provide weight loss [26], in addition, increased snacking frequency was associated with promotion of health with decreasing energy intake, and increasing vegetable and fruit consumption [47]. Another cross-sectional study has been suggested that increased snacking frequency but not meal frequency showed positive association with overweight and obesity. However, the study was found lacks of accurate conclusion since different results have been evaluated depending on meal and snack definition of participants [48].

The overall eating pattern of participants was identified and can be seen in Table 4.5. No significant differences found in meal patterns between snackers and non-snackers. This suggested that snacking behavior did not make an impact on individual's usual meal pattern. Most of participants stated that fruits are the predominant snack rather than other choices. It has been suggested by Hartman et al. (2017) that fruit consumption is positively associated with snacking frequency. Alcohol was found to be common evening snack in the United States [33]. This showed the effect of cultural difference on dietary pattern and due to the fact that snacking may contribute detrimental health outcomes in different societies.

In the Table 4.4; there was an association between the daily water consumption of two groups. It was evaluated that non-snackers were more prone to drink less than 1L water relative to snackers. Most of snackers reported that their daily water intake as 1.5-2 L or more and it was well-known that drinking water is strongly associated with decreased BMI [24]. Therefore, higher dropped rate in body composition of snackers can also be associated with daily water consumption.

Snacking behavior along with eating habits in Turkish population has never been the subject of any research. We hope this study will be beneficial for the determination of snacking pattern and its relation with weight management in Turkish population. Moreover, this study is proving better understanding on food-based approach in the weight management which suggested by ACEND [8] with meal and snacking pattern evaluation relative to evidence-based literature.

6. CONCLUSION and RECOMMENDATIONS

The literature is not conclusive in regards to optimal eating pattern associated with body weight management; while some show that many snacking events yields higher BMI, others find that a high number of eating occasion is linked to decrease energy intake and induce weight control. In this study, snacking is found to be beneficial on weight management. Even if weight reduction was found significant in both control and experimental groups, dropped rate in body weight, BMI and fat mass in snackers was superior to non-snackers. Regarding to the findings, snacking suggested to be a good dietary strategy to weight management intervention. Nevertheless, individual's usual eating and lifestyle pattern should be considered as a whole including eating frequency, water consumption, food choices, and physical activity. Nutrition professionals should teach how to choose nutrient dense foods for snacking occasion to his/her patients, since eating energy dense nutrient poor snacks may contribute overweight/obesity.

This study has some limitations. First, the total population was small, since the study sample was consisting of only volunteer participants within the specified time interval. Conclusion of the study would be different if it conducted with more participants and longer time period. Second, the study design was cross-sectional study as most of researches that have been conducted previously to assess the effect of eating frequency and snacking on body weight management. Finally, further research is needed and controlled trials in long time period would contribute better understanding to assess snacking behavior on weight management.

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8. APPENDICES

8.1. Ethical Approval

BAHÇEŞEHİR ÜNİVERSİTESİ
KLİNİK ARAŞTIRMALAR ETİK KURULU

Üniversitemiz Klinik Araştırmalar Etik Kurulu'na ait 19 Nisan 2017 Tarih ve 2017- 07/02 Sayılı Karar Örneğidir.

KARAR:2017-07 /02

Yeditepe Üniversitesi Sağlık Bilimleri Enstitüsü, Beslenme ve Diyetetik Yüksek Lisans Programı Öğrencisi, Merve KINALI'nın **"Ara Ögün Tüketiminin Kilo Kontrolüne Etkisi"** isimli tez araştırmasının başvuru dosyası görüşüldü.

Görüşmeler sonunda; Yeditepe Üniversitesi Sağlık Bilimleri Enstitüsü, Beslenme ve Diyetetik Yüksek Lisans Programı Öğrencisi, Merve **KINALI'nın "Ara Ögün Tüketiminin Kilo Kontrolüne Etkisi"** isimli tez araştırması gerekçe, amaç, yaklaşım ve yöntemleri dikkate alınarak; incelenmiş ve uygun bulunmuş olup araştırmanın/çalışmanın başvuru dosyasında belirtilen merkelerde gerçekleştirilmesinde etik ve bilimsel sakınca bulunmadığına karar verildi.

Prof.Dr. Nazire AFŞAR
Etik Kurul Başkanı

8.2. Data Form

ARA ÖĞÜN TÜKETİMİNİN KİLO KONTROLÜNE ETKİSİ

Bu çalışma özel bir hastanede beslenme ve diyet polikliniğine başvurmuş bireylerin ara öğün tüketiminin kilo kontrolüne etkisinin belirlenmesi amacıyla planlanmıştır. Ankete katılım ve isim belirtilmesi isteğe bağlı olup verilecek bilgiler gizli tutulacak ve bu çalışma dışında hiçbir kişi veya kurumla paylaşılmayacaktır.

Anket no:

1. **Yaşınız : ……**

2. **Boy uzunluğunuz : …….**cm

3. **Vücut ağırlığınız : ……** kg

4. **Medeni Durumunuz :**

   1. Bekâr 2. Evli

5. **Eğitim Durumunuz :**

a) İlköğretim (ilkokul-ortaokul) mezunu
b) Ortaöğretim (lise) mezunu
c) Ön lisans mezunu
d) Lisans mezunu
e) Lisansüstü (yüksek lisans / doktora / uzmanlık

6. **Daha önce doğum yaptınız mı? Cevabınız evet ise rakam olarak belirtiniz.**

   1.Evet(…) 2.Hayır

7. **Doktor tarafından teşhisi konmuş herhangi bir hastalığınız var mı?**

   1.Evet 2.Hayır

8. Cevabınız evet ise teşhis edilen hastalığınız aşağıdakilerden hangisi / hangileridir? (Birden fazla şıkkı işaretleyebilirsiniz.)

1. Kalp-damar hastalıkları
2. Diyabet (şeker hastalığı)
3. Yüksek tansiyon
4. Kanser
5. Sindirim sistemi hastalıkları (karaciğer, safra kesesi, mide vb.)
6. Solunum sistemi hastalıkları (akciğer vb)
7. Ruhsal sorunlar (depresyon, aşırı yeme, kusma, gece yeme vb.)
8. Kas iskelet sistemi problemleri (osteoporoz, eklem ağrıları)
9. Endokrin (hormonal) hastalıklar
10. Vitamin ve mineral yetersizlikleri (Demir, B_{12} vitamini yetersizliği vb)
11. Diğer (belirtiniz) ……

9. Sigara içiyor musunuz?

1. Evet 2. Hayır

10. Alkol kullanıyor musunuz?

1.Evet 2.Hayır

11. Sağlığınızı etkileyen faktörlerden size göre önemli olan en fazla 3 tanesini işaretleyiniz.

1. Beslenme alışkanlığı …….. ☐
2. Vücut ağırlığı ……..… ☐
3. Sigara içme ……..… ☐
4. Çevresel faktörler…… ☐
5. Fiziksel aktivite durumu……. ☐
6. Alkol kullanımı …….. ☐

7. Stres ……..….. ☐
8. Genetik yapı……..….. ☐
9. Aile yaşam tarzı …… ☐

12. Günde ne kadar su tüketirsiniz?

1.1 litreden az
2.1–1.5 litre arası
3.1.5 – 2 litre arası
4.2 litreden fazla

13. Düzenli olarak fiziksel aktivite/egzersiz/spor yapıyor musunuz?

1.Evet **2.**Hayır

14. Ne sıklıkta fiziksel aktivite/egzersiz/spor yapıyorsunuz?

1.Her gün
2.Haftada ….. gün

15.Günde kaç ana öğün yemek yersiniz?.....öğün

16.Düzenli olarak kahvaltı yapar mısınız?

1.Evet 2.Hayır ***(cevabınız hayır ise 19.soruya geçiniz)***

17. Cevabınız evet ise sabah kahvaltısını <u>genellikle</u> nerede yapıyorsunuz? ***(tek seçenek işaretleyiniz)***

1.Evde 2.İşyerinde

18. Sabah kahvaltısında <u>genellikle</u> ne tür besinleri tercih ediyorsunuz? ***(tek seçenek işaretleyiniz)***

1. Çay, peynir, zeytin, yumurta vb. Besinler

2. Çay, poğaça, tost, simit vb. Besinler

3. Sadece içecek

4. Süt ile birlikte tahıl gevreği

5. Diğer(belirtiniz) ……..

19. Düzenli olarak öğle yemeği yer misiniz?

1.Evet 2.Hayır **(c*evabınız hayır ise 21.soruya geçiniz)***

20.Öğle yemeğinde <u>genellikle</u> ne tür yemek yemeyi tercih ediyorsunuz? ***(tek seçenek işaretleyiniz)***

1. Tabldot türü (sulu yemek)

2. Fast food türü (hamburger, patates kızartması, ekmek arası döner, ekmek arası köfte, sandviç, simit vb.)

3. Diyet bölümünden tercih ediyorum(ızgara et,tavuk,balık vb)

4. Diğer (belirtiniz)

21. Düzenli olarak akşam yemeği yer misiniz?

1.Evet 2.Hayır **(c*evabınız hayır ise 23.soruya geçiniz)***

22. Akşam yemeğinde <u>genellikle</u> ne tür yemek yemeyi tercih ediyorsunuz? ***(tek seçenek işaretleyiniz)***

1. Tabldot türü (sulu yemek)

2. Fast food türü (hamburger, patates kızartması, ekmek arası döner, ekmek arası köfte, sandviç, simit vb.)

3. Diyet bölümünden tercih ediyorum(ızgara et,tavuk,balık vb)

4. Diğer (belirtiniz) ……

23. Ara öğün yapar mısınız?

1.Evet 2.Hayır

24. Cevabınız evet ise ne tür bir ara öğün tercih edersiniz?

1.Paket yiyecekler(bisküvi, kek, çikolata, cips)

2.Hamur işi yiyecekler(poğaça, simit, açma)

3.Süt ve süt ürünleri(yoğurt, kefir vb)

4.Meyve

5.Diğer(belirtiniz)……..

25. Gün içinde daha çok hangi zaman aralığında ara öğün ihtiyacı duyuyorsunuz?

1.Kuşluk 2.İkindi 3.Gece

26. Ara öğün atlar mısınız?

1.Evet 2. Hayır 3. Bazen

27. Cevabınız evet veya bazen ise genelde hangi ara öğünü veya öğünleri atlarsınız?

1.Kuşluk 2.İkindi 3.Gece

28. Ara öğün atlıyorsanız atlama nedenlerinizden size göre önemli olanları işaretleyiniz. (en fazla 3 seçeneği işaretleyiniz)

1.Zamanım yok…….. ☐

2.Alışkanlığım yok…… ☐

3.Canım istemiyor/iştahsızım…… …..... ☐

4.Kurs, spor vb. faaliyetlerim nedeniyle……..... ☐

5.Hazırlanmadığı için…… ☐

6.Diğer (belirtiniz) …….. ☐

29.Ara öğünü atladığınızda ana öğünlerde daha çok yediğinizi düşünüyor musunuz?

1.Evet 2.Hayır

Zaman ayırıp anketi cevaplandırdığınız için teşekkür ederiz.

9.CIRRICULUM VITAE

Kişisel Bilgiler

Adı	MERVE	**Soyadı**	KINALI ÇIRAY
Doğum Yeri	HATAY/ İskenderun	**Doğum Tarihi**	09.08.1991
Uyruğu	TC	**TC Kimlik No**	14384222118
E-mail	mrvknl12@gmail.com	**Tel**	05550299790

Öğrenim Durumu

Derece	Alan	Mezun Olduğu Kurumun Adı	Mezuniyet Yılı
Doktora			
Yüksek Lisans	Beslenme ve Diyetetik	**YEDİTEPE ÜNİVERSİTESİ**	Halen
Yüksek Lisans	Diet, Nutrition and Food	**H. LEHMAN COLLEGE**	Halen
Lisans	Beslenme ve Diyetetik	**YEDİTEPE ÜNİVERSİTESİ**	2015
Lise	Fen Bilimleri	**İDÇ ANADOLU LİSESİ**	2009

Bildiği Yabancı Dilleri	**Yabancı Dil Sınav Notu (#)**
İNGİLİZCE	TOEFL: 68
İSPANYOLCA	

Başarılmış birden fazla sınav varsa(KPDS, ÜDS, TOEFL; EELTS vs), tüm sonuçlar yazılmalıdır

İş Deneyimi (Sondan geçmişe doğru sıralayın)

Görevi	Kurum	Süre (Yıl - Yıl)
DİYETİSYEN	İSTANBUL FLORENCE NİGHTİNGALE HASTANESİ	2016-2018
DİYETİSYEN	TEB BANKASİ GENEL MÜDÜRLÜK	2016-2018

Bilgisayar Bilgisi

Program	Kullanma becerisi
MS OFFICE	ÇOK İYİ

*****Çok iyi, iyi, orta, zayıf olarak değerlendirin

Bilimsel Çalışmaları

SCI, SSCI, AHCI indekslerine giren dergilerde yayınlanan makaleler

-

Diğer dergilerde yayınlanan makaleler

-

Uluslararası bilimsel toplantılarda sunulan ve bildiri kitabında (*Proceedings*) basılan bildiriler

-

Hakemli konferans/sempozyumların bildiri kitaplarında yer alan yayınlar

-

Diğer (Görev Aldığı Projeler/Sertifikaları/Ödülleri)

-