T.C.
YEDITEPE UNIVERSITY
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COMPARISON OF THE EFFECTS OF VIDEO MEDIATED NUTRITION EDUCATION AND TRADITIONAL NUTRITION EDUCATION ON NUTRITION KNOWLEDGE LEVEL IN ADOLESCENTS

MASTER'S THESIS

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ONAY

Bu tez Yeditepe Üniversitesi Lisansüstü Eğitim-Öğretim ve Sınav Yönetmeliğinin ilgili maddeleri uyarınca yukarıdaki jüri tarafından uygun görülmüş ve Enstitü Yönetim Kurulu'nun 16/07/2019 tarih ve 2019/12-19 sayılı kararı ile onaylanmıştır.

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Sağlık Bilimleri Enstitüsü Müdürü

DECLERATION

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.

Date 02.07.2019

Signature

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LIST OF SYMBOLS AND ABBREVIATIONS

ABBID	: Adölesan BEslenme Bilgi Düzeyi
ANKQ	: Adolescent Nutirition Knowledge Questionnaire
WHO	: World Health Organization
DRI	: Dietary Reference Intake
AI	: Adequate Intake
AN	: Anorexia Nervosa
BED	: Binge Eating Disorder

ABSTRACT

Aydın, S. (2019). Comparison of The Effects of Video Mediated Nutrition Education And Traditional Nutrition Education On Nutrition Knowledge Level in Adolescents. Yeditepe University, Institute of Health Science, Department of Nutrition and Dietetics, MSc Thesis, Istanbul.

Inadequate and poor eating habits during adolescence may cause osteoporosis, diabetes, obesity, delay in sexual development, cardiovascular diseases and some organ cancers in the later years. In order to make adolescents be able to choose healthy foods and develop appropriate nutritional behaviours regarding recommendations interventions should be organized and should be addressed with school programmes. This study aims to compare the effects of video mediated nutrition education with traditional nutrition education on nutrition knowledge level in adolescents. This study was conducted with 72 adolescents. Intervention group was consisted of 13 female students, 23 male students, while the control group consisted of 18 female students and 18 male students. Adolescent Nutrition Knowledge Questionnaire(ANKQ, ABBID) scale was used to determine nutritional knowledge. Intervention group watched a video taken at supermarket while control group was educated with slidesand verbally by the researcher. Pre-test and post-tests were conducted before and after the trainings. According to the results, both of the interventionssignificantly increased the nutritional knowledge level ($p < 0.05$). However, the difference between groups were not statistically significant ($p > 0.05$). Organizing nutritional education activities and including courses in the curriculum and dealing with them with effective education methods enable adolescents to choose healthy foods and develop appropriate nutrition behaviors.

Keywords: adolescents, nutrition education, nutrition knowledge level

ABSTRACT (Turkish)

Aydın, S. (2019). Adölesanlarda Video ile Yapılan Beslenme Eğitimi ile Geleneksel Beslenme Eğitiminin Beslenme Bilgi Düzeyine Etkisinin Karşılaştırılması. Yeditepe Üniversitesi, Sağlık Bilimleri Enstitüsü, Beslenme ve Diyetetik ABD., Yüksek Lisans Tezi, İstanbul.

Adölesan dönemdeki yetersiz ve kötü beslenme alışkanlıkları ileri yıllarda osteoporoz, şeker hastalığı, şişmanlık, kalp-damar hastalıkları, cinsel olgunlaşmada gecikme ve bazı organ kanserlerine neden olabilmektedir. Beslenme eğitimi programlarında video öğretiminin kullanılmasının öğrenmeyi zenginleştirebileceği, yetişkin öğrencilere yönelik bilgileri organize etmek ve sunmak için yenilikçi bir yol sağlayabileceği düşünülmektedir. Bu çalışma ergenlerde video ile verilen beslenme eğitiminin beslenme bilgi düzeyine etkisinin geleneksel eğitimle karşılaştırılması amacıyla yapılmıştır. 72 adölesan ile yapılan bu çalışmada biri müdahale biri kontrol olmak üzere 2 grup vardır. Müdahale grubu 13 kız öğrenciden ve 23 erkek öğrenciden oluşurken, Kontrol grubu 18 kız öğrenciden ve 18 erkek öğrenciden oluşmuştur. Adölesan Beslenme Bilgi Düzeyi (ABBİD) ölçeği kullanılmıştır. Müdahale grubuna araştırmacı tarafından bir markette çekilen beslenme eğitimi videosu izletilmiştir. Kontrol grubuna ise slayt ile beslenme eğitimi hazırlanmış ve bu eğitim araştırmacı tarafından sözel olarak verilmiştir. İki eğitimin de içeriği aynıdır. Eğitimlerin öncesinde ve sonrasında öntest ve sontest yapılmıştır. Bu eğitimlerin sonuçlarına göre iki eğitim de beslenme bilgi düzeyini arttırmıştır, bu artışın istatistiksel analizler sonucunda anlamlı olduğu görülmüştür ($p<0.05$). Ancak iki gruptaki artışlarda istatistiksel olarak fark bulunamamıştır ($p>0.05$). Beslenme eğitimi etkinlikleri düzenlenmesi ve bu eğitimlerin müfredatta kendine yer bulması, etkin eğitim yöntemleriyle ele alınması adölesanların sağlıklı besinleri seçip uygun beslenme davranışı geliştirebilmelerini sağlayacaktır.

Anahtar Kelimeler: adölesan, beslenme eğitimi, beslenme bilgi düzeyi

1. INTRODUCTION

Health is affected from many factors such as nutrition, heredity, climate and environmental conditions. Nutrition is at the top of factors these and human needs. Nutrition is the use of nutrients for growth, survival and maintainence of health (1).

Adequate and balanced nutrition regarding to age, sex and physiological status of the individual, must provide all the nutrients required. Adequate nutrition usually means providing the energy necessary to maintain the body's life and functions. Carbohydrates, proteins and fats are energy providing components. On the other hand, balanced nutrition means supply of all micro and macro nutrients as well as energy (2).

Adolescent period is considered as a vulnerable period in terms of psychological problems. It is a period in which there are significant developments in mental and physical aspects and growth is rapid, and in parallel with this, nutritional requirements are increased. Thus, it is one of the most critical groups which requires nutritional improvement and maintanence (3).

Achieving behavioral improvements in humans is faster and easier in childhood and adolescence. The last age group is adolescence period for developing positive health behaviors which will contiune during adulthood (4). Adequate and balanced nutrition is important in adolescence period as the nutritional habits gained during this period are reflected in the adulthood(5). Since it is difficult to change bad eating habits in adulthood, it is critical to gain healthy eating habits at an early age (6,7). Therefore adolescence is an important life period in which health behaviors and attitudes are developed and it is important to determine health behaviors in which healthy food selection autonomy is important and negative health behaviors should be changed (4,8).

Common nutritional problems in adolescence are growth retardation, pubertal delay, iron deficiency anemia, decreased academic performance as well as obesity (8). Inadequate and poor eating habits during adolescence may cause osteoporosis, diabetes, obesity, delay in sexual development, cardiovascular diseases and some organ cancers in the later years (9,10). It was determined that children who are overweight and obese during childhood and adolescence have malnutrition related diseases such as hypertension, type 2 diabetes, asthma, orthopedic problems, sleep apnea and psychosocial complications more frequently than the ones at normal body weight (11).

In order to make adolescents be able to choose healthy foods and develop appropriate nutritional behaviours regarding recommendations nutrition interventions should be organized and should be addressed with school programmes (8,12).

It has been showed that videos contribute to learning, as being a valuable tool for supporting learning, and video use as an intervention method might be adapted for all learners as well as adolescents (6–8,10,12). It is believed that video mediated education in nutrition education programs can enrich students' learning and is an innovative way to organize and present information for students (7–9). Nutritional education with video is increasing, which demonstrates the value of understanding the characteristics of video-based interventions (12).

This study aimed to compare the effects of video mediated nutrition education with traditional nutrition education on nutrition knowledge level in adolescents.

2. LITERATURE REVIEW

2.1. Adolescence Period and Adolescence Period Characteristics

The World Health Organization (WHO) defines the 10-19 age group as the adolescence period (13). Adolescence is a period of transition from childhood to adulthood. The fastest growth and development in life cycle is seen in this period and adolescence begins with puberty (10,14). Puberty begins in girls generally at in between eight and thirteen of age and boys at between nine and fourteen (10). Lancet Commission on Adolescent Health and Wellbeing apart the adolescence into three groups: early adolescence (10-14 years), late adolescence (15-19 years), and young adult (20-24 years) (15,16).

Early puberty; Sexual development,

Late puberty; it is also characterized during adolescence and is less prominent than early puberty,

Young adults; dominates adult roles and responsibilities (15,16).

Adolescence is a period in which emotional, thought, behavior and attitude intensify as well as physiological, psychological changes and preparation process for social maturity. Especially in this age, young people tend to eat frequently because of their increase metabolic rate. Young people commonly eat for many social reasons, from places outside the home, such as school canteens and ready-to-eat meals (eg fast-food). Therefore, they may not get enough nutrients to meet their requirements that are important for their health (17).

Individuals may be uninformed or have missing or inexact knowledge about the nutritional value of foods and nutrients which are appropriate for maintaining health, and the relationships between diets and diseases (18).

Inadequate in nutrition knowledge facilitates the emergence of many diseases. Inadequate and unbalanced nutrition is seen as a result of lack of information, bad eating habits settled in individual and settled habits are quite difficult to get rid of (18). Therefore, the topic to be emphasized is to have knowledge about nutrition and not to have any bad nutrition habits at all (18). Nutrition knowledge is the most important factor which affects nutritional status and nutrition attidutes(7,18). Education is a dynamic system developed for informing people, providing an attitude about the subject being studied, and finally achieving the desired behavior (3). A nutrition education for adolescents should be organised in a structure which is commonly based on the

information about the importance of nutrition, nutrients and proper eating behaviors. (3,19).

Nutritional disorders are also common in adolescence (10). Growth, long-term healthy eating habits and decreasing future disease risks require adequate and balanced food intake during adolescence. Compared to other periods of life energy and nutrient requirements are more in this period (5,7).

Nutritional knowledge of adolescents develops primarily in the family. It is formed by the influence of environmental factors and teachers in both preschool and educational period (3,20). For this reason, parents, teachers and children should be given trained on nutrition especially in childhood and adolescence (7).

In order to maintain healthy eating habits, proper food choises of food and maintaining a healthy life, individuals should have sufficient nutritional knowledge. Nutrition information is only gained with nutrition education (3). The aim of nutrition education is to eliminate inappropriate and negative nutrition practices, improve nutritional status and protect health (3,17).

Nutrition education have an important role in raising public awareness and, consequently, in public health as one of the most significant practices in terms of nutrition knowledge (21,22).

Physical changes during adolescence affect and change the nutritional needs of the body. In addition to increased energy, protein, vitamin and mineral requirements, appetite increase is also observed during this period (10,14). The physical changes in this period also change the nutritional requirements of the body (10). Along with physical changes, eating habits and nutritional choices also change during this period. Fast snacks, fat, sugar and salt-rich “fast food” habits or skipping meals are increasing during this period (10).

Due to hormonal changes during puberty, maturation of the body causes significant changes in body composition (22). In normal puberty, height and body weight increases (50% of adult body weight is gained during puberty), bone mass and muscle mass increases, blood volume expands (23). Adolescence is the second period with the highest growth rate. The first is the period of infancy, but the period of adolescence is longer, so total nutrition requirements during adolescence may be more than other periods in life (15).

Eating habits and behaviors, peer effects in adolescence, parental modeling, food preferences are affected by many factors such as personal and cultural beliefs and body image (15).

Adolescence is a complex period, such as childhood, because of a complex interaction between neurocognitive maturity and social role transitions (24,25).

In addition to the living conditions and the environmental role, nutrition contributes significantly to normal development. A healthy diet regarding macro and micro nutrient needs is essential for adequate growth and development during adolescence (24).

Typical indicators of bad eating habits include are irregular meals, unhealthy snacks, eating outside the home and fast food consumption. These habits often affect many factors, including family, peers and the media (26).

Skipping some meals, especially breakfast, snacking between meals indulgence in junk food, intiation of alcohol consumption, interest in sugary and carbonated drinks, frequent consumption of caffeine containing foods, tendency to choose food, excessive energy intake, under-consumption of certain nutrients, implementation of haphazard diet programs, features such as having different thoughts about foods constitute the most common characteristics of this period (26).

The growth spurt in puberty requires rapid growth of tissue with specific nutrient requirements, including amino acids for growth of striated muscles, as well as calcium and vitamin D to achieve bone growth. Typically adolescents have physical exercise or recreational exercises that benefit the expansion of skeletal muscle mass, so their energy and nutritional requirements must meet the needs of adolescents. Appetite is increasing in adolescence. If inactive individuals prefer high-energy foods when they are hungry, the possibility of accumulation of fat increases. Therefore, low levels of activity among adolescents is the key factor that underlies the increase in adolescent obesity worldwide (15).

Caloric needs of adolescent boys are higher than adolescent girls due to height, body weight and increase in lean body mass. Diet recommendations say that 50% or more of the total daily calories should come from carbohydrates and sugar such as sucrose and high fructose corn syrup should not exceed 10-25% of the caloric intake (15). While the need for protein is highest in girls between 11 and 14 years of age, it is highest in boys between 15 and 18 years of age (15).

In adolescence, weight gain accounts for about 50% of adult weight and approximately 45% of adult skeletal mass and 15% of adult height is gained during this period. In adolescence, undernutrition may have long-term consequences for adult health (27).

Adolescence is the period of rapid growth, which requires a balanced diet and has the highest nutritional needs throughout the entire life cycle (28–30).

Adolescent individuals have higher nutritional requirements. To meet this requirement, adolescents should consume various protein sources, low-fat dairy products, vegeTables and fruits. The lack of energy and nutrients in this period leads delay in puberty and the loss of growth. Inadequate energy intake may be associated with a strict diet, a low economic level, or a chronic disease (10).

Protein, is necessary for muscle and cell repair. Protein requirement increases in childhood and adolescence, during pregnancy and lactation, after illness or surgery. The daily needs of adolescents are approximately 45-60 grams (0.8 g/kg/day for girls and 1 g/kg / day for boys). The amount of protein required for growth is higher in girls between 11-14 years of age and in boys between 15-18 years of age. Without sufficient protein, linear growth, retardation of sexual maturation and decreased lean body mass are seen. When enough carbohydrates are not taken, protein is also used for energy (10). Protein requirements are determined by taking into account the differences in growth and development rates among adolescents based on the method of body weight per kilogram. However, as with energy intake, there may be causes that endanger protein intake such as chronic diseases, food safety problems, frequent diets and substance use. When protein intake is insufficient, growth and development retardation occurs. Inadequate protein intake causes latency or inadequate increases in body weight and height in growing adolescents. In physically mature young people, inadequate protein intake can lead to weight loss, loss of lean body mass, and changes in body composition (31).

Carbohydrates are the most important sources of energy. Foods rich in carbohydrates, for example vegeTables, fruits, whole grains are important sources of fiber in the diet. 50-60% of the daily total calories should be provided from carbohydrates (10). The carbohydrate needs for adolescents are valued to be 130 g/day. Whole grains nutrients provide vitamins, minerals and fiber. Adequate intake (AI) for fiber among adolescents is 31 g / day for boys aged 9-13, 38 g / day for boys aged and 14-18, 26 g / day for girls aged 9-18 (31). Adequate levels of fiber in the diet is

important for normal intestinal habits, besides may have a role in the prevention of some chronic diseases. It also plays a role in reducing the risk of obesity and reducing serum cholesterol levels (10). The needs of adolescents who spend less energy because of activity limitations may be lower than their AI values. Inequalities in intake indicate that more attention should be paid to educating on optimal sources of carbohydrates, including whole grains, fruits, vegeTables and legumes (31).

Fat and fatty acids are needed for normal growth and development (10). Dietary Reference Intake (DRI) values were not created for total oil intake for adolescents. Instead, total fat intake should not go over the top 30% to 35% of total energy intake. Recommended to take less than 10% saturated fatty acid (31).

Micronutrient needs of adolescents are increasing through adolescence to provide physical development. Micronutrients are especially important during adolescence for synthesis of lean body mass, bone and red blood cells are vitamins and minerals involved in protein, deoxyribonucleic acid and ribonucleic acid synthesis are required in the highest amounts through the growth spurt. After maturation as physical, needs are reduced; nevertheless, the need vitamins and minerals related in bone manufacture increases during adulthood because bone density is not exact at the end of puberty (31).

Since 45% of the bone mass occurs through adolescence, it is very vital to take the appropriate amount of calcium during this period. Inadequate calcium intake during this period leads to the development of osteoporosis in the future (10). Calcium intake decreases with age in adolescence, especially in women. Interventions aimed at increasing calcium consumption between young people must begin early and should focus not only on increasing the intake of dairy products, but also on reducing the intake of soft drinks and increasing the intake of fortified calcium-rich foods (31).

In adolescence, the need for iron increases (10,31). Iron requirement is highest among all young people during periods of active growth and increases after the onset of menstruation, especially in adolescent girls (31). Therefore, iron and vitamin Ddeficiencies are common in this period (10). Meat, chicken, green vegeTables are important sources of iron (10).

Zinc is important for adolescents due to their role in growth and sexual development. Red meat, fish and whole grain cereals are rich in zinc (10).

Vitamins also play an important role in maintaining body health. When a healthy diet is applied, the necessary vitamin intake is provided. Vitamins are divided into two

groups: fat-soluble (A, D, E, K) and water-soluble (B1, B2, B3, B5, B6, B12, folic acid, biotin and vitamin C). Because fat-soluble vitamins are stored in the body, excessive intake may cause toxication (10).

Vitamin A provide to normal vision (sight). Besides vitamin A plays a vital role in reproduction, immune functions and growth. Cereal, milk, carrot and cheese are the most important sources of vitamin A (10).

Vitamin D is important both for maintaining calcium balance and the integrity of the skeletal system. However, it also have an important role to cell differentiation and proliferation, cell growth and hormone secretion (10). Furthermore, vitamin D deficiency has been detected in many chronic diseases such as cardiovascular diseases, cancer, diabetes, high blood pressure and immune system disorders (10,32). Vitamin D plays an important role in simplifying the absorption and metabolism of calcium and phosphorus, which have important effects during adolescence. especially on bone development. Fatty fish and Cod liver oil are natural food sources (31).

Vitamin E is especially important because it has antioxidant properties. Most vitamin E sources are fatty foods. Cereals and hazelnuts that are fortified with vitamins are recommended for adolescents (10).

Vitamin C is a vitamin essential for the synthesis of collagen and other connective tissues. Non-smokers have higher vitamin C levels than smokers, because smoking increases the metabolic cycle and oxidative stress of vitamin C. Therefore, smokers have should take more than 35mg of vitamin C per day (10,33). Smoker adolescents have more less vitamin C levels because they have unhealthy diet patterns (10).

Folate play a role in protein synthesis, RNA and DNA. Adolescents who do not have a habit of having breakfast especially in terms of folate deficiency are at risk group (10).

For a healthy adolescent nutrition: large amounts of vegeTables, fruits, whole grain cereals; sufficient amounts of low-fat milk and dairy products and lean meat; fat, sugar and salt-rich foods should be consumed in very small amounts and drinking plenty of water every day should be a habit (10).

2.1.1. Nutritional Problems in Adolescents

Among young people, inappropriate eating habits, irregular food consumption, excessive snacking, dieting and meal skipping, eating away from home such as in fast

food restaurants are more common than other age groups. Many factors contribute to this behavior, such as reduced family impact, increased peer influence, exposure to the media, and increased responsibility for young people spending less time eating with their parents. Although a majority of the adolescents are aware of the importance of a healthy diet, they are not good at healthy eating practices (31).

Meal skipping is also common among adolescents. Teenagers try to sleep longer in the morning, lose weight with caloric limitation and control their busy lives and thus meal skipping increases during adolescence. Breakfast is the most frequently skipped meal and oftenlt they snack to suppress hunger instead of eating . Snack foods consumed by young people, commonly include extra fats, sweeteners and are high in sodium (31).

The most important nutritional health problems that may continue to affect in adulthood in adolescence are obesity, iron deficiency and vitamin B12 deficiency anemias, zinc deficiency growth retardation, extreme weakness, anorexia nervosa, bulimia nervosa, tooth decay, acne vulgaris, depression and polycystic ovary syndrome (Table 2.1.1.) (26).

Table 2.1.1.1.Nutritional risk factors and related health problems in adolescents(26)

Health problems	Risk factors
Hypertension	Increased weight, increased sodium intake
Obesity	Calorie intake, sedentary lifestyle
Underweight	Anorexia nervosa, bulimia nervosa
Iron deficiency anemia	Malnutrition, inadequate iron intake
Increased serum cholesterol / Heart disease, atherosclerosis	Excess saturated fat and cholesterol intake
Dental caries	Frequent and more consumption of sugary, starchy products, lack of oral hygiene
Osteoporosis	Inadequate calcium and vitamin D intake

Healthy nutrition is very important for full growth potential during adolescence. Inadequate nutrition may cause latency and inhibited growth and also disrupt development. Because adolescents are exposed to a quick growth-development period, adequate food intake (for both macro and micronutrient) is vital (34).

2.1.1.1. Overweight and Obesity

Obesity is an important health problem in all ages (35,36). However, obesity seen in the early stages, especially develops in childhood and adolescence can cause serious health problems in later periods (36,37). During this period, a rapid change in the habits of individuals, nutrition and physical activity, family life and educational activities are experienced (36,38). Decreased time spent at home by adolescents during this period, consuming snack foods from cafeterias, skipping breakfast, not spending enough time for physical / social activities, preferring the activities performed by sitting for a long time (watching television, video games etc.) facilitate the development of obesity (36,38,39).

The fact that the society has a biased and negative social perspective against obesity may lead to psychosocial problems including difficulties in finding a job and working with lower wages in the individuals who have this problem (11,36). This may cause anger, anxiety, depression, violence, injury, substance use (drugs, alcohol, smoking, etc.) and sexual problems (pregnancy, infection, violence due to unprotected sexual relations, etc.) in adolescents who suffer from obesity problem (36,38,40,41).

Many factors are effective for developing of obesity in adolescence (36). The most important of these are metabolic and hormonal factors (36). Physiologically, there is a rapid growth and development in individuals during adolescence (36). Energy is needed during this rapid growth and development process in the body (36). In this process, the energy required for growth is provided by rapidly increasing body fat tissue. Therefore, this fat tissue, which has increased physiologically during adolescence, may increase the tendency to overweight and obesity with the effect of some factors (sedentary lifestyle, change in eating and sleeping patterns) (36,42).

It is known that the basics of obesity, which has failed to be treated in adult life, have been laid in adolescence. Treatment of obesity requires a good teamwork. Family, doctor, dietitian and psychologist should cooperate. Treatment should not be used unconsciously and adolescents should be encouraged to exercise with diet. Given nutrition program should not stop the growth and development of adolescents, should provide the daily requirements (26).

In recent years, it has been observed that weight and obesity have increased in many countries during childhood and adolescence (34,43,44). Overweight in childhood is also related with more than one long-term risks such as type 2 diabetes, increased cholesterol, increased triglycerides, adult obesity, high blood pressure (34,45,46).

Methods of determining or measuring excess body fat in adolescents are limited. It is difficult to define obesity in children and adolescents for that children grow up at different rates at different times. (47).

2.1.1.2. Underweight and Eating Disorders

2.1.1.2.A. Underweight

Excess weight and obesity are associated with sedentary behaviors (48,49). There is no definition of compromise, but in general definition of obesity is the imbalance between caloric intake and expenditure (48,50,51). Underweight is that the body weight is less than it should be regardiing height. In this case, the proportion of

adipose tissue to other tissues is low.Underweight, results from prolonged energy imbalance. Underweight occurs when the energy taken from the diet is less than what is consumed or the nutrients are not used by the body. In this case, the body can not get as much energy as it spends, closes the energy deficit using its own fat store. Weakness may not have the same meaning as malnutrition. Malnutrition involves insufficient nutrition from protein, vitamins and minerals. In some cases of malnutrition, the individual appears to have normal weight due to edema and fat accumulation, but have actually a disease. These individuals appear to be particularly resistant to anemia and infections. Slight weaknesses in the lower limit of the appropriate weight to the height of the person should not be regarded as a disesase. However, energy imbalance, especially in children and adolescents, can lead to real weakness (52). Weakness in childhood and youth, affects growth. Body tissues cannot grow at normal levels due to lack of energy. Excessive underweight reduces the body's resistance to against external impacts. Infections occur easily and the damage is severe. The recovery from the disease becomes difficult because the spare (store) energy is insufficient. Extremely weak ones can get tired quickly. Excessive weakness has been reported to shorten life expectancy as much as obesity (52).

A research was conducted to explore the relationship between body image and overweight, normal-weight and low-weight prevalence in adolescents. According to this study, the body satisfaction in boys was higher in normal and underweight than obese boys. In girls, underweight ones had more satisfaction than normal and overweight ones. Since body image satisfaction is higher in both underwieight girls and boys, individuals may behave in order to maintain this low body weight, thus may result in negative health consequences (53).

2.1.1.2.B. Eating Disorders

Eating disorders can be seen in people from all races, sexes, shapes and sizes (54).

All eating disorders might be fatal and it is very important to get professional help for anyone with symptoms of an eating disorder. Early treatment gives the greatest chance for a full recovery (54).

There are three main types of eating disorders: anorexia nervosa, bulimia nervosa and binge eating disorder. Anorexia nervosa, contains a serious calorie limitation, anxiety of gaining weight, and strict "rules" on eating. Binge eating followed

by purging also may ocur (54). Anorexia nervosa (AN) is qualife by a unsuccessful to maintain adequate body weight due to dietary restriction as a result of fear of weight gain (or getting fat). It may likewise include disorder on body image. While females are more affected than males (55).

AN (Anorexia Nervosa) usually beginnings through adolescence, and initial cautioning signs may include quick weight loss, extreme dieting and exercise, skipping meals, counting calories, increased anxiety about eating, increased shame around exposing one's body, increased body testing behaviors, increased interest for label checking on foods, food routines, increased anxiety if one's eating or exercise plan is upset, dry skin, brittle nails, hair loss, and a destruction in mood. Medical cautioning signs include extremely low heartbeat, blood electrolyte imbalances, difficulty in regulating body temperatures, loss of bone density, low blood pressure, and periods of lightheadedness and dizziness. Due to medical complications and suicide risk, the risk of death in the AN increases dramatically (55).

Bulimia Nervosa (BN), mainly, is defined as excessive eating (overeating in a short time period with a sense of losing control) and characterised with binge episodes with purging in order to avoid from weight gain and changes in body shape (55). Self-induced vomiting, diuretic and laxative use, excessive exercise, fasting and abuse of certain drugs such as insulin are seen in BN. BN typically begins in adolescence. Early warning signs may include the loss of large amounts of food, frequent toilet visits after meals, eating secretly, using fingers to vomit and induce vomiting, and swelling of the face. Medical complications of BN typically include electrolyte imbalance, esophageal ulcers and tooth decay. The risk of death is increased especially in BN because of suicide. Nevertheless, there is a high likelihood of improvement in BN when performed with specialist treatment providers, 70% of which affected recovery over time (55).Binge Eating Disorder (BED) is the most common form of eating disorderIn fact, it's three times more common than anorexia and bulimia (56).

2.1.1.3. Micronutrient Deficiencies

The bone mineral content is defined by both the maximum bone mass in young adulthood and the loss of bone in adult life. Though the clinical results of negative bone health are predominantly seen in the elderly, and evidence suggests that many predisposing factors occur in childhood and adolescence (57,58). Thus, interventions

calculated to maximimum bone health should be started at an early age and should maintain during adolescence (57).

Especially oily fish and egg are the sources of natural vitamin D. However, in some countries, even small amounts of vitamin D in meat may be important. (57,59). While peak bone mass is mainly heritably determined -particularly dietary supports boost calcium and vitamin D intakes through childhood and adolescence- play an vital role, particularly when sun exposure is not continuous (57,58,60–62).

Adequate vitamin D and calcium intake; has health benefits, such as the protection of regular bones and teeth, the growth and development of bone, the sorption or use of calcium and phosphorus, the protection of blood calcium concentration and regular muscle function (57). For instance, researchers of a regular review and meta-analysis finalize that negative bone health events include fractures in children and adolescents who do not meet calcium diet advices at risk of fracture may be high (57,63).

2.1.2. Nutritional Recommendation

Balanced Diet

A balanced diet is essential to overcoming poor body image issues. Embracing a variety foods with balance is key. A healthy eating plan includes:

- Fruits
- VegeTables
- Whole grains
- Nuts and seeds
- Beans and lentils
- VegeTable oils
- Lean meat
- Fish
- Fat-free or low-fat milk, yogurt and cheese.

Adolescents should have breakfast and take care for not skipping meals. In European adolescents; a study analysed the relationship between breakfast habits and socio-demographic factors, breakfast habits of 2672 adolescents from 12-17 age groups from 9 European cities were evaluated on a computer-based basis and breakfast quality index was defined. The majority of adolescents have been reported to have poor breakfast scores, and older, southern European and low socioeconomic families have

consumed poor quality breakfast (26,64). At least 3-5 servings of raw vegeTables and fruits should be consumed daily and legumes are recommended to be consumed 2-3 times a week (26). Adolescents should not choose to meet their liquid needs with tea, coffee, soda, ready-made fruit juices, ice tea and similar drinks with high sugar and caffeine (26). Instead of foods with low nutritive value, high energy, excess saturated fat and salt, it is important to prefer home-prepared foods (26). Adolescents should avoid consuming junk food between meals. They should sit on the Table while eating and should not have a habit of snacking with empty caloires and should oftenly attend to family Tables (26). In New Zealand, Utter et al, analysed the relationship between BMI and eating habits of young people with their families, asked 13-17 yeas old adolescents to survey their eating habits and measured their BMI approximately. 60% of young people met with their families for 5 or more meals a week. It has been found that eating with family increases the consumption of fruits and vegeTables and gives the habit of eating breakfast; however, no relationship was found between family meals and BMI (65). In Seul, South Korea, 1342 students were included in a study on school and nearby nutrition environment, students' eating habits and weight status was analysed. The prevalence of obesity in children in schools in the region where supermarkets and traditional markets were concentrated has been seen to be higher. Among the students, younger ones, girls, the wealthy family owners, the ones with mothers at home, who spend less time on the screen scored higher in healthy nutrition index (66).

The balance between calories taken from food and calories expended from metabolic processes and physical activity is essential to maintain caloric balance. The best way to determine whether an eating scheme has the appropriate caloric content is to monitor body weight and adjust the caloric intake and expenditure in physical activity depending on the weight over time (67).

2.1.3. Nutrition Intervention For Adolescents

Individuals have varying energy needs regarding age, sex, stress, genetic factors and physiological characteristics. It is known that sudden growth and development in adolescence, which expresses the transition from childhood to adulthood, increases the energy and nutrient requirements. It will be possible to meet the increasing need by providing healthy nutrition awareness to the individuals in adolescence period (3). On the other hand it is frequently emphasized that the attitudes and behaviors towards unhealthy nutrition such as wrong food preferences, meal skipping and quick snacking

increase in adolescence period and become a habit until adulthood (3). Obesity paves the way for many diseases such as cardiovascular diseases, diabetes, hypertension and osteoporosis (10,68).

Adolescents need to learn skills to increase the knowledge of healthy nutrition. Using health communication techniques interactively to attract the attention of adolescents can be an effective method of increasing knowledge (69).

There are three essential components to nutrition education:

1. A motivational component, where the goal is to increase awareness and enhance motivation by addressing beliefs, attitudes through effective communication strategies.

2. An action component, the goal is to facilitate people's ability to act through goal-setting and cognitive self-management skills.

3. An environmental component, Nutrition educators work with policymakers and others to promote environmental support. Each compound must be based on appropriate theory and research. The behavioral focus is chosen and theories and research are used to design appropriate educational strategies to achieve targeted behaviors. The results are short, medium or long term effects of the nutrition program. These are evaluated using appropriate designs and tools. Nutritional education programs linking research, theory and practice are more likely to be effective (70).

Nutrition education is an effective evidence-based way to improve health outcomes and improve lifelong healthy eating habits. Nutritional education is vital in reducing obesity-related health disorders in both adults and children. In most of the studies found in one review, healthcare workers from around the world said that a key nutritional education program for children involved in combating obesity and reducing the incidence of metabolic syndrome, type 2 diabetes, hypertension, and cardiovascular-related health disorders was a healthy nutrition education program involving children (71).

Additionally, promoting an adequate and balanced nutrition have a vital and long-term role in the protection of health throughout life(23). For example, knowledge attitude behavior model supports video mediated educations as an attractive method for spreading nutritional education (11).

Video use in nutrition education has increased due to the fact that it is aimed at both educators and learners (7,8,10). Students should see the videos of real

environments in which they can relate to stimulate learning, motivation for learning, and to strengthen the learning experience (9).

The use of video instruction in nutritional education programs enriches learning and can provide an innovative way to organize and present information for the adult learner. Videos are auditory with visual transmission of images used to help facilitate behavior change, which is a goal of nutritional education. The effective use of video in nutritional education supports many nutritional education theories as it is not beneficial to a single theory for every adult in all nutritional behaviors (72).

Nutritional education with interactive and innovative intervention components is highly recommended for future nutritional development programs for adolescents because this nutritional education program is effective in improving adolescents' knowledge, attitudes and behaviors (23).

Research indicates that micro-nutrient supplementation among adolescents can significantly reduce the prevalence of anemia in this age group and that evidence from community-based studies is supported, while school-based supplementation is significantly effective (34).

One study showed that interventions that promote nutrition and prevent obesity can reduce BMI (34). Existing investigations on nutritional promotion and prevention of obesity have overlapping age groups and include children, adolescents and young people. The findings show that programs that promote healthy eating habits and combine physical activity in the prevention of obesity in children and adolescents, especially school-based programs, have beneficial effects (34,73,74). Combination of interventions such as nutrition, physical activity, knowledge, attitudes or health-related behaviors has been found to have the potential to reduce risk factors associated with obesity in children (34). Countries should focus specifically on the adolescent age group and organize programs to reach this vital part of the population through schools (34).

Genetic, metabolic and hormonal factors, physical inactivity, unhealthy eating habits (meal skipping, fast food, alcohol etc), smoking, lack of food sector policies, lack of supportive programs in education sector can be effective in the development of obesity(36,75–77). Therefore, effective prevention, prevention and treatment programs for obesity should be planned and implemented especially in the early period (childhood / adolescence) (36). For the development of these programs, early identification of the problem is of social importance (36).

Among the various technologies currently available, video technology is suiTable for content-based learning because it can transfer information or knowledge (78).

In addition, compared to descriptive materials, stories in the video can help students easily understand and remember the content. A critical feature of the video is the ability to use both audio and visual symbol systems. Video can be superior in learning complex skills as it exposes students to problems, equipment and events that cannot be easily demonstrated (78). Salomon found that a group of students viewed television as a tool that they could learn easier than books(79). The effort of the group who read the stories was much bigger than the group who watched the TV (79). In an article, the factors that influence the students' mental efforts and achievements for the processing of a video-based course and the prejudices of television were investigated and it has been decided that designing videos for active leraning is cruical (80).

Cennamo explored the prejudices of the ease of access to various learning outcomes (psychomotor, affective, oral, intellectual) through interactive video, computers, television and books. College students perceived it to be easier to learn psychomotor skills and attitudes from television and interactive video than from books and computers; however, they perceived it to be more difficult to learn verbal information and intellectual skills from television than from interactive video, computers, and books (80,81).

A research which used several educational models also has shown that video-based instruction is successful in improving students' problem-solving skills (82). In a research the participants consecutively experienced two types of instruction, and then they were asked about their perceptions of learning in terms of understanding, retention, and motivation (i.e., attention, relevance, satisfaction, and confidence) in both the video-based and the traditional text-based instruction (78). In this study, a significant difference was obtained between video-based instruction and traditional text-based instruction in students' motivation. In addition, students said that video-based instruction is more memorable than traditional text-based instruction (78).

Videos are oftenly used in interventions to change health behaviors (83).

3. METHOD

3.1. Participants

The sample of this study was determined as 10th grade high school students who were determined to be at risk as a result of the project “Assessment of Body Mass Index and Related Lifestyle Factors Among 14-17 Years Old Turkish Adolescents at which was completed with the participation of 1561 high school students (84). In this previous project, the number of Grade 10 students whose measurements have been completed is 417. At the end of the power analysis carried out in the 95% confidence interval with 5% error margin, the number of samples was determined as 216 (85). It was planned to make intrerventions for all 216 students with three different intervention methods which are peer-led nutrition model, visual material and video mediated in comparison with controls. Thus total number of the students was diveded into three and 72 students were in the step which will be studied with video mediated intervention in comparison with traditional intervention.

Individuals who are 10th grade students registered at a vocational high school in Uskudar and whose ”Informed Consent” form (Appendix 1) was approved by their parents were included in the study. Students who are not 10th grade students registered to a vocational high school in Üsküdar district and whose “Informed Consent” form was not approved by their parents were excluded from the study.

3.2. Data Collection

The place of the research was planned as a vocational high school in Üsküdar district and after obtaining the necessary legal permissions from the Governorship of Istanbul and the Provincial Directorate of National Education, the school was interviewed. The research was conducted in May 2019. This school has been visited 3 times. On the first visit, school officials were interviewed and “Informed Consent” form was given to Grade 10 students. At the second visid written constent forms were obtained and at the third visit, Adolescent Nutrition Knowledge Level (Adölesan Beslenme Bilgi Düzeyi, - ABBID) questionnaire was applied. ABBID was developed by Oz et. al (69,86). The reliability and validity of the questionnaire were taken in 2016 and the purpose of the survey was to measure the Nutritional Knowledge Level in adolescents. The suggestions in the questionnaire consist of complete sentences that can be true or false. 11 of the propositions are false proposition and 1 point is given to each

correct answer. Inaccurate propositions are reverse coded. The form with the correct answers in the propositions in the questionnaire is attached (Appendix 2). The questionnaire included 9 recommendations from adequate and balanced nutrition dimension, 21 essential nutrients dimension and 8 from malnutrition related diseases dimension. The maximum score that can be obtained from the ABBİD questionnaire is 38 and the minimum score is 0. In the reliability validity study of the questionnaire, internal consistency coefficient was found to be 0.87. The scores obtained from all the questions in the questionnaire are summed and numerical variables, mean, standard deviation (SD), median, lower and upper values and categorical variables are shown in number (S) and percentage (%) for each group (69,86).

Firstly, Informed Consent Forms were distributed starting from the A branch of Grade 10. A total of 170 forms were distributed to the branches A, C, D, E and F, respectively, since the students in the B branch did not arrive that day. On the following day, a total of 43 consent forms were signed by the parents of the student and 100 more forms were distributed to the B, H and I branches respectively and the students were reminded to bring the form. Form G could not be given because branch G was not in school for those 2 days. Sufficient to number was reach the next day. Starting from branch A, 36 volunteers from B, C and D branches were included in the study. This first group was defined as intervention group and each student was given video training after ABBID scale was applied. After the training, ABBID scale was applied to each student again. The second group, which we named as control group, was completed by selecting from E, F, H and I branches respectively. Traditional nutrition education was given to each student after the application of ABBID scale. This training was given orally by the researcher with the ready presentation and took about 8 minutes. The students did not see the presentation and only listened to the researcher and what he told. The content of the presentation was stabile and consistent with the content of the video. After the training, ABBİD scale was applied to each student again.

The traditional training given to the control group, which does not contain any visual content and contains correct answers to the questions of ABBID scale is available in the appendix 3. This education took about 10 minutes. In the video training method, the content of the training was the same as the traditional training and it was paid attention that it did not contain much or incomplete information. Researcher went to a grocery store in video nutrition education and taken a video in the grocery store. The researcher (educator) was the same person in both groups. The video was taken in the

departments of supermarket in accordance with the training subjects given to the control group. In the video, the educator narrated without changing and adding sentences in traditional education. Throughout the video, attention was drawn to the importance of adequate and balanced nutrition in education. Thus, an educational method which is the only variable method without creating a content difference between traditional education and video education has been applied and the increase in nutritional knowledge levels of the students has been compared.

3.3. Statistics

The scores obtained from ABBID scale were evaluated with SPSS 22.0 program. For descriptive statistical evaluation, frequency, percentage (%) and standard deviation (SD) of the group scores were calculated.

3.3.1. Statistical Analysis Methods

The normality test was done with Shapiro-Wilk test. Non-parametric statistical methods were used for values with skewed (nonnormally distributed, Shapiro-Wilk $p>0.05$) distribution. Descriptive statistics were presented using mean and standard deviation for normally distributed variables and median (and minimum-maximum) for the non-normally distributed variables. Non-parametric statistical methods were used for values with skewed distribution. For comparison of two non-normally distributed independent groups Mann Whitney U test was used. For comparison of two non-normally distributed dependent groups Wilcoxon Signed test was used. Spearman's rho correlation analysis was used to analyze the correlation between two continuous variables which do not normally distributed.

3.4. Ethical

The research was initiated after obtaining the necessary legal permits from the governorship of Istanbul and the Provincial National Education Directorate (Appendix 4) following the approval of the Ethics Committee dated 03.01.2019 which was obtained from the non-interventional Ethics Committee of Marmara University Faculty of Health Sciences (Appendix 5). Additionally, a written permission form the owner of the ABBID scale was obtained through an e-mail (Appendix 6).

4. RESULTS

In this study, the mean score of the questionnaire was 22.17 ± 3.37 for the intervention group and 22.25 ± 4.15 for the control group. These scores were 25,92 ± 2,27 and 25,42 ± 3,58 respectively in the intervention and control groups after the training. The total group mean was 22.21 ± 3.75 before the test and 25.67 ± 2.98 after the test (Table 4.1.).

When the distribution of the answers of the questions is examined by groups, the increase in the number of answers given to questions 1, 6, 7, 8, 9, 18, 23, 24 after the training is statistically significant in both groups (intervention: p=0,025, control: p=y, both groups p=0,000, intervention: p=0,001, control: p=0,002, intervention: p=0,001, control:0,029, intervention: p=0,020, control: p=0,034, intervention: p=0,000, control: p=0,001, intervention: p=0,004, control: 0,001, intervention: p=0,003, control: p=0,000 respectively p<0,05). Questions and results of analysis shown in Table 4.1. The majority of the increased questions are found in the questions of adequate and balanced diet (1-9) subgroup (1,6-9). When the results were examined according to the subgroups, the difference between the groups in the pre and post adequate and balanced diet subgroup was statistically significant. This difference was very significant (p=0,000). Distributions by sub-groups is shown in Table 4.2. According to the responses of the intervention group, the number of questions that were statistically significant before and after the training was higher than the control group. The intervention group answered 17 questions correctly. Control group has answered 11 questions correctly (Tablo 4.1.). However, the results of both groups were significant when compared to the pre and post total scores (both groups p=0,000 p<0,05). However, the difference between the groups was not significant (p=0,963, p>0,05) The intervention group made progress in 8 questions (1,2,3,4,6,7,8,9) (p=0,025, p=0,02, p=0,001, p=0,007, p=0,000, p=0,001, p=0,001, p=0,020, p<0,05) from the adequate and balanced diet subgroup, 6 questions from the essential nutrients subgroup (10,16,18,21,23,24) (p=0,003, p=0,034, p=0,000, p=0,034, p=0,004, p=0,003 respectively, p<0,05), and 3 questions from malnutrition related diseases subgroup (35,36,37) (p=0,002, p=0,034, p=0,013 respectively, p<0,05). These improvements were statistically significant (p<0,05). The control group made progress in 5 questions (1,6,7,8,9), (p=0,008, p=0,000, p=0,002, p=0,029, p=0,034 respectively, p<0,05) from the adequate and balanced diet subgroup, in 5 questions (12,18,23,24,25) (p=0,034,

p=0,001, p=0,001, p=0,000, p=0,000 respectively, p<0,05) from the essential nutrients subgroup and in 1 question (32) (p=0,002, p<0,05) from malnutrition related diseases subgroup. These improvements were statistically significant (p<0,05). Although there was intra-group significance in all subgroups in both groups, only the difference between the groups in the adequate and balanced diet subgroup was significant.In both groups, there was no significant difference between malnutrition related diseases (p>0,05) (Table 4.2.). The number of correct answers to the questions is also shown in Table 4.5. Considering the differences between boys and girls in the groups, boys in the intervention group made progress in 9 questions and girls in 6 questions. In the control group, boys made progress in 6 questions and girls in 6 questions (Table 4.3.). When the differences according to the subgroups were examined, the improvements in the intervention group, adequate and balanced diet subgroup, essential nutrition subgroup and total score were statistically significant for both girls and boys (intervention girls p=0,004, p=0,016, p=0,003 respectively, intervention boys, p=0,000, p=0,015, p=0,001 respectively p<0,05) (Table 4.4.). In the control group, only the adequate and balanced diet subgroup was statistically significant for both girls and boys (for girls p=0,000, for boys p=0,020, p<0,05). There was no significant difference between the scores of the other subgroups and the scores of the intervention and control group students from the sub-domains of the ABBID questionnaire and the total score (Table 4.4).

In the total score, only boys' progress was significant.In our study, the post-total score obtained from the scale was higher in the intervention group than in the boys. However, pre-total score and post-total score may be found to be more significant in boys than girls, since boys' first scores were lower than girls (for girls total score pre-test: 22,77, post-test: 27,23 p=0,003, for boys total score pre-test:21,83, post-test:25,17 p=0,001) (Table 4..). In the control group, pre- and post-total scores were lower in boys than in girls, whereas boys had higher pre-post differences than girls (for girls total score pre-test:23,72, post-test: 26,06 p=0,510, for boys total score pre-test: 20,78, post-test: 24,78, p=0,002) (Table 4.4). This difference was statistically significant (p=x, p<0,05). In this study, nutritional subgroups and total nutritional knowledge scores were similar between intervention and control groups. There was no statistically significant difference in pre and post scores between the groups (Table 4.2) (p=0,963). The difference between intervention and control groups was statistically significant only in post-adequate and balanced nutrition subgroup scores (p=0,000, p<0,05). If the pre and post differences of the sub-groups are evaluated within the groups; In both pre and post

scores, adequate and balanced diet, essential nutrition sub-groups and total scores were found to be significant (for intervention group p=0,000, p=0,001, p=0,000 respectively, for contrrol group p=0,000, p=0,020, p=0,000 respectively p<0,05). The increase in the Malnutrition related diseases subgroup was not statistically significant (p=867 in intervention group and p=0,604 in control group p>0,05).The education given for the questions in the malnutrition related diseases subgroup in both video and traditional education during the training may not be sufficient for this group.

Table 4. 1. Differences between groups for each question

		Groups									
		Intervention					Control				
		Mean	Maximum	Minimum	Standard Deviation	p*	Mean	Maximum	Minimum	Standard Deviation	p*
1. We should drink at least 2 glasses of milk every day.	Pre	,83	1,00	0,00	,38	**0,025**	,75	1,00	0,00	,44	**0,008**
	Post	,97	1,00	0,00	,17		,94	1,00	0,00	,23	
2. Especially milk and eggs should be consumed at breakfast..	Pre	,86	1,00	0,00	,35	**0,025**	,94	1,00	0,00	,23	1,000
	Post	1,00	1,00	1,00	0,00		,94	1,00	0,00	,23	
3. Regularly eating breakfast improves school performance.	Pre	,69	1,00	0,00	,47	**0,001**	,92	1,00	0,00	,28	0,083
	Post	1,00	1,00	1,00	0,00		1,00	1,00	1,00	0,00	
4. Consuming bread and cereals is important for adequate and balanced nutrition.	Pre	,69	1,00	0,00	,47	**0,007**	,64	1,00	0,00	,49	0,593
	Post	,94	1,00	0,00	,23		,69	1,00	0,00	,47	
5. We should drink 8-10 glasses of water every day.	Pre	,89	1,00	0,00	,32	0,046	,86	1,00	0,00	,35	1,000
	Post	1,00	1,00	1,00	0,00		,86	1,00	0,00	,35	
6. We should consume 5 portions of fruits and vegeTables every day.	Pre	,31	1,00	0,00	,47	**0,000**	,22	1,00	0,00	,42	**0,000**
	Post	,81	1,00	0,00	,40		,69	1,00	0,00	,47	

7. We should not consume meat more than 3 days a week.	Pre	,53	1,00	0,00	,51	**0,001**	,50	1,00	0,00	,51	**0,002**
	Post	,89	1,00	0,00	,32		,81	1,00	0,00	,40	
8. According to the nutrition expert, the amount of salt a person consumes in a day should not exceed 6 grams.	Pre	,64	1,00	0,00	,49	**0,001**	,44	1,00	0,00	,50	**0,029**
	Post	,94	1,00	0,00	,23		,69	1,00	0,00	,47	
9. Fast food is not suiTable dietary in adequate and balanced nutrition.	Pre	,72	1,00	0,00	,45	**0,020**	,78	1,00	0,00	,42	**0,034**
	Post	,92	1,00	0,00	,28		,94	1,00	0,00	,23	
10. Nutrients are divided into six groups	Pre	,69	1,00	0,00	,47	**0,003**	,61	1,00	0,00	,49	0,109
	Post	,94	1,00	0,00	,23		,78	1,00	0,00	,42	
11. Energy content of carbohydrate group is richer than same account of fat group.	Pre	,17	1,00	0,00	,38	0,480	,25	1,00	0,00	,44	0,096
	Post	,11	1,00	0,00	,32		,11	1,00	0,00	,32	
12. Pasta and rice are starchy foods	Pre	,86	1,00	0,00	,35	0,414	,72	1,00	0,00	,45	**0,034**
	Post	,92	1,00	0,00	,28		,89	1,00	0,00	,32	
13. French fries is junk food	Pre	,72	1,00	0,00	,45	0,096	,53	1,00	0,00	,51	0,090
	Post	,86	1,00	0,00	,35		,72	1,00	0,00	,45	

14. Fizzy drinks contain high amounts of sugar.	Pre	,86	1,00	0,00	,35	0,180	,86	1,00	0,00	,35	0,257
	Post	,94	1,00	0,00	,23		,94	1,00	0,00	,23	
15. Bread contains high amount of fat.	Pre	,39	1,00	0,00	,49	0,052	,56	1,00	0,00	,50	0,225
	Post	,19	1,00	0,00	,40		,42	1,00	0,00	,50	
16. The most reasonable act for limiting the amount of fat is consuming biscuits.	Pre	,31	1,00	0,00	,47	**0,034**	,33	1,00	0,00	,48	0,405
	Post	,14	1,00	0,00	,35		,25	1,00	0,00	,44	
17. Meat and chicken are important sources of omega-3 fatty acids.	Pre	,14	1,00	0,00	,35	0,102	,28	1,00	0,00	,45	0,248
	Post	,03	1,00	0,00	,17		,17	1,00	0,00	,38	
18. When we consume animal fat, the amount of cholesterol in the body increases	Pre	,53	1,00	0,00	,51	**0,000**	,39	1,00	0,00	,49	**0,001**
	Post	,92	1,00	0,00	,28		,72	1,00	0,00	,45	
19. “Light” article on the packaged products, means the protein content of the product is low.	Pre	,17	1,00	0,00	,38	0,480	,39	1,00	0,00	,49	0,248
	Post	,11	1,00	0,00	,32		,28	1,00	0,00	,45	
20. Chicken and egg contain high amount of protein.	Pre	,89	1,00	0,00	,32	0,317	1,00	1,00	1,00	0,00	0,157
	Post	,94	1,00	0,00	,23		,94	1,00	0,00	,23	

21. Chick pea, dried pea, lentils contain high amount of protein.	Pre	,78	1,00	0,00	,42	**0,034**	,81	1,00	0,00	,40	1,000
	Post	,94	1,00	0,00	,23		,81	1,00	0,00	,40	
22. Nuts are an alternative to meat in terms of protein content.	Pre	,11	1,00	0,00	,32	0,414	,19	1,00	0,00	,40	0,059
	Post	,06	1,00	0,00	,23		,06	1,00	0,00	,23	
23. Whole grain bread contains more vitamins and minerals than bread.	Pre	,58	1,00	0,00	,50	**0,004**	,36	1,00	0,00	,49	**0,001**
	Post	,86	1,00	0,00	,35		,75	1,00	0,00	,44	
24. Vitamins A and C can be classified as antioxidant vitamins.	Pre	,50	1,00	0,00	,51	**0,003**	,25	1,00	0,00	,44	**0,000**
	Post	,83	1,00	0,00	,38		,89	1,00	0,00	,32	
25. Green pepper and parsley contain high amounts of vitamin C.	Pre	,67	1,00	0,00	,48	0,052	,42	1,00	0,00	,50	**0,000**
	Post	,86	1,00	0,00	,35		,78	1,00	0,00	,42	
26. Calcium and vitamin D are important for strong bones.	Pre	,72	1,00	0,00	,45	0,096	,83	1,00	0,00	,38	0,564
	Post	,92	1,00	0,00	,28		,86	1,00	0,00	,35	
27. Cheese contain high amount of calcium.	Pre	,83	1,00	0,00	,38	0,059	,78	1,00	0,00	,42	0,058
	Post	,97	1,00	0,00	,17		,94	1,00	0,00	,23	

28. Bread contains more less fibre than whole grain bread..	Pre	,11	1,00	0,00	,32	0,655	,14	1,00	0,00	,35	0,480
	Post	,08	1,00	0,00	,28		,19	1,00	0,00	,40	
29. Apricot does not contain high amount of fibre.	Pre	,11	1,00	0,00	,32	0,414	,31	1,00	0,00	,47	0,763
	Post	,06	1,00	0,00	,23		,28	1,00	0,00	,45	
30. Meat contains high amount of salt.	Pre	,17	1,00	0,00	,38	0,317	,28	1,00	0,00	,45	0,257
	Post	,08	1,00	0,00	,28		,36	1,00	0,00	,49	
31. Obese people have health problem more than normal.	Pre	,97	1,00	0,00	,17	0,157	,89	1,00	0,00	,32	0,480
	Post	,92	1,00	0,00	,28		,83	1,00	0,00	,38	
32. Eating fish is a risk factor for cardiovascular diseases.	Pre	,22	1,00	0,00	,42	0,096	,58	1,00	0,00	,50	**0,002**
	Post	,08	1,00	0,00	,28		,22	1,00	0,00	,42	
33. Obesity may be due to excessive fat consumption.	Pre	,94	1,00	0,00	,23	0,157	,94	1,00	0,00	,23	1,000
	Post	,83	1,00	0,00	,38		,94	1,00	0,00	,23	
34. Consuming foods such as fruits and vegeTables which have high amount fibre reduce the risk of getting cancer.	Pre	,81	1,00	0,00	,40	0,206	,64	1,00	0,00	,49	0,197
	Post	,92	1,00	0,00	,28		,78	1,00	0,00	,42	

35. Reducing salt consumption does not reduce the risk of heart disease.	Pre	,44	1,00	0,00	,50	**0,002**	,56	1,00	0,00	,50	0,052
	Post	,14	1,00	0,00	,35		,36	1,00	0,00	,49	
36. Over using of sugar and salt is associated with health problems such as diabetes, hypertension and heart disease.	Pre	,78	1,00	0,00	,42	**0,034**	,64	1,00	0,00	,49	0,090
	Post	,94	1,00	0,00	,23		,83	1,00	0,00	,38	
37. The low consumption of fruits increases susceptibility to infectious diseases.	Pre	,64	1,00	0,00	,49	**0,013**	,72	1,00	0,00	,45	0,166
	Post	,89	1,00	0,00	,32		,86	1,00	0,00	,35	
38. Adequate and balanced nutrition decreases the risk of anaemia.	Pre	,83	1,00	0,00	,38	0,317	,92	1,00	0,00	,28	0,257
	Post	,92	1,00	0,00	,28		,83	1,00	0,00	,38	

p* < 0,05 is accepted as statistically significance

Table 4. 2. Results by subgroups

	Case n=36	**Control n=36**	
	Mean ±SD	**Mean ±SD**	**p***
	(Min-Max)	**(Min-Max)**	
Pre Adequate and Balanced Diet	6,17 ± 1.50	6,03 ± 0,99960	0,591
	(2-9)	(4-8)	
Post Adequate and Balanced Diet	8,47 ± 0.94	7,58 ± 1,18	**0,000**
	(6-9)	(4-9)	
p^2	**0,000**	**0,000**	
Pre Essential Nutrients	10,31 ± 2.22	10,61 ± 3,56	0,610
	(5-14)	(3-19)	
Post Essential Nutrients	11,78 ± 1.27	12,08 ± 2,35	0,443
	(8-16)	(7-17)	
p^2	**0,001**	**0,020**	
Pre Malnutrition Related Diseases	5,69 ± 1.12	5,86 ± 1,85	0,262
	(3-8)	(0,00-8)	
Post Malnutrition Related Diseases	5,67 ± 0.99	5,69 ± 1,33	0,990
	(3-8)	(3-8)	
p^2	0,867	0,604	
Pre Total Score	22,17 ± 3.37	22,25 ± 4,15	0,852
	(13-27)	(15-31)	
Post Total Score	25,92 ± 2.27	25,42 ± 3,58	0,963
	(20-30)	(17-33)	
p^2	**0,000**	**0,000**	

p*<0.05 is accepted as statistically significance (between groups evaluation)
p^2<0.05 is accepted as statistically significance (group evaluation)

Table 4. 3. Gender differences for each question

		Intervention										Control									
		Girls					Boys					Girls					Boys				
		Mean	Max	Min	SD	p (girls)	Mean	Max	Min	SD	p (boys)	Mean	Max	Min	SD	p (girls)	Mean	Max	Min	SD	p (boys)
1. We should drink at least 2 glasses of milk every day.	Pre	1,0	1,0	1,0	0,0	1,000	,74	1,0	0,0	,45	**0,025**	,67	1,0	0,0	,49	0,046	,83	1,0	0,0	,38	0,083
	Post	1,0	1,0	1,0	0,0		,96	1,0	0,0	,21		,89	1,0	0,0	,32		1,00	1,0	1,0	0,0	
2. Especially milk and eggs should be consumed at breakfast..	Pre	,92	1,0	0,0	,28	0,317	,83	1,0	0,0	,39	0,046	,89	1,0	0,0	,32	0,157	1,00	1,0	1,0	0,0	0,157
	Post	1,0	1,0	1,0	0,0		1,00	1,0	1,0	0,0		1,00	1,0	1,0	0,00		,89	1,0	0,0	,32	
3. Regularly eating breakfast improves school performance.	Pre	,92	1,0	0,0	,28	0,317	,57	1,0	0,0	,51	**0,002**	,89	1,0	0,0	,32	0,157	,94	1,0	0,0	,24	0,317
	Post	1,0	1,0	1,0	0,0		1,00	1,0	1,0	0,0		1,00	1,0	1,0	0,0		1,0	1,0	1,0	0,0	

4. Consuming bread and cereals is important for adequate and balanced nutrition.	Pre	,77	1,0	0,0	,44	0,830	,65	1,0	0,0	,49	**0,034**	,83	1,0	0,0	,38	0,180	,44	1,0	0,0	,51	0,096
	Post	1,0	1,0	1,0	0,0		,91	1,00	0,0	,29		,67	1,00	0,0	,49		,72	1,0	0,0	,46	
5. We should drink 8-10 glasses of water every day.	Pre	,92	1,0	0,0 0	,28	0,317	,87	1,00	0,0 0	,34	0,083	,89	1,0	0,0	,32	0,564	,83	1,0	0,0	,38	0,564
	Post	1,0	1,0	1,0	0,0		1,0 0	1,0	1,0	0,0		,94	1,0	0,0	,24		,78	1,0	0,0	,43	
6. We should consume 5 portions of fruits and vegeTables every day.	Pre	,54	1,0	0,0	,52	0,180	,17	1,00	0,0 0	,39	**0,000**	,17	1,0	0,0	,38	**0,002**	,28	1,0	0,0	,46	**0,020**
	Post	,77	1,0	0,0	,44		,83	1,00	0,0	,39		,72	1,0	0,0	,46		,67	1,0	0,0	,49	
7. We should not consume meat more than 3 days a week.	Pre	,46	1,0	0,0	,52	**0,008**	,57	1,0	0,0	,51	**0,034**	,50	1,0	0,0	,51	**0,020**	,50	1,0	0,0	,51	0,046
	Post	1,0	1,0	1,0	0,0		,83	1,0	0,0	,39		,89	1,0	0,0	,32		,72	1,0	0,0	,46	

8. According to the nutrition expert, the amount of salt a person consumes in a day should not exceed 6 grams.	Pre	,69	1,0	0,0	,48	0,046	,61	1,0	0,0	,50	**0,008**	,56	1,0	0,0	,51	0,102	,33	1,0	0,0	,49	0,132
	Post	1,00	1,0	1,0	0,0		,91	1,0	0,0	,29		,78	1,0	0,0	,43		,61	1,0	0,0	,50	
9. Fast food is not suiTable dietary in adequate and balanced nutrition.	Pre	,54	1,0	0,0	,52	**0,250**	,83	1,0	0,0	,39	0,317	,89	1,0	0,0	,32	0,157	,67	1,0	0,0	,49	0,102
	Post	,92	1,0	0,0	,28		,91	1,0	0,0	,29		1,00	1,0	1,0	0,00		,89	1,0	0,0	,32	
10. Nutrients are divided into six groups	Pre	,92	1,0	0,0	,28	0,317	,57	1,0	0,0	,51	**0,005**	,61	1,0	0,0	,50	0,180	,61	1,0	0,0	,50	0,317
	Post	1,0	1,0	1,0	0,0		,91	1,0	0,0	,29		,78	1,0	0,0	,43		,78	1,0	0,0	,43	
11. Energy content of carbohydrate group is richer than same account of fat group.	Pre	,31	1,0	0,0	,48	0,046	,09	1,0	0,0	,29	0,317	,33	1,0	0,0	,49	**0,025**	,17	1,0	0,0	,38	1,000
	Post	0,0	1,0	0,0	0,0		,17	1,0	0,0	,39		,06	1,0	0,0	,24		,17	1,0	0,0	,38	

12. Pasta and rice are starchy foods	Pre	1,0	1,0	1,0	0,00	1,000	,78	1,0	0,0	,42	0,414	,78	1,0	0,0	,43	0,046	,67	1,0	0,0	,49	0,317
	Post	1,0	1,0	1,0	0,00		,87	1,0	0,0	,34		1,00	1,0	1,0	0,0		,78	1,0	0,0	,43	
13. French fries is junk food	Pre	,62	1,0	0,0	,51	0,180	,78	1,0	0,0	,42	0,317	,56	1,0	0,0	,51	0,206	,50	1,0	0,0	,51	0,257
	Post	,85	1,0	0,0	,38		,87	1,0	0,0	,34		,78	1,0	0,0	,43		,67	1,0	0,0	,49	
14. Fizzy drinks contain high amounts of sugar.	Pre	,92	1,0	0,0	,28	0,317	,83	1,0	0,0	,39	0,317	,89	1,0	0,0	,32	0,157	,83	1,0	0,0	,38	0,655
	Post	1,0	1,0	1,0	0,00		,91	1,0	0,0	,29		1,00	1,0	1,0	0,0		,89	1,0	0,0	,32	
15. Bread contains high amount of fat.	Pre	,54	1,0	0,0	,52	0,046	,30	1,0	0,0	,47	0,317	,56	1,0	0,0	,51	0,180	,56	1,0	0,0	,51	0,564
	Post	,23	1,0	0,0	,44		,17	1,0	0,0	,39		,39	1,0	0,0	,50		,44	1,0	0,0	,51	

16. The most reasonable act for limiting the amount of fat is consuming biscuits.	Pre	,31	1,0	0,0	,48	0,317	,30	1,0	0,0	,47	0,046	,44	1,0	0,0	,51	0,206	,22	1,0	0,0	,43	0,564
	Post	,15	1,0	0,0 0	,38		,13	1,0	0,0	,34		,22	1,0	0,0	,43		,28	1,0	0,0	,46	
17. Meat and chicken are important sources of omega-3 fatty acids.	Pre	,08	1,0	0,0	,28	1,000	,17	1,0	0,0	,39	0,046	,28	1,00	0,0	,46	0,655	,28	1,0	0,0	,46	0,257
	Post	,08	1,0	0,0	,28		0,0 0	1,0	0,0	0,0 0		,22	1,0	0,0	,43		,11	1,0	0,0	,32	
18. When we consume animal fat, the amount of cholesterol in the body increases	Pre	,46	1,0	0,0	,52	**0,008**	,57	1,0	0,0	,51	**0,020**	,33	1,00	0,0	,49	0,102	,44	1,0	0,0	,51	**0,005**
	Post	1,0 0	1,0	1,0	0,00		,87	1,0	0,0	,34		,56	1,0	0,0	,51		,89	1,0	0,0	,32	
19. “Light” article on the packaged products, means the protein content of the product is low.	Pre	,08	1,0	0,0	,28	1,000	,22	1,0	0,0	,42	0,414	,44	1,0	0,0	,51	0,059	,33	1,0	0,0	,49	0,655
	Post	,08	1,0	0,0	,28		,13	1,0	0,0	,34		,17	1,0	0,0	,38		,39	1,0	0,0	,50	

20. Chicken and egg contain high amount of protein.	Pre	1,00	1,0	1,0	0,0	1,000	,83	1,0	0,0	,39	0,317	1,00	1,0	1,0	0,0	1,000	1,0	1,0	1,0	0,0	0,157
	Post	1,00	1,0	1,0	0,0		,91	1,0	0,0	,29		1,00	1,0	1,0	0,0		,89	1,0	0,0	,32	
21. Chick pea, dried pea, lentils contain high amount of protein.	Pre	,92	1,0	0,0	,28	0,317	,70	1,0	0,0	,47	0,059	,89	1,0	0,0	,32	0,564	,72	1,0	0,0	,46	0,655
	Post	1,00	1,0	1,0	0,0		,91	1,0	0,0	,29		,94	1,0	0,0	,24		,67	1,0	0,0	,49	
22. Nuts are an alternative to meat in terms of protein content.	Pre	0,08	1,0	0,0	0,28	1,000	,13	1,0	0,0	,34	0,317	,17	1,0	0,0	,38	0,317	,22	1,0	0,0	,43	0,083
	Post	,08	1,0	0,0	,28		,04	1,0	0,0	,21		,06	1,0	0,0	,24		,06	1,0	0,0	,24	
23. Whole grain bread contains more vitamins and minerals than bread.	Pre	,46	1,0	0,0	,52	**0,025**	,65	1,0	0,0	,49	0,059	,39	1,0	0,0	,50	**0,035**	,33	1,0	0,0	,49	**0,008**
	Post	,85	1,0	0,0	,38		,87	1,0	0,0	,34		,78	1,0	0,0	,43		,72	1, 0	0,0	,46	

24. Vitamins A and C can be classified as antioxidant vitamins.	Pre	,31	1,0	0,0	,48	**0,008**	,61	1,0	0,0	,50	0,096	,22	1,0	0,0	,43	**0,000**	,28	1,0	0,0	,46	**0,003**
	Post	,85	1,0	0,0	,38		,83	1,0	0,0	,39		1,0	1,0	1,0	0,0		,78	1,0	0,0	,43	
25. Green pepper and parsley contain high amounts of vitamin C.	Pre	,54	1,0	0,0	,52	0,046	,74	1,0	0,0	,45	0,317	,28	1,0	0,0	,46	**0,003**	,56	1,0	0,0	,51	0,046
	Post	,85	1,0	0,0	,38		,87	1,0	0,0	,34		,78	1,0	0,0	,43		,78	1,0	0,0	,43	
26. Calcium and vitamin D are important for strong bones.	Pre	,77	1,0	0,0	,44	0,083	,70	1,0	0,0	,47	0,102	,89	1,0	0,0	,32	0,564	,78	1,0	0,0	,43	1,000
	Post	1,00	1,0	0,0	0,0		,87	1,0	0,0	,34		,94	1,0	0,0	,24		,78	1,0	0,0	,43	
27. Cheese contain high amount of calcium.	Pre	,92	1,0	0,0	,28	0,317	,78	1,0	0,0	,42	0,102	,83	1,0	0,0	,38	0,083	,72	1,0	0,0	,46	0,257
	Post	1,00	1,0	1,0	0,0		,96	1,0	0,0	,21		1,00	1,0	1,0	0,00		,89	1,0	0,0	,32	

28. Bread contains more less fibre than whole grain bread..	Pre	0,00	0,00	0,00	0,00	0,317	,17	1,00	0,00	,39	0,317	,22	1,00	0,00	,43	0,564	,06	1,0	0,0	,24	0,180
	Post	,08	1,00	0,00	,28		,09	1,00	0,00	,29		,17	1,00	0,00	,38		,22	1,0	0,0	,43	
29. Apricot does not contain high amount of fibre.	Pre	,08	1,00	0,00	,28	0,317	,13	1,00	0,00	,34	0,655	,44	1,00	0,00	,51	0,414	,17	1,0	0,0	,38	0,655
	Post	0,00	0,00	0,00	0,00		,09	1,00	0,00	,29		,33	1,00	0,00	,49		,22	1,0	0,0	,43	
30. Meat contains high amount of salt.	Pre	,08	1,00	0,00	,28	0,564	,22	1,00	0,00	,42	0,102	,33	1,00	0,00	,49	0,564	,22	1,0	0,0	,43	0,317
	Post	,15	1,00	0,00	,38		,04	1,00	0,00	,21		,39	1,00	0,00	,50		,33	1,0	0,0	,49	
31. Obese people have health problem more than normal.	Pre	1,00	1,00	1,00	0,00	1,000	,96	1,00	0,00	,21	0,157	,94	1,00	0,00	,24	1,000	,83	1,0	0,0	,38	0,480
	Post	1,00	1,00	1,00	0,00		,87	1,00	0,00	,34		,94	1,00	0,00	,24		,72	1,0	0,0	,46	

32. Eating fish is a risk factor for cardiovascular diseases.	Pre	,15	1,0	0,0	,38	1,000	,26	1,0	0,0	,45	0.059	,78	1,0	0,0	,43	**0,002**	,39	1,0	0,0	,50	0,257
	Post	,15	1,0	0,0	,38		,04	1,0	0,0	,21		,22	1,0	0,0	,43		,22	1,0	0,0	,43	
33. Obesity may be due to excessive fat consumption.	Pre	1,00	1,0	1,0	0,0	1,000	,91	1,0	0,0	,29	0,157	1,00	1,0	0,0	0,00	1,000	,89	1,0	0,0	,32	1,000
	Post	1,00	1,0	1,0	0,0		,74	1,0	0,0	,45		1,00	1,0	0,0	0,00		,89	1,0	0,0	,32	
34. Consuming foods such as fruits and vegeTables which have high amount fibre reduce the risk of getting cancer.	Pre	,77	1,0	0,0	,44	0,083	,83	1,0	0,0	,39	0,705	,78	1,0	0,0	,43	0,414	,50	1,0	0,0	,51	**0,020**
	Post	1,00	1,0	1,0	0,0		,87	1,0	0,0	,34		,67	1,0	0,0	,49		,89	1,0	0,0	,32	
35. Reducing salt consumption does not reduce the risk of heart disease.	Pre	,54	1,0	0,0	,52	0,046	,39	1,0	0,0	,50	**0,020**	,61	1,0	0,0	,50	0,157	,50	1,0	0,0	,51	0,058
	Post	,23	1,0	0,0	,44		,09	1,0	0,0	,29		,39	1,0	0,0	,50		,33	1,0	0,0	,49	

36. Over using of sugar and salt is associated with health problems such as diabetes, hypertension and heart disease.	Pre	,54	1,0	0,0	,52	**0,025**	,91	1,0	0,0	,29	0,564	,78	1,0	0,0	,43	0,705	,50	1,0	0,0	,51	0,460
	Post	,92	1,0	0,0	,28		,96	1,0	0,0	,21		,83	1,0	0,0	,38		,83	1,0	0,0	,38	
37. The low consumption of fruits increases susceptibility to infectious diseases.	Pre	,69	1,0	0,0	,48	0,046	,61	1,0	0,0	,50	0,096	,72	1,0	0,0	,46	0,739	,72	1,0	0,0	,46	0,046
	Post	1,0	1,0	1,0	0,0		,83	1,0	0,0	,39		,78	1,0	0,0	,43		,94	1,0	0,0	,24	
38. Adequate and balanced nutrition decreases the risk of anaemia.	Pre	,92	1,0	0,0	,28	0,317	,78	1,0	0,0	,42	0,480	,94	1,0	0,0	,24	0,083	,89	1,0	0,0	,32	1,000
	Post	1,0	1,0	1,0	0,0		,87	1,0	0,0	,34		,78	1,0	0,0	,43		,89	1,0	0,0	,32	

p<0,05 is accepted as statistical significance

Table 4. 4. Significance of subgroups by gender

	Case n=36			Control n=36		
	Mean ± SD (Min-Max)		p^b	Mean ± SD (Min-Max)		p^b
	Girls	Boys		Girls	Boys	
Pre Adequate and Balanced Diet	6,77 ± 1,42 (5-9)	5,83 ± 1,47 (2-8)	0.133	6,33 ± 0,84 (5-8)	5,72 ± 1,07 (4-8)	0.066
Post Adequate and Balanced Diet	8,69 ± 0,48 (8-9)	8,35 ± 1,11 (8-13)	0.700	7,89 ± 0,96 (6-9)	7,28 ± 1,32 (4-9)	0.147
p^a	**0,004**	**0,000**		**0,000**	**0,020**	
Pre Essential Nutrients	10,30 ± 1,97 (7-13)	10,30 ± 2,38 (5-14)	0.973	10,89 ±30,7 (5-16)	10,33 ± 4,06 (3-19)	0.364
Post Essential Nutrients	12,23 ± 1,36 (10-16)	11,52 ± 1,16 (8-13)	0.192	12,44 ± 1,54 (10-15)	11,72 ± 2,95 (7-17)	0.482
p^a	**0,016**	**0,015**		0,086	0,126	
Pre Malnutrition Related Diseases	5,69 ±1,25 (3-8)	5,70 ± 1,06 (3-8)	0.874	6,50 ± 1,34 (4-8)	5,22 ± 2,10 (0-8)	0.051
Post Pre Malnutrition Related Diseases	6,31 ± 0,63 (6-8)	5,30 ± 0,97 (3-6)	**0.001**	5,61 ± 1,54 (3-8)	5,78 ± 1,11 (4-8)	0.973
p^a	**0,054**	**0,321**		**0,570**	**0,340**	
Pre Total Score	22,77 ± 3,24 (16-27)	21,83 ± 3,46 (13-27)	0.427	23,72 ± 3,68 (18-30)	20,78 ± 4,17 (15-31)	**0.031**
Post Total Score	27,23 ± 1,24 (25-30)	25,17 ± 2,41 (20-27)	**0.006**	26,06 ± 2,84 (21-30)	24,78 ± 4,18 (17-33)	0.265
p^a	**0,003**	**0,001**		**0,510**	**0,002**	

p^a<0.05 is accepted as statistically significance (between girls and boys evaluation)
p^b<0.05 is accepted as statistically significance (group evaluation)

Table 4. 5. Number and percentages of answers given to the questions

		Intervention						Control					
		True		False		Does Not Know		True		False		Does Not Know	
		N	%	N	%	N	%	N	%	N	%	N	%
Q 1	Pre	30	83,3	2	5,6	4	11,1	27	75	5	13,9	4	11,1
	Post	35	97,2	1	2,8	0	0	34	94,4	2	5,6	0	0
Q 2	Pre	31	86,1	3	8,3	2	5,6	34	94,4	1	2,8	1	2,8
	Post	36	100	0	0	0	0	34	94,4	2	5,6	0	0
Q 3	Pre	25	69,4	6	13,9	5	16,7	33	91,7	1	2,8	2	5,6
	Post	36	100	0	0	0	0	36	100	0	0	0	0
Q 4	Pre	25	69,4	5	16,7	6	13,9	23	63,9	8	22,2	5	13,9
	Post	34	94,4	1	2,8	1	2,8	25	69,4	6	13,9	5	16,7
Q 5	Pre	32	88,9	3	8,3	1	2,8	31	86,1	2	5,6	3	8,3
	Post	36	100	0	0	0	0	31	86,1	3	8,3	2	5,6
Q 6	Pre	11	30,6	15	41,7	10	27,8	8	22,2	21	58,3	7	19,4
	Post	29	80,6	5	13,9	2	5,6	25	69,4	7	19,4	4	11,1
Q 7	Pre	19	52,8	5	13,9	12	33,3	18	50	8	22,2	10	27,8
	Post	32	88,9	3	8,3	1	2,8	29	80,6	4	11,1	3	8,3
Q 8	Pre	23	63,9	5	13,9	8	22,2	16	44,4	11	30,6	9	25
	Post	34	94,4	1	2,8	1	2,8	25	69,4	8	22,2	3	8,3
Q 9	Pre	26	72,2	6	13,9	4	11,1	28	77,8	7	19,4	1	2,8
	Post	33	91,7	3	8,3	0	0	34	94,4	1	2,8	1	2,8
Q 10	Pre	25	69,4	7	19,4	4	11,1	22	61,1	3	8,3	11	30,6
	Post	34	94,4	1	2,8	1	2,8	28	77,8	2	5,6	6	16,7

Q 11	Pre	20	55,6	6	16,7	10	27,8	18	50	9	25	9	25
	Post	27	75	4	11,1	5	13,9	24	66,7	4	11,1	8	22,2
Q 12	Pre	31	86,1	3	8,3	2	5,6	26	72,2	4	11,1	6	16,7
	Post	31	91,7	1	2,8	2	5,6	32	88,9	2	5,6	2	5,6
Q 13	Pre	26	72,2	6	16,7	4	11,1	19	52,8	11	30,6	6	16,7
	Post	31	86,1	3	8,3	2	5,6	26	72,2	7	19,4	3	8,3
Q 14	Pre	31	88,9	1	2,8	4	8,3	31	86,1	2	5,6	3	8,3
	Post	34	94,4	2	5,6	0	0	34	94,4	0	0	2	5,6
Q 15	Pre	18	50	14	38,9	4	11,1	8	22,2	20	55,6	8	22,2
	Post	27	75	7	19,4	2	5,6	15	41,7	15	41,7	6	16,7
Q 16 .	Pre	16	44,4	11	30,6	9	25	10	27,8	12	33,3	14	38,9
	Post	30	83,3	5	13,9	1	2,8	17	47,2	9	25	10	27,8
Q 17	Pre	23	63,9	5	13,9	8	22,2	14	38,9	10	38,9	12	33,3
	Post	34	94,4	1	2,8	1	2,8	26	72,2	6	16,7	4	11,1
Q 18	Pre	19	52,8	4	11,1	13	36,1	14	38,9	4	11,1	18	50
	Post	33	91,7	2	5,6	1	2,8	28	72,2	1	2,8	9	25
Q 19	Pre	23	63,9	6	16,7	7	19,4	10	27,8	14	38,9	12	33,3
	Post	33	91,7	1	2,8	2	5,6	32	88,9	2	5,6	2	5,6
Q 20	Pre	32	88,9	2	5,6	2	5,6	36	100	0	0	0	0
	Post	34	94,4	1	2,8	1	2,8	34	94,4	1	2,8	1	2,8
Q 21	Pre	28	77,8	2	5,6	6	16,7	29	80,6	2	5,6	5	13,9
	Post	34	94,4	1	2,8	1	2,8	29	80,6	4	11,1	3	8,3
Q 22	Pre	24	66,7	4	11,1	8	22,2	15	41,7	7	19,4	14	38,9
	Post	30	83,3	2	5,6	4	11,1	27	75	2	5,6	7	19,4

Q 23	Pre	21	58,3	7	19,4	8	22,2	13	36,1	12	33,3	11	30,6
	Post	31	86,1	2	5,6	3	8,3	27	75	4	11,1	5	13,9
Q 24	Pre	18	50	4	11,1	14	38,9	9	25	3	8,3	24	66,7
	Post	30	83,3	2	5,6	4	11,1	32	88,9	0	0	4	11,1
Q 25	Pre	24	66,7	2	5,6	10	27,8	15	41,7	9	25	12	33,3
	Post	31	86,1	2	5,6	3	8,3	25	77,8	5	13,9	3	8,3
Q 26	Pre	26	72,2	3	8,3	7	19,4	30	8,3	1	2,8	5	13,9
	Post	33	91,7	3	8,3	0	0	31	86,1	2	5,6	3	8,3
Q 27	Pre	30	83,3	3	8,3	3	8,3	28	77,8	4	11,1	4	11,1
	Post	35	97,2	1	2,8	0	0	34	94,4	0	0	2	5,6
Q 28	Pre	23	41,7	4	13,9	9	44,4	17	47,2	5	13,9	14	38,9
	Post	30	83,3	3	8,3	3	8,3	25	69,4	7	19,4	4	11,1
Q 29	Pre	16	41,7	4	13,9	16	44,7	10	27,8	11	30,6	15	41,7
	Post	29	80,6	2	5,6	5	13,9	23	63,9	10	27,8	3	8,3
Q 30	Pre	19	52,8	6	16,7	11	30,6	13	36,1	10	27,8	13	36,1
	Post	28	77,8	3	8,3	5	13,9	22	61,1	13	36,1	1	2,8
Q 31	Pre	35	97,2	1	2,8	0	0	32	88,9	1	2,8	3	8,3
	Post	33	91,7	1	2,8	2	5,6	30	83,3	2	5,6	4	11,1
Q 32	Pre	20	55,6	8	22,2	8	22,2	8	22,2	21	58,3	7	19,4
	Post	31	86,1	3	8,3	2	5,6	26	72,2	8	22,2	2	5,6
Q 33	Pre	34	94,4	1	2,8	1	2,8	34	94,4	0	0	2	2,8
	Post	30	83,3	3	8,3	3	8,3	34	94,4	1	2,8	1	2,8

Q 34	Pre	29	80,6	3	8,3	4	11,1	23	63,9	6	16,7	7	19,4
	Post	33	91,7	3	8,3	0	0	28	77,8	7	19,4	1	2,8
Q 35	Pre	15	41,7	16	44,4	5	13,9	7	19,4	20	55,6	9	25
	Post	30	83,3	5	13,9	1	2,8	22	61,1	13	36,1	1	2,8
Q 36	Pre	28	77,8	1	2,8	7	19,4	23	63,9	3	8,3	10	27,8
	Post	34	94,4	1	2,8	1	2,8	30	83,3	5	13,9	1	2,8
Q 37	Pre	23	63,9	3	8,3	10	27,8	26	72,2	3	8,3	7	19,4
	Post	32	88,9	2	5,6	2	5,6	31	86,1	2	5,6	3	8,3
Q 38	Pre	30	83,3	3	8,3	3	8,3	33	91,7	0	0	3	8,3
	Post	33	91,7	3	8,3	0	0	30	83,3	1	2,8	5	13,9

5. DISCUSSION

In this study, the mean score of the questionnaire was 22.17 ± 3.37 for the intervention group and 22.25 ± 4.15 for the control group. These scores were 25,92 ± 2,27 and 25,42 ± 3,58 respectively in the intervention and control groups after the training. The total group mean was 22.21 ± 3.75 before the test and 25.67 ± 2.98 after the test. Similarly, in the validity and reliability study conducted by Öz et al. On 711 adolescents for the ABBID scale, the mean questionnaire score was found to be 24.25 ± 5.75 (86) .

In this study, there was only a significant difference between adequate and balanced diet subgroup. There was no significant difference between the scores of the other subgroups and the scores of the intervention and control group students from the sub-domains of the ABBİD questionnaire and the total score. However, in a study conducted by Fatih Oz, in order to improve healthy eating habits, increase physical activity and reduce sedentary behaviors in adolescents, it was determined that there was a significant increase in the level of knowledge in the classroom environment of the internet-based education group compared to the traditional education field control group in order to prevent excessive weight. While a significant increase was observed in the nutritional knowledge levels of the students after the education, no significant difference was found in the change of nutritional knowledge level of the students in the control group (69). In contrast, in our study, there was a significant increase in nutritional knowledge in both control and intervention groups, but no significant difference was observed between these two groups ($p>0,05$). In the study, post-education scores were 25.92 ± 2.27 in the intervention group and 25.42 ± 3.58 in the control groups. The scores of the 2 groups before education were similar. Similarly the study of Fatih Öz, the pre-training scores of the two groups were similar. The mean score of control and intervention group students was 22.83±5.78 and was 22.64±5.777 respectively (69).

Similarly, Suminski and Petosa (87), reported that a web-based intervention developed knowledge and self-regulation skills related to physical activity in university students. The intervention was successful in improving self-efficacy for total milk intake and self-regulation (87). Our study was not just about milk. ABBID scale includes adequate and balanced nutrition, essential nutrition, malnutrition related diseases subgroups. Among these subgroups, there was a significant increase in

adequate and balanced nutrition subgroup, essential nutrition subgroup and total score in both training groups ($p<0,05$).

Irvine et al.(88), developed an interactive multimedia program to influence the eating habits of working populations and studied its effectiveness. The findings of the study showed that a video-based intervention that targets and adapts the user has the potential to be effective in changing eating behaviors in real-world settings (88).

Poddar et al. (89), developed a web-based nutrition education intervention to improve self-efficacy and self-regulation aiming an increase in milk and dairy intake of university students. Participants in the intervention group provided a greater increase in self-efficacy in the use of self-regulation strategies but there were no increase in consumption of milk and dairy products. (89).

Turnin et al. (90), with 1876 children aged 7-12 years concluded that the use of computer-based nutritional instruction at school provides additional and modern support to traditional teaching. The mean score of the game group was significantly better than the mean score of the control group. Children in the game group had better nutritional knowledge and diet intake than children in the control group. It was determined that teaching nutrition with computer and using games at school will provide an additional and modern support to traditional teaching (90).

In addition, Southgate et al. (91), conducted a study in different age groups, compared two educational interventions involving personalized messages after nutrition screening in elderly adults to determine changes in nutritional information and risk behavior, and observed a significant difference in knowledge change by treatment group (91).

Similar to our results, Rao et al. (92), evaluated the nutritional habits and nutritional knowledge levels of adolescent girls from different schools and to examine the effects of two different nutritional education tools on developing nutritional knowledge in a classroom environment. Nutrition education was given using slides, charts and folders. In this study, there was no significant difference between the mean levels of nutrition information, control and intervention groups ($p>0.05$), and the homogeneity of the groups in terms of nutrition and health awareness at the beginning was in accordance with our study. And there has been a significant improvement in the knowledge levels of the intervention group (92). Similarly in our study, the level of knowledge of girls increased after the training with slide narration.

Also, Rao, was found that the increase in nutritional knowledge levels of female students was statistically significant in video education ($p<0,05$).

Aktac et al. (93), conducted a cross-sectional study with pregnant women participating in health centers in Istanbul for prenatal care in order to evaluate the impact of nutrition education on nutrition knowledge levels, nutritional knowledge scores were significantly higher in the post test after receiving nutrition education (93). Similarly Wang et al. (94), conducted with 162 participants in order to define the knowledge, attitudes and practices of type 2 diabetic patients and to evaluate the effect of nutrition education application on developing a healthy diet information and practices, the rate of correct answers was found to be significantly higher than the initial one.After feeding and education, the patient's nutrition improved (94).

In a study aimed at examining the effectiveness of a school-based nutrition and food safety education program among primary and secondary school students in China, it was concluded that it was possible and effective to improve nutrition and food safety knowledge among primary and secondary school students through school-based nutrition and food safety education programs. Immediately after the intervention, most of the awareness of nutritional information improved significantly. Interventions were performed as instant intervention and long term intervention. Nutritional information scores were different between the long-term intervention group and the instant intervention group. Immediately after the intervention there was a statistically significant difference between the intervention group and the long-term intervention group in terms of unhealthy food preferences and selective eating habits. They used active learning strategies including simulations and learning games, teacher and peer modeling, role-playing, and so on. School-based nutrition and food safety education intervention resulted in a significant impact on students' nutrition knowledge. This study found that the nutrition and food safety education program was beneficial and effective for primary and secondary school students (95).

In one study, a training program was provided with a computer program that includes skills such as determining the desired body weight, estimating calorie requirements, determining macro nutrient distribution, using Change Lists for Meal Planning, and using carbohydrate counts for meal planning. Computer assisted nutrition education has been shown to be effective for dietetic student education. There appears to be a shortage of software for medical students, nurses, or doctors focusing on nutrition education related to diabetes. In this study computer-assisted instruction was

found as an effective method to increase the knowledge of third-grade medical students about the appropriate diet prescriptions for patients with diabetes. The use of computer-assisted instruction also increased perceived self-efficacy to prepare dietary prescriptions (96).

Tse (2009) increased nutrition knowledge after a training program speech and encouraged healthy eating habits and regular physical activities among young people (97). There was a significant increase in correct answers after the nutrition education speech. In addition, it was noted that it was important to provide nutrition education in school environment and it would be beneficial to integrate structural and culturally appropriate nutrition and lifestyle programs into secondary education programs (97).

In a study that evaluated the presence of a humanoid robot to increase the effectiveness of game-based, nutritional education intervention, a controlled, school-based intervention study was applied to fourth grade children (8-10) years. A total of 112 children were given a game-based nutrition education course on the importance of carbohydrates. Similarly in our study interventions significantly increased nutritional knowledge in all groups (98).

Geckil (99) examined, adolescents' health behaviors, and the effect of nutrition and stress coping training on health improvement. It was determined that the nutritional problems of the students were low and the nutritional problems of male students were significantly higher than the girls when the nutritional sub-scores were compared with gender. When the scores of adolescents before and after education were compared it was determined that there was a significant increase in nutritional subtest scores after education (99). Also in our study, boys in the male intervention group made progress in 9 questions and girls in 6 questions. In the control group, boys made progress in 6 questions and girls in 6 questions. When the differences according to the subgroups were examined, the improvements in the intervention group, adequate and balanced diet subgroup, essential nutrition subgroup and total score were statistically significant for both girls and boys ($p<0,05$). In the control group, progress was in the only adequate and balanced diet group for both girls and boys was statistically significant $p<0,05$). In the total score, only boys' progress was significant.

Also in our study, statistical significance was found in adequate and balanced nutrition subgroup, essential nutrients subgroup and total scores for both control and intervention groups ($p<0,05$). There is no statistically significant difference between pretest and posttest scores in both control and intervention groups in nutrition-related

diseases subgroup (p<0,05). When the changes between the groups were examined, the intervention group had a higher average in the postscores in the adequate and balanced nutrition subgroup than the control group. The difference was statistically significant.

Şanlıer and Güler(100), aimed to determine the effect of nutritional education on nutritional knowledge and habits of students in the second stage of primary education and found that there was a significant difference between the nutritional knowledge levels of the students who did not receive nutritional education before and after the training (p <0.05). Nutrition education given to primary school students has determined that the students make positive changes in the level of nutrition knowledge. However, they have concluded that education will be more effective and successful, using verbal and visual tools rather than teaching alone. The questionnaires used as pre-test were re-arranged and used as a post-test and the nutritional information and habits of the students were re-measured. Consistent with our study, a statistically significant difference was found between pre-test and post-test knowledge levels in all groups (p <0.05). It was thought that the difference between the pre-test and post-test in the control group might be caused by the students being influenced by each other or exchanging information from each other. A significant difference was found on nutritional knowledge levels of the students after the training(100). In our study, a significant difference between the groups was found only in the post adequate and balanced nutrition subgroup (p<0,05).

Keskin (101), examined whether nutrition education at Boarding Primary School has made a significant difference in students ' knowledge and behavior related to food consumption. For this purpose, a booklet containing general concepts about nutrition was given to the intervention group and a cartoon film about adequate and balanced nutrition was watched on the last day of education. It was observed that nutrition education was effective in decreasing the overall behavior of skipping meals at all meals in intervention group students. The difference was found to be statistically significant and it was concluded that the education was effective on the knowledge levels of the intervention group students (101).

Soytürk(102), conducted a study with 80 students, two groups were formed and students in the first group participated with their parents. The parents of the students in the second group did not participate. Both groups were educated and the questionnaire was applied to determine the nutritional knowledge and habits of the students. As a result of the study, it was reported that the difference between healthy and unhealthy

eating habits, nutritional information, nutritional awareness awareness scores was statistically significant (102).

In our study, the post-total score obtained from the scale was higher in the intervention group than in the boys. However, pre-total score and post-total score may be found to be more significant in boys than girls, since boys' first scores were lower than girls. In the control group, pre- and post-total scores were lower in boys than in girls, whereas boys had higher pre-post differences than girls. This difference was statistically significant ($p<0,05$). In another study(103), with 12 students, significant gender differences were observed in nutritional information. Girls (40.7%) were found to have higher nutritional information levels than boys (36.6%) (103).

In a research the participants consecutively experienced two types of instruction, and then they were asked about their perceptions of learning in terms of understanding, retention, and motivation (i.e., attention, relevance, satisfaction, and confidence) in both the video-based and the traditional text-based instruction. In this study, a significant difference was obtained between video-based instruction and traditional text-based instruction in students' motivation. In addition, students said that video-based instruction is more memorable than traditional text-based instruction (78).

In another video education study, 17 obstacles and seven solutions were underlined after a 40-minute facilitated group discussion (for example, setting up Woman Infant Child (WIC) counseling to assess parenting skills and increase sensitivity to customers' living conditions and stresses). It was concluded that a documentary-style video used in facilitated group discussion may have a short change in the perception of public health nutrition providers in addressing obesity in low-income preschool children (83).

In this study, nutritional subgroups and total nutritional knowledge scores were similar between intervention and control groups. There was no statistically significant difference in pre and post scores between the groups. The difference between intervention and control groups was statistically significant only in post-adequate and balanced nutrition subgroup scores ($p<0,05$). If the pre and post differences of the sub-groups are evaluated within the groups; In both pre and post scores, adequate and balanced diet, essential nutrition sub-groups and total scores were found to be significant ($p<0,05$). The increase in the Malnutrition related diseases subgroup was not statistically significant ($p>0,05$). The education given for the questions in the malnutrition related diseases subgroup in both video and traditional education during

the training may not be sufficient for this group. At the same time, students may be bored or distracted from listening because information about this subgroup is explained later in the education.

In our study, no significant difference was observed between the students who received traditional and video education. This may be due to the technological possibilities of the school. Because the video and audio quality during video training was not good enough. Therefore, students may not be able to get the efficiency they need from the video.

6. CONCLUSIONS

People provided the time is kept constant; recalls 10.0% of what they read, 20.0% of what they hear, 50.0% of what they see and hear, 70.0% of what they say, and make 90.0% of what they say and do. Therefore, it is reported that learning will be faster and more permanent when using visual and auditory tools in teaching (104).

Nutritional education intervention should target populations with low nutritional knowledge and consider fruit and vegeTable intake and barriers such as age, income and educational level when designing a nutritional intervention (105).

As a result of our study conducted for this purpose, the nutritional knowledge scores of the students increased in both education methods in nutrition education given to adolescents. This increase was seen both in the subgroup scores and the total scale score. These increases were statistically significant. Only the increase in the post malnutrition related diseases subgroup was not significant. Although there were increases in both groups, the difference between the two groups was not statistically significant. The reason for these significant increases in pre-tests and post-tests may be due to the fact that individuals of school age are open to learning. Therefore, it is important to increase and implement nutritional education programs that are emphasized in the studies.

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8. APPENDIXES

8.1. Appendix 1 Bilgilendirilmiş Onam Formu

Araştırmanın Adı: Adölesanlara Verilen Farklı Beslenme Eğitim Modellerinin Beslenme Bilgi Düzeyine Etkisinin Karşılaştırılması

Sayın Katılımcı ve /veya Yasal Velisi,

Yukarıda adı yazılı araştırmaya katılmak üzere davet edilmiş bulunmaktasınız. Bu araştırmada yer almayı kabul etmeden önce, araştırmanın ne amaçla yapılmak istendiğini anlamanız ve bu bilgilendirme sonucunda kararınızı vermeniz gerekmektedir. Aşağıdaki bilgileri lütfen dikkatlice okuyunuz, sorularınız olursa sorunuz ve açık yanıtlar isteyiniz. Bu araştırma ile etkinliği çeşitli epidemiyolojik çalışmalarla birçok kez denenen, farklı beslenme eğitim yöntemleri kullanarak beslenme bilgi düzeyinin artırılması amaçlanmıştır. Bu araştırma, katılımcıların sağlıklı gıda seçimlerini yapmaları ve yaşam boyu sağlıklı beslenme alışkanlıklarını geliştirebilmeleri için ihtiyaç duyacakları bilgi ve becerileri kazanmalarına yardımcı olmaya da yarar sağlayacaktır. Araştırma için etik kurul ve İstanbul Valiliği ve İl Milli Eğitim Müdürülüğü'nden gerekli yasal izinler alınmıştır. Araştırmaya sizin dışınızda 215 kişi katılacaktır. Çalışmaya katılan öğrencilerden 108 tanesi kontrol grubunu oluşturmaktadır. Kontrol grubundaki öğrencilere geleneksel eğitim verilecekken, diğer gruplara video, fotoğraf vb. yöntemlerle farklı eğitim yöntemleri uygulanacaktır. Sizden bu çalışmada verilen anket formunu doldurmanız, verilen eğitime katılımınız ve eğitim sonunda yine aynı anketi yapmanız istenecektir. Bu işlemler yaklaşık 45 dakikanızı alacaktır. Bunun size ve yakınlarınıza hiçbir zararı olmayacaktır. Çalışmaya katılmakla parasal yük altına girmeyeceksiniz ve size de herhangi bir ödeme yapılmayacaktır.

Bu araştırmaya katılıp katılmamakta tümüyle özgürsünüz. Gerek duyduğunuz tüm bilgileri istemeye ve doğru, açık, anlaşılır bilgi almaya hakkınız vardır. Araştırmaya katılmayı istemezseniz burada size verilen hizmet olumlu veya olumsuz şekilde etkilenmeyecektir. Gerekli gördüğü takdirde araştırmanın herhangi bir kısmında katılımcı araştırmadan çıkabilir, araştırmacı çalışmayı sonlandırabilir. Araştırmanın tüm aşamalarında kimlik bilgileriniz gizli tutulacaktır. Araştırma kapsamında elde edilen bilgiler bilimsel amaçlarla kullanılabilir gizlilik kurallarına uyulmak kaydıyla sunulabilir ve yayınlanabilir.

Araştırma ile ilgili daha fazla bilgiye ihtiyaç duyarsanız araştırmacıya gunalanelif92@gmail.com e-posta adresi veya 05050893812 numaralı telefondan ulaşabilirsiniz.

Yukarıda yer alan ve araştırmaya başlanmadan önce katılımcılara verilmesi gereken bilgileri içeren metni okudum (ya da sözlü olarak dinledim). Araştırma kapsamında elde edilen şahsıma ait bilgilerin bilimsel amaçlarla kullanılmasını, gizlilik kurallarına uyulmak kaydıyla sunulmasını ve yayınlanmasını, hiçbir baskı ve zorlama altında kalmaksızın, kendi özgür irademle kabul ettiğimi beyan ederim.

İmza/Tarih	**İmza/Tarih**
Katılımcının adı soyadı	**Sorumlu Araştırmacının adı soyadı:**
Katılımcının Yasal Velisinin Adı soyadı	

8.2. Appendix 2 Kullanılan Ölçek ve Doğru Cevapları

Adölesan Beslenme Bilgi Düzeyi Anketi

Okul Kodu: Tarih

Sınıf Kodu:

Öğrenci Kodu:

Veli kodu:

Aşağıda beslenme bilgisi ile ilgili bazı önermeler verilmiştir. Sizin için uygun olan cevabı işaretleyiniz. (Lütfen her önerme için tek bir cevap kutucuğunu işaretleyiniz.)

Önermeler	**Doğru**	**Yanlış**	**Bilmiyor**
1. Yeterli ve dengeli beslenme için her gün en az 2 bardak sağlıklı süt içilmelidir.	X		
2. Kahvaltıda özellikle süt ve yumurta tüketilmelidir.	X		
3. Düzenli kahvaltı yapmak okul başarısını arttırır.	X		
4. Ekmek ve tahıl grubu yeterli ve dengeli beslenme için tüketilmesi gereken besin grupları arasında yer alır.	X		
5. Günde en az 8-10 bardak su içilmelidir.	X		
6. Günde en az 5 porsiyon meyve ve sebze tüketmeliyiz.	X		
7. Haftada en fazla 3 gün kırmızı et tüketmeliyiz.	X		
8. Beslenme uzmanları bir günde toplam bir tatlı kaşığından (6 gr.) fazla tuz tüketilmemesini önerirler.	X		
9. Ayaküstü (fast-food) beslenme yeterli ve dengeli beslenmeye uygun değildir.	X		
10. Besin öğeleri kimyasal yapılarına ve vücut çalışmasındaki etkinliklerine göre proteinler, yağlar, karbonhidratlar, mineraller, vitaminler ve su olarak 6 gruba ayrılır.	X		
11. Karbonhidrat grubu besinler aynı miktarda yağlara göre enerji içeriği bakımından daha zengin gruptur.		X	
12. Makarna ve pilav nişastalı gıdalardır.	X		
13. Patates kızartmasının besin değeri azdır.	X		
14. Gazlı içecekler yüksek miktarda şeker içerirler.	X		
15. Ekmek yüksek miktarda yağ içerir.		X	

16. Bisküvi aldığımız yağ miktarını kısıtlamak için tüketmemiz gereken en uygun gıdadır.		X	
17. Kırmızı et ve tavuk omega-3 yağ asitlerinin önemli kaynaklarıdır.		X	
18. Hayvansal yağlar diyetle kolesterol alımını arttırır.	X		
19. Paketlenmiş ürünlerin üzerindeki "light" yazısı o ürünün protein içeriğinin düşük olduğu anlamına gelir.		X	
20. Tavuk ve yumurta protein içeriği yüksek gıdalardır.	X		
21. Nohut kuru fasulye, mercimek gibi besin kaynakları protein içeriği açısından zengin baklagillerdir.	X		
22. Beslenme uzmanları kuruyemişi kırmızı etin yerine protein içeriği açısından alternatif olarak önerirler.		X	
23. Tam tahıllı ekmek tükettiğimizde daha fazla miktarda vitamin ve mineral alırız.	X		
24. A ve C vitaminleri antioksidan vitamin sınıfına girer.	X		
25. Yeşil biber ve maydanoz C vitamini açısından zengin besin kaynaklarıdır.	X		
26. Kalsiyum ve D vitamini güçlü kemikler için önemlidir.	X		
27. Peynir kalsiyum açısından zengin bir besin kaynağıdır.	X		
28. Beyaz ekmek, tam tahıl ekmeğe göre daha çok lif içerir.		X	
29. Kayısı yüksek lif içeren bir meyve değildir.		X	
30. Kırmızı et tuz içeriği yüksek bir gıdadır.		X	
31. Aşırı kilolu olan bireyler, normal kilolu olan bireylere göre daha fazla sağlık problemi yaşarlar.	X		
32. Balık tüketmek kalp hastalıklarına yakalanma riskini arttırır.		X	
33. Obezite (şişmanlık), aşırı yağ tüketimine bağlı olarak gelişebilir.	X		
34. Daha fazla meyve ve sebze gibi yüksek posa içeren gıdaları tüketmek kansere yakalanma riskini azaltır.	X		

35. Daha az tuz tüketmenin kalp hastalıklarını önlemede etkisi yoktur.		X	
36. Şeker, hipertansiyon ve kalp hastalığı şeker ve tuzun aşırı olarak tüketimine bağlı olarak ortaya çıkabilen sağlık sorunlarıdır.	X		
37. Az miktarda meyve tüketimi enfeksiyon hastalıklarına yakalanmayı kolaylaştırır.	X		
38. Yeterli ve dengeli beslenmeyen bireylerde kansızlık görülme riski artar.	X		

8.3. Appendix 3 Geleneksel Eğitim

YETERLİ VE DENGELİ BESLENME

Beslenme ; insanın büyümesi, gelişmesi, sağlıklı ve üretken olarak uzun süre yaşaması ve yaşam kalitesini arttırması için gerekli olan besinleri vücuduna alıp kullanmasıdır.

Anne karnından itibaren, bebeklik, çocukluk, ergenlik ve yetişkin çağından yaşlılığa kadar yaşamın tüm evrelerinde beslenme oldukça önemlidir.

- **Yeterli ve dengeli beslenme ;** vücudun büyümesi ve gelişmesi, dokuların yenilenmesi ve çalışması için gerekli olan enerji ve besin öğelerinin her birinin yeterli ve dengeli miktarlarda alınması ve vücutta uygun şekilde kullanılmasıdır.

YETERLİ VE DENGELİ BESLENME İÇİN ÖNERİLER

KAHVALTI GÜNÜN EN ÖNEMLİ ÖĞÜNÜDÜR.

Akşam yemeği ile kahvaltı arasında uzun bir açlık dönemi bulunmaktadır ve vücudumuz uyurken dahi çalışmaya devam eder. Uyku sürecinde vücudumuz besin öğelerinin tümünü kullanır. Sabah kahvaltı yapılmadığında beynimizde yeteri kadar enerji oluşmaz ve yorgunluk, baş ağrısı, dikkat eksikliği meydana gelir. Bu durum okul başarısını olumsuz olarak etkiler. Bu nedenle; tüm besin öğelerini içeren (karbonhidrat, protein, yağ) bir kahvaltı ile güne başlamak gerek gün içerisinde yeterli ve dengeli beslenmenin sağlanmasında gerekse okul başarısının artırılmasında önemli rol oynamaktadır.

YETERLİ VE DENGELİ BESLENME İÇİN ÖNERİLER

Sağlıklı besin seçimi büyüme ve gelişmeyi olumlu yönde etkilemektedir. Örneğin; kemik gelişimi için kalsiyum, bilişsel gelişim ve okul başarısı için karbonhidratlar, kas gelişimi için protein, enerji için yağ ve bu metabolik olayların gerçekleşmesi için vitamin ve minerallere gereksinim duyulmaktadır. Bu nedenle,

- **Güne süt, yumurta, peynir ve tahıl grubu içeren sağlıklı bir kahvaltı tabağı ile başlanıp,**
- **Gün içerisinde en az 2 porsiyon süt ve süt grubu tüketilmeli,**
- **Besin örüntüsünde ekmek ve tahıl grubu yeteri kadar tüketilmeli,**
- **Hayvansal proteinlerden haftada iki kez balık, 2-3 kez kırmızı et tüketilmeli,**
- **Biriken toksik metabolitleri vücuttan uzaklaştırmak için günlük 8-10 bardak su tüketilmeli,**
- **Gün içerisinde en az 5 porsiyon sebze ve meyve tüketilmeli ve**

Ayak-üstü fast-food tüketimini ve günlük tüketilen tuz miktarını 6 gr ile SINIRLANDIRMALIYIZ.

Besin ve Besin Ögeleri

Besin ; günlük beslenme örüntüsünde (diyette) yer alan yenilebilen ve yenildiğinde yaşam için gerekli besin ögelerini içeren bitki ve hayvan dokularıdır.

Besin ögesi: Besinler "**besin ögesi**" denilen yapı taşlarından oluşur. Besinlerin yapısında bulunan besin ögeleri kendi içinde iki büyük gruba ayrılır.

Günlük diyetle fazla miktarda alınanlara "makro besin ögeleri", vücutta işlevleri çok önemli olmasına karşın az miktarda gereksinim duyulan ve alınanlara da "mikro besin ögeleri" denilir.

Karbonhidratlar, yağlar ve **proteinler** makro besin ögeleridir. **Vitaminler** ve **mineraller** mikro besin ögeleridir. **Su** yaşam için elzemdir ve besin ögesi olarak kabul edilir.

Makro Besin Ögeleri

Vücut organlarının çalışabilmesi ve normal ısının sürdürülebilmesi için gerekli enerji makro besin ögelerinden sağlanmaktadır.

- Makro besin ögesi olan karbonhidratlar başlıca enerji kaynağıdır ve 1 gramı **4 kkal** enerji sağlar.
- Yağların 1 gramı **9 kkal** enerji sağlar ve makrobesin ögeleri içinde en yüksek enerjiyi veren besin ögesidir.
- Proteinler gerekmedikçe enerji amacıyla vücutta kullanılmaz, daha çok vücudun yapı taşını oluştururlar.
- Proteinlerin de 1 g'ı **4 kkal** enerji sağlamaktadır.

KARBONHİDRATLAR

Karbonhidratlar basit ve kompleks olarak ikiye ayrılır.

Basit karbonhidratlar besine tatlı tadını verir. Basit karbonhidratlar **doğal olarak** meyvelerde ve sütte; **eklenmiş şeker olarak** gazlı içeceklerde, soğuk çay içeceklerinde, meyveli içeceklerde, şekerleme ve tatlılarda yüksek miktarda bulunur.

Kompleks karbonhidratlar ise nişasta ve diyet posasını içerir. Nişasta birçok bitkisel besinde bulunur. Makarna, pilav, bulgur vb. tahıllar, kuru fasulye, mercimek, nohut vb. kurubaklagiller ve patates, havuç gibi kök sebzeler nişasta içermektedir. Ancak, bu ürünlerin kızartma, kavurma vb. gibi sağlıksız pişirme yöntemleriyle pişirilmesi düşük kaliteli olmalarına ve besin değerinin düşmesine neden olmaktadır.

KARBONHİDRATLAR

Kompleks karbonhidratlardan sebze ve meyveler, tam tahıllı ürünler ve kurubaklagiller içerdikleri yüksek lif oranıyla sağlıklı bir diyette olmazsa olmazdır.

Pasta, börek, hamur işi, bisküvi, kurabiye gibi basit karbonhidrat içeren ürünler aynı zamanda yüksek yağ içermektedir.

Ekmekler karbonhidrat ve protein içerirken yağ içermemektedir.

Tam tahıllı ekmek vitamin, mineral ve lif bakımından zengin olup beyaz undan yapılan ekmek ise hem besin öğeleri hem de lif bakımından fakirdir.

PROTEİNLER

Proteinler, vücudumuzun yapıtaşlarını oluşturur ve hayvansal ve bitkisel kaynaklı olarak ikiye ayrılmaktadır.

Günlük diyette **enerjinin %10-20'sinin** proteinlerden gelmesi önerilir.

Hayvansal proteinler et, tavuk, balık, yumurta, süt ve süt ürünlerinden oluşurken; bitkisel proteinler ise kuru fasulye, mercimek, nohut gibi kurubaklagilleri içerir.

Bu besin öğelerinin özellikle ergenlik döneminde vücuda gerekli ve yeterli miktarda alınması sağlıklı büyüme ve gelişmenin sağlanması için oldukça önemlidir.

YAĞLAR

Yağlar makro besin grubunun bir üyesi olup çeşitli yağ asitleri içerirler. Kuruyemiş, et ve et ürünleri vb. gıdalarda bulunan yağlar içerdikleri yüksek enerji, lezzet ve yiyeceklere gevreklik verme özelliği oldukça sık tercih edilmektedir. Vücutta bulunan depo yağlar ise organizmanın ısı dengesini sağlar, organlara destek olur, gerektiğinde enerjiye çevrilmektedir.

Yağlar bitkisel ve hayvansal kaynaklı olmak üzere iki çeşittir:

Bitkisel yağlar; zeytinyağı, ayçiçek, fındık, mısırözü, pamuk ve susam yağlarıdır.

Hayvansal yağlar oda ısısında katı yapıda olan iç yağı, kuyruk yağı, tereyağ ve margarindir ve kolesterol içerirler.

Katı yağlar doymuş yağ asitlerini daha çok içerirler.

YAĞLAR

Günlük diyette, tüketilen yağdan gelecek enerjinin %20-35 arasında olması önerilmektedir.

Bu oranın yağ türleri arasındaki dağılımı bir birim katı yağ, bir birim herhangi bir bitkisel sıvı yağ ve bir buçuk veya iki birim (1.5 veya 2 birim) zeytinyağı olur 1; 1; 1.5/2.

Katı yağ alımı ise kolesterol düzeyini artırmamak için en az düzeyde tutulmalıdır (enerjini <%10).

Bisküvi, kraker, gofret gibi paketli ürünlerdeki yağ miktarı oldukça fazla olup, diyet ürünlerde ise «light» ibaresiyle yağ kısıtlaması yapıldığı ifade edilir.

Ayrıca, içeriğindeki omega-3 yağ asitlerinin sağlığı koruyucu etkisi sayesinde balık tüketimi de önerilmektedir.

VİTAMİN VE MİNERALLER

Vitaminler: Mikro besin ögeleri grubuna giren vitaminler çok az miktarda alınmalarına karşın etkileri çok önemli olan besin ögeleridir. Vitaminler kendi aralarında; yağda (A, D, E ve K) ve suda (B grubu ve C) çözünen (eriyen) vitaminler olarak iki grupta incelenmektedir. Vücutta enerji metabolizmasında, kan yapımında ve bağışıklık sisteminde yer alanların bazıları B grubu vitaminler ile C vitaminidir. D vitamini kemik oluşumu için gereklidir. A, E ve C vitaminleri vücut hücrelerinin hasarını önler, normal işlevlerinin sürdürülmesi ve zararlı bazı maddelerin etkilerinin azaltılmasında (antioksidan olarak) yardımcıdır. Folik asit, B6, B12 ve C vitaminleri ise kan yapımında görev alırlar.

Mineraller: Yetişkin insan vücudunun ortalama %6'sı mineralden oluşur. Kalsiyum, fosfor, magnezyum gibi mineraller kemik, iskelet ve diş yapısında yer alır. Demir, kobalt gibi mineraller kan yapımında, çinko ise bağışıklık sistemi için önemlidir.

VİTAMİN VE MİNERAL KAYNAKLARI

A vitamini	Karaciğer, süt, tereyağı, peynir, zenginleştirilmiş margarin
D vitamini	Güneş ışığı, zenginleştirilmiş besinler ve margarin, tereyağı, yumurta sarısı
E vitamini	Bitkisel yağlar, tam tahıllar, fındık, badem, ceviz vb. sert kabuklu yemişler, yeşil yapraklı sebzeler
K vitamini	Koyu yeşil yapraklı sebzeler
B6 Vitamini	Yumurta, tavuk, balık, tam tahıl, sert kabuklu yemişler (fındık vb.), karaciğer, böbrek
Folat	Yeşil yapraklı sebzeler, maya, portakal, tam tahıllar, kurubaklagiller, karaciğer
B12 Vitamini	Tüm hayvansal besinler, zenginleştirilmiş besinler
C vitamini	Turunçgiller, maydanoz, yeşil biber, çilek, domates, patates, lahana, yeşil yapraklı sebzeler

Kalsiyum	**Süt ve süt ürünleri, yeşil yapraklı sebzeler,**
Fosfor	Hayvansal besinler (süt, yumurta, et), tahıllar,
Magnezyum	Tahıllar, kurubaklagiller, sert kabuklu yemişler, yeşil sebzeler, süt
Demir	Kırmızı et ve ürünleri, tavuk, zenginleştirilmiş tahıl ürünleri, koyu yeşil yapraklı sebzeler, kuru meyveler
Çinko	Tam tahıllar, et, yumurta, karaciğer, deniz ürünleri
İyot	İyotlu tuz, deniz ürünleri

TUZ

Diyetle alınan minerallerden bir ise tuzdur. Ancak, aşırı tuz (sodyum) tüketimi; kardiyovasküler hastalıklar, böbrek hastalıkları, hipertansiyon, inme, osteoporoz ve bazı kanser türlerinin oluşmasına neden olabilmektedir. Günlük tuz tüketimi 6 g'ı aşmamalıdır. Tüketilen tuz ise iyotlu olmalıdır.

Aşırı Tuz İçeren Besinler

- Hazır soslar (soya, ketçap, barbekü, tartar, salsa, hardal, makarna vb soslar)
- Atıştırmalık ürünler (cips, tahıl bazlı bar, meyve bazlı bar, patlamış mısır gibi)
- Tuzlanmış kuruyemişler (fındık, fıstık, ceviz, badem, leblebi, kavurga, kabak ve ayçiçeği çekirdeği, her türlü çekirdek içi vb.) Turşu ve salamura besinler (siyah ve yeşil zeytin, sebze turşuları), balık konserveleri, tuzlanmış ve/veya salamura edilmiş et ve balık ürünleri
- Aromalı/aromasız, doğal/doğal olmayan gazlı/gazsız mineralli içecekler.
- Geleneksel olarak evlerde hazırlanan turşu, salça, tarhana, yaprak salamurası vb. besinler.

SU

Su ve diğer içecekler vücut su dengesinin korunmasında önemlidir. Yaşam için elzem öge olarak tanımlanan su temiz kaynaklardan sağlanmalıdır. Başta su olmak üzere içecekler ve yiyeceklerde bulunan görünür/ görünmez su, "sıvı" olarak tanımlanır ve bireyin günlük gereksinimi, içtiği su, içecekler ve tükettiği yiyeceklerdeki içindeki su ile karşılanır. Gazlı, gazsız - karbonatlı, şeker ilaveli içecekler ile çay ve kahve yerine çoğunlukla su tercih edilmelidir.

Biriken toksik metabolitleri vücuttan uzaklaştırmak için günlük 8-10 bardak su tüketilmelidir.

Beslenme İlişkili Sağlık Problemleri

İnsan gereğinden çok yemek yerse, enerji ve besin ögelerini gerektiğinden çok alır. Özellikle diyetle alınan sebze-meyvenin yeterisz olması, aşırı şekerli-tuzlu- yağlı besin tüketimi ve glisemik yükü yüksek gıdaların tercih edilmesi kullanılandan fazla alınan enerji alımına sebep olur ve vücutta yağ olarak birikeceğinden sağlık için zararlıdır. Bu durum beraberinde **şişmanlık (obezite)** olmak üzere **diyabet**, **hipertansiyon**, **kalp damar hastalıkları, kanser** gibi sağlık sorunlarının oluşumuna neden olur ve "**AŞIRI VE DENGESİZ BESLENME**" olarak tanımlanır.

Enerji ve besin ögeleri vücudun gereksinim duyduğu düzeyde alınamadığında, vücut dokuları yapılamadığı ve yaşamsal faaliyetler sürdürülemediği için "**YETERSİZ BESLENME**" durumu oluşur. Ayrıca, kişi yeterince yemesine karşın, uygun besin seçimi yapamadığında ve/veya yanlış pişirme yöntemi uygulandığında besin ögelerinin bazılarını vücuduna alamayabilir. Besin ögeleri yetersiz alındığında, vücut çalışmasındaki işlevi yerine getirilmediğinden yine sağlık bozulabilir. Bu duruma da "**DENGESİZ BESLENME**" denir. Yetersiz ve dengesiz beslenme ise **kansızlık, aşırı zayıflık, bilişsel problemlere** neden olmaktadır.

Sağlıklı Bir Yaşam İçin Sağlıklı Besin Tercihi Yapmalıyız.

Obezite, koroner kalp hastalığı ve diyabet gibi kronik hastalık tanısı taşıyan bireyler özellikle yarım yağlı süt ve süt ürünlerini tercih etmelidir.

Balık ve deniz ürünlerine ek olarak bitkisel yağlar ve çeşitli bitkilerde de bulunan omega-3 yağ asitleri diyette yer alması kalp hastalıklarına yakalanma riskini azaltmaktadır. Ayrıca, hipertansiyon ve kalp hastalıklarının önlenmesinde tuz tüketiminin sınırlandırılması da önem arz etmektedir.

Düzenli ve yeterli taze sebze ve meyve tüketiminin artırılması kalp hastalıkları, enfeksiyon hastalıkları, inme ve bazı kanser türleri gibi kronik hastalıklara karşı koruyucudur. Özellikle sebzeler düşük enerji içerikleri nedeniyle de vücut ağırlığı artışının önlenmesinde rol alırlar.

8.4. Appendix 4 Çalışmanın Yapılabileceğine Dair İl Milli Eğitim Müdürlüğünden Alınan İzin

T.C.
İSTANBUL VALİLİĞİ
İl Millî Eğitim Müdürlüğü

Sayı : 59090411-20-E.8584723 30/04/2019
Konu : Anket ve Araştırma İzin Talebi.

VALİLİK MAKAMINA

İlgi: a) Yeditepe Üniversitesinin 10.02.2019 tarihli ve 13 sayılı yazısı.
b) MEB. Yen. ve Eğ. Tk. Gn. Md. 22.08.2017 tarih ve 12607291/ 2017/25 No'lu Gen.
c) Milli Eğitim Müdürlüğü Araştırma ve Anket Komisyonunun 29.04.2019 tarihli tutanağı.

Yeditepe Üniversitesi Sağlık Bilimleri Fakültesinde öğretim üyesi olarak görev yapan Binnur OKAN BAKIR'ın **"Adölesanlara Verilen Farklı Beslenme Eğitim Modellerinin Beslenme Bilgi Düzeyine Etkisinin Karşılaştırılması"** konulu araştırma çalışması kapsamında, ilimiz Üsküdar ilçesinde bulunan liselerde öğrenim gören öğrencilere; anket uygulama istemi hakkındaki ilgi (a) yazı ve ekleri Müdürlüğümüzce incelenmiştir.

Araştırmacının söz konusu talebi; bilimsel amaç dışında kullanılmaması, **uygulama sırasında bir örneği müdürlüğümüzde muhafaza edilen mühürlü ve imzalı veri toplama araçlarının kurumlarımıza araştırmacı tarafından ulaştırılarak uygulanılması, katılımcıların gönüllülük esasına göre seçilmesi, araştırma sonuç raporunun müdürlüğümüzden izin alınmadan kamuoyuyla paylaşılmaması koşuluyla, okul idarelerinin denetim, gözetim ve sorumluluğunda, eğitim-öğretimi aksatmayacak şekilde ilgi (b) Bakanlık emri esasları dâhilinde uygulanması, sonuçtan Müdürlüğümüze rapor halinde (CD formatında) bilgi verilmesi kaydıyla** Müdürlüğümüzce uygun görülmektedir.

Makamlarınızca da uygun görülmesi halinde olurlarınıza arz ederim.

Levent YAZICI
İl Milli Eğitim Müdürü

Ek:
1- Genelge.
2- Komisyon Tutanağı.

OLUR
30/04/2019

Ahmet Hamdi USTA
Vali a.
Vali Yardımcısı

Milli Eğitim Müdürlüğü Binbirdirek M. İmran Öktem Cad.
No:1 Eski Adliye Binası Sultanahmet Fatih/İstanbul
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Bu evrak güvenli elektronik imza ile imzalanmıştır. https://evraksorgu.meb.gov.tr adresinden 6a83-d10a-3206-8070-bcf9 kodu ile teyit edilebilir.

8.5. Appendix 5 Ethics Committee Approval Certificate

T.C.
MARMARA ÜNİVERSİTESİ
Sağlık Bilimleri Fakültesi
Girişimsel Olmayan Etik Kurulu

PROJENİN ADI : "Adölesanlara Verilen Farklı Beslenme Eğitim Modellerinin Beslenme Bilgi Düzeyine Etkisinin Karşılaştırılması"

PROJENİN YÜRÜTÜCÜSÜ : Elif GÜNALAN

PROJEDEKİ ARAŞTIRICILAR : Dr. Öğr. Üyesi. Binnur OKAN BAKIR, Sema AYDIN, Ece ÖZBEKKANGAY, Harika ÖZKAYA, Rabia BALI

ONAY TARİHİ VE SAYISI : 03.01.2019/07

Çetin KILIÇ
M.Ü. Sağlık Bilimleri Fakültesi
Fakülte Sekreteri

Sayın: Elif GÜNALAN

"07" protokol numaralı "Adölesanlara Verilen Farklı Beslenme Eğitim Modellerinin Beslenme Bilgi Düzeyine Etkisinin Karşılaştırılması" isimli projeniz Fakültemiz Etik Kurulu tarafından incelenmiş oy birliği ile biçim yönünden uygun olduğuna karar verilmiştir.

Prof. Dr. M. Gülden POLAT
Etik Kurul Başkanı

Prof. Dr. Mehveş TARIM

Prof. Dr. Ayşen GARGILI

Doç. Dr. M. Emin ALŞAHİN

Doç. Dr. Ş. Burak BEKAROĞLU

Doç. Dr. Zübeyir SARI

Doç. Dr. Hasibe KADIOĞLU

Doç. Dr. Meltem BAL

Doç. Dr. Saime EROL

Doç. Dr. Aysel YILDIZ

Dr. Öğr. Üyesi Murat D. ÇEKİN

Dr. Öğr. Üyesi K. Burcu ÇALIK

Dr. Öğr. Üyesi Ayşe KARAKOÇ

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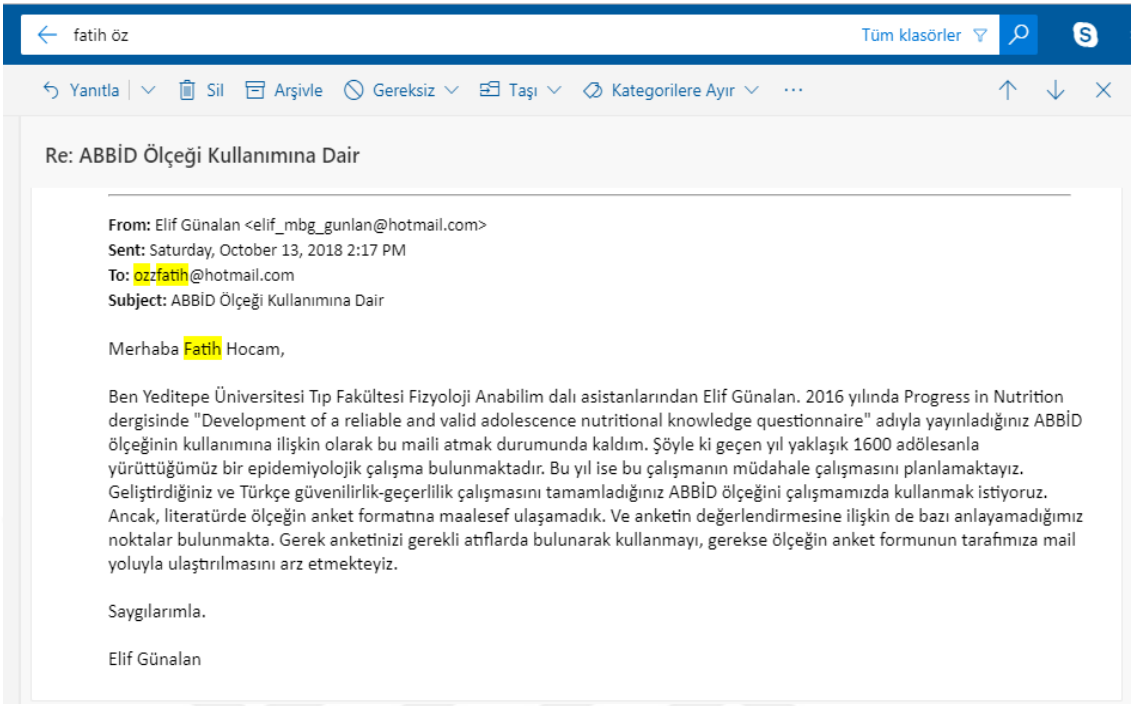
http://sbf.marmara.edu.tr

8.6. Appendix 6 ABBİD Ölçeğinin Kullanılabileceğine Dair İzin



fatih öz

Tüm klasörler

Yanıtla | Sil | Arşivle | Gereksiz | Taşı | Kategorilere Ayır | ...

Re: ABBİD Ölçeği Kullanımına Dair

From: Elif Günalan <elif_mbg_gunlan@hotmail.com>
Sent: Saturday, October 13, 2018 2:17 PM
To: ozzfatih@hotmail.com
Subject: ABBİD Ölçeği Kullanımına Dair

Merhaba Fatih Hocam,

Ben Yeditepe Üniversitesi Tıp Fakültesi Fizyoloji Anabilim dalı asistanlarından Elif Günalan. 2016 yılında Progress in Nutrition dergisinde "Development of a reliable and valid adolescence nutritional knowledge questionnaire" adıyla yayınladığınız ABBİD ölçeğinin kullanımına ilişkin olarak bu maili atmak durumunda kaldım. Şöyle ki geçen yıl yaklaşık 1600 adölesanla yürüttüğümüz bir epidemiyolojik çalışma bulunmaktadır. Bu yıl ise bu çalışmanın müdahale çalışmasını planlamaktayız. Geliştirdiğiniz ve Türkçe güvenilirlik-geçerlilik çalışmasını tamamladığınız ABBİD ölçeğini çalışmamızda kullanmak istiyoruz. Ancak, literatürde ölçeğin anket formatına maalesef ulaşamadık. Ve anketin değerlendirmesine ilişkin de bazı anlayamadığımız noktalar bulunmakta. Gerek anketinizi gerekli atıflarda bulunarak kullanmayı, gerekse ölçeğin anket formunun tarafımıza mail yoluyla ulaştırılmasını arz etmekteyiz.

Saygılarımla.

Elif Günalan

Re: ABBİD Ölçeği Kullanımına Dair

F

Fatih . <ozzfatih@hotmail.com>
Pzt 15.10.2018, 15:05
Siz

ABBID ölçek.docx
15 KB

İndir OneDrive'a kaydet

İyi günler Elif hanım, ölçeği çalışmanızda kullanabilirsiniz, ekte ölçeğin Türkçe formunu gönderiyorum. Anketin değerlendirilmesi noktasında her doğru cevap 1 puan olarak değerlendiriliyor o şekilde hesaplanıyor. Anlamadığınız hususlarda sorabilirsiniz. Kolay gelsin.

Saygılarımla,
Fatih ÖZ

8.7. Appendix 7 Curriculum Vitae

Kişisel Bilgiler

Adı	Sema	**Soyadı**	Aydın
Doğum Yeri	Erbaa	**Doğum Tarihi**	29.10.1992
Uyruğu	Türkiye Cumhuriyeti	**TC Kimlik No**	44053907350
E-mail	sema.aydin@yeditepe.edu.tr	**Tel**	05347205197

Öğrenim Durumu

Derece	**Alan**	**Mezun Olduğu Kurumun Adı**	**Mezuniyet Yılı**
Doktora			
Yüksek Lisans	Beslenme ve Diyetetik	**Yeditepe Üniversitesi**	2019
Lisans	Beslenme ve Diyetetik	**İstanbul Bilim Üniversitesi**	2016
Lise	-		

Bildiği Yabancı Dilleri	**Yabancı Dil Sınav Notu (#)**
İngilizce	57,50

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

İş Deneyimi (Sondan geçmişe doğru sıralayın)

Görevi	Kurum	**Süre (Yıl - Yıl)**
Araştırma Görevlisi	Yeditepe Üniversitesi	-2018- Halen
		-

Bilgisayar Bilgisi

Program	**Kullanma becerisi**

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

Bilimsel Çalışmaları

SCI, SSCI, AHCI indekslerine giren dergilerde yayınlanan makaleler

11.

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)
