

T.C
YEDITEPE UNIVERSITY
INSTITUTE OF HEALTH SCIENCES
DEPARTMENT OF NUTRITION AND DIETETICS

**ASSESSMENT OF THE NUTRITIONAL STATUS OF
PREGNANT WOMEN WHO CONSULT TO
GYNECOLOGY POLICLINIC OF A PRIVATE
HOSPITAL**

MASTER THESIS

DIETITIAN
DİLARA ASLINUR ALTINEL

Istanbul 2018

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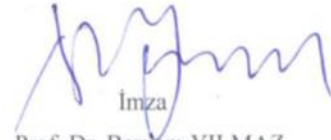
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ONAY

Bu tez Yeditepe Üniversitesi Lisansüstü Eğitim-Öğretim ve Sınav Yönetmeliğinin ilgili maddeleri uyarınca yukarıdaki jüri tarafından uygun görülmüş ve Enstitü Yönetim Kurulu'nun 31.08.2018 tarih ve 2018/15-03 sayılı kararı ile onaylanmıştır.


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DECLARATION

I hereby declare that this thesis is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which has been accepted for the award of any other degree except where due acknowledgment has been made in the text.

03.09.2018



Dilara Ashnur ALTINEL

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LIST OF SYMBOLS

°C	centigrade degree
Ca	calcium
Eq / L	calculate equivalents per liter
g / dL	concentration solution unit gram / deciliter
gr	gram – A unit of mass equal to 0.001 kilograms
Kg	kilogram – the base unit of mass in the International System
P	phosphor
Mg	miligram – A unit of mass equal to one thousandth of gram
mmHg	milimetre of mercury -A unit of pressure equal to the column of mercury

LIST OF ABBREVIATIONS

ADHD	Attention deficit hyperactivity disorder
ARBD	Alcohol-related birth defects
BMI	Body mass index
FAS	Fetal alcohol syndrome
GDM	Gestational diabetes
GIS	Gastrointestinal system
IOM	Institute of Medicine
IUGR	Intrauterine growth retardation

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ABSTRACT

Altinel, D. A. (2018). Assesment of The Nutritional Status of Pregnant Women Who Consult to Gynecology Policlinic of A Private Hospital. Yeditepe University, Institute of Health Scinces, Department of Nutrition and Dietetic, MSc thesis, Istanbul.

With each passing day of illness, the importance of feeding in pregnancy is increasing. Since the formation of the individual, the mother begins to feed to fetus and continues for a lifetime. This thesis study was carried out in order to evaluate the nutritional status of 100 pregnant women who came to the policlinic of a private hospital in İstanbul. Questionnaire was applied to participants and eating habits were questioned Age, educational status, working conditions, monthly income, number of pregnancies, changing eating habits during pregnancy, completing the pregnancy process with the dietitian as well as the status of receiving the information about the nutrition during pregnancy, the source from which the information is received and the habit of breakfast and snacks, number of meals, meal skipping status, daily water consumption and eating habits, eating habits and eating habits were questioned. In this study, the frequency of consumption of some foods was also questioned. As a result; monthly incomes and completion of pregnancy period with dietician and there is no significant relationship between education level and smoking. high education level individuals are more informed about nutrition than low educated individuals. Women who have breakfast habits consumed enough eggs and having snack meal habits are sufficient level of fruit consumption and that individuals with much control over their own health have never used cigarettes.

Key words: Nutritional Habits, Nutrition Assessment, Nutritional Requirements, Nutritional Status, Nutritional Components

ABSTRACT (TURKISH)

Altinel, D.A. (2018). Özel Bir Hastanenin Kadın Doğum Polikliniğine Başvuran Gebelerin Beslenme Durumlarının Değerlendirilmesi. Yeditepe Üniversitesi Sağlık Bilimleri Enstitüsü, Beslenme ve Diyetetik Ana Bilim Dalı., Master Tezi. İstanbul.

Her geçen gün artan hastalıklarla birlikte gebelikte beslenmenin de önemi artmaktadır. Bireyin oluşumundan itibaren anne karnında beslenmesi başlar ve bir ömür boyu devam eder. Bu tez çalışması İstanbul'da özel bir hastanenin kadın doğum polikliniğine gelen 100 gebe kadının beslenme durumlarının değerlendirilmesi amacıyla yapılmış ve katılımcılara anket çalışması uygulanmıştır. Gebelerin yaşı, eğitim durumları, çalışma durumları, aylık gelirleri, gebelik sayısı, gebelikte değişen beslenme alışkanlıkları, sigara kullanımı yanında gebelik sürecini diyetisyen ile tamamlama durumu, gebelikte beslenme hakkında bilgi alma durumu, bilgiyi hangi kaynaktan aldığı ayrıca kahvaltı ve ara öğün alışkanlığı, öğün sayısı, öğün atlama durumu, günlük su tüketimi ve yemeği kiminle yediği gibi durumlar ile beslenme alışkanlıkları sorgulanmıştır. Bu çalışmada ayrıca bazı besinlerin tüketim sıklıkları sorgulanmıştır. Sonuç olarak; aylık gelir ile gebelik sürecini diyetisyenle tamamlama arasında ve eğitim düzeyi ile sigara kullanımı arasında anlamlı bir ilişki bulunamazken, yüksek eğitim düzeyine sahip bireylerin düşük eğitilmiş bireylere göre daha fazla gebelikte beslenme bilgisi aldığı, kahvaltı alışkanlığı olanların yeterli düzeyde yumurta tükettiği, ara öğün alışkanlığı olan gebelerin yeterli düzeyde meyve tükettiği ve kendi sağlıkları üzerinde çok kontrol sahibi olan bireylerin hiç sigara kullanmadığı gibi verilere ulaşılmıştır.

Anahtar Kelimeler: Beslenme Alışkanlıkları, Beslenme Değerlendirmesi, Beslenme Gereksinimleri, Beslenme Durumu, Besin Ögeleri

1 INTRODUCTION

A healthy diet is important at all times in life, but particularly so during pregnancy. The maternal diet must provide sufficient energy and nutrients to meet the mother's usual requirements, as well as the needs of the growing fetus, and enable the mother stores of nutrients required for fetal development (1).

Maternal weight gain during pregnancy is essential for healthy fetal development. The Institute of Medicine recommends that suitable weight gain for normal weight women is 11-16 kg, whereas weight gain for overweight 7-11 kg and obese 5-9 kg women is less; any weight above these upper guidelines is considered excessive. Excessive gestational weight gain is generally related to and independently predicts unfavorable pregnancy outcomes (eg, preterm delivery, gestational diabetes, and pre-eclampsia), greater adiposity, postpartum weight retention, and cardiovascular disease and long-term obesity (2, 3).

In order to complete a healthy and high quality pregnancy period, it is necessary that the physiological needs are met, the balance of the vital deposits is kept in balance, the baby reaches the potential weight gain and enough nutrients are stored. For this, eating habits is important during pregnancy (1).

There are a number of food safety issues that apply to women before and during pregnancy. Food hygiene is important during pregnancy, and pregnant women avoid certain foods (e.g. mould-ripened and blue-veined cheeses) in order to decrease the risk of exposure to potentially harmful food pathogens, such as listeria and salmonella. Foods that are high in retinol (e.g. liver and liver products) are also harmful for pregnant women, as excessive intakes are toxic to the developing fetus. And intake of both alcohol and caffeine also cause some great risks (1).

Maternal nutritional status at the time of conception is an important determinant of fetal growth and development, and therefore a healthy, balanced diet is important before, as well as during, pregnancy. It is also important to try and attain a healthy bodyweight

prior to conception (BMI of 20–25), as being either underweight or overweight can affect both fertility and birth outcome (1).

During pregnancy, diets should be balanced in terms of macronutrients and micronutrients. The daily energy requirements for healthy women of normal weight and who have a moderately active lifestyle, increase during pregnancy and are based on the trimester of the fetus (4).

As well as following a healthy, balanced diet during pregnancy, staying physically active is also important, to promote general health and well-being, and help prevent excess maternal weight gain (1).

This study was conducted in order to determine the nutritional status of 100 pregnant women living in Pendik/Istanbul by evaluating their nutritional knowledge levels and nutritional choices



2. GENERAL INFORMATION

2.1. IMPORTANCE OF NUTRITION DURING PREGNANCY

Pregnancy is an anabolic process and a woman's normal nutritional requirement increases during pregnancy to meet the needs of the growing fetus and the maternal tissues associated with pregnancy. Since the nutritional status of the expectant mother is one of the most important determinants affecting pregnancy outcomes. Good maternal nutrition is important for the health and reproductive performance of women and the health, survival, and development of their children (5).

The study by Mora and Nestel showed that out of 200 million pregnant women each year, many of them suffer from nutritional deficiencies and these nutritional problems affect a woman's and her newborn infant's quality of lives (6).

2.1.1. Importance of Nutrition for the Mother

Nutrition in pregnancy also affects maternal health as well as fetal health (7). Therefore to have optimal maternal health as well as perinatal outcome, nutrition in pregnancy should be well-maintained. A study on dietary intake of expectant mother revealed that proper dietary balance of mother's diet is necessary to ensure sufficient energy and nutrient intake for adequate growth of the fetus without depleting maternal stores and damaging mother's own tissues to maintain her pregnancy(8).

Care must be given to the feeding of women at early ages and periods, in order to ensure that they are healthy. Characteristics such as age, activity level of mother candidates affect nutritional requirements (9).

2.1.2. Importance of Nutrition For The Fetus

Proper diet during pregnancy is one of the conditions of correct fetal development. Increased demand for energy and nutritive substances is connected with growth of mother's tissue mass and also with growth of fetal mass and afterbirth (10).

Adequate and balanced nutrition affects both the mental and physical health of the baby positively. It has been proved through research that children of adequate and balanced nutrition are healthier than their inadequate and unbalanced diet (9).

Problems that may occur in the baby due to inadequate and unbalanced diet habits of the mother during pregnancy such as premature birth, low birth weight infant, stillbirth, death in early days of birth and congenital malformations (11,12).

2.2. GAINING WEIGHT DURING PREGNANCY

Pregnancy is a physiological condition in which a marked increase in body weight occurs over a short period of time. An optimum weight gain over the course of pregnancy, as recommended by the Institute of Medicine (IOM), is one that generates a healthy newborn. Optimum weight gain also ensures sufficient postpartum maternal fat stores to support lactation without increasing obesity risk (13). Maternal prepregnancy weight and the weight gained during pregnancy influence birth weight (14).

The reasons for the weight gain during pregnancy are maternal growth with maternal products such as fetus, amniotic fluid and placenta; enlargement of blood and extracellular fluid, growth in uterus and mammary glands (15).

Inadequate gestational weight gain increases the risk of (12);

- Morbidity and mortality rate in newborn
- Congenital malformations
- Premature birth, stillbirth, death in the first days of life
- Preterm delivery and low birth weight infants

BMI = Weight (kg) / Height (m²)

Table 2. 1. Recommended Weight Gain Ranges for Pregnant Women

BMI	Recommended Weight Gain (kg)
Low (BMI <20)	12.5 – 18.0
Normal (BMI 20.0 – 24.9)	11.5 -16.0
Overweight (25.0 – 29.9)	7.0-11.5
Obese (BMI ≥ 30)	At least 7.0

It is expected that women who are overweight before pregnancy receive 7 to 12 kg and those who are weak have to gain 15 to 20 kg (9).

2.3. NUTRITIONAL NEEDS DURING PREGNANCY

2.3.1. Calorie

Calorie defined as ; 1 gr water releases the amount of heat needed to raise the temperature by 1°C (9).

In the diet recommended energy need in pregnancy does not change at first trimester. A daily increase of 300 calories is recommended in the second and third trimester (17).

Low-energy nutrition affects fetal growth as well as reducing the use of micronutrients. Inability to fully meet the energy requirement, especially in pregnancy, leads to the lack of micronutrients (18).

2.3.2. Carbohydrates

Carbohydrates are one of the most common nutrients in our food and provide energy to the body(7,19). Balanced diet, 55-60% of daily energy is provided from carbohydrates (7). If the total calorie does not meet the demand, the body uses proteins for energy. For this reason proteins can not be used in their essential tasks. Pregnant women should also be informed to have nutritious snacks in addition to three large meals so that they can sustain normal blood sugar levels. The need for carbohydrates and calories has increased especially in the last two trimester. Carbohydrate intake allows weight gain, fetus, placenta and other maternal tissues to develop. A minimum of 150 gr of carbohydrate per day is recommended. However, more carbohydrate intake is needed to meet calorie needs during pregnancy (17).

2.3.3. Proteins

Proteins are the basic structure of the cells that make up our body. The developing fetus needs protein in pregnancy in order to provide amino acids of growing blood volume, growing mammary tissues such as breast and uterus. Protein also contributes to the body's energy metabolism (17). Protein needs increase during pregnancy depending to the development and repair of the fetus, placenta, uterus and breasts. In addition, increased maternal blood volume requires additional protein. In the last 6 months of the pregnancy,

average 1 kg of protein is stored in body that means 5-6 gr per day (19). If dietary calorie intake is inadequate, proteins used to meet energy will not be used to grow (9,20) 12-15% of the daily energy needs to be supplied from the protein. Inadequate protein intake during pregnancy causes low birth weight. In the case of excessive protein intake, increases the number of premature birth and deaths of the fetus (21). The average daily protein requirement of a non-pregnant woman is 44-46 gram. the recommended protein during pregnancy is 30 grams more (22).

2.3.4. Fats

During pregnancy, all of the oils are absorbed by increased serum lipids, lipoproteins and cholesterol, and decreased elimination of fat from the intestines. Fetus fat deposits are about 2% in the middle of pregnancy and eventually rise to 12%. Vegetable oils contain unsaturated fatty acids, they are preferred more than animal oils containing saturated fatty acids. Pregnant women should be recommended low-fat foods such as lean meat, fish and chicken. The total amount of fat that a non-pregnant person will get per day is 2-3 tablespoons. This amount does not change during pregnancy (9). During pregnancy more unsaturated vegetable oils should be preferred than butter and other animal fats that have high cholesterol levels (23).

2.3.5. Minerals

Minerals are necessary for healthy growth and survival of the body (9,24). About 4 to 5% of the human body is made up of minerals (7, 17). Minerals are essential nutrients that help to produce energy from carbohydrates, fats and proteins. In addition, minerals act as a regulatory agent in many metabolic processes in the body.

Multimineral preparations are generally recommended to meet women's mineral needs in pregnancy. Except iron and folic acid, a balanced and healthy diet can meet all vitamin and mineral requirements (17).

CALSIUM VE PHOSPHOR: Calcium (Ca) and phosphorus are the minerals necessary for the mineralization of fetal bones and teeth, in the production of energy, in cell formation and in the establishment of acid-base balance (7, 17). Ca is more absorbed and used in pregnancy because necessity of calcium increases. The calcium requirement in the last trimester is more than first because of fetal bone calcification. there is Ca absorption from gut during pregnancy. During pregnancy totally 30 gr. Ca is required (17).

The amount recommended during pregnancy for phosphorus is 1200 mg per day. When phosphorus and Ca are taken in equal amounts, their absorption increases. Phosphorus is supplied food which are rich in Ca and proteins, especially milk, eggs and meat(7, 17).

IRON: The main function of the iron is carrying oxygen. Iron needs during pregnancy increase because of fetal and placental growth and maternal blood volume increase (25). While the daily iron requirement of non-pregnant women is about 1 mg, this need is increased up to 6-7 mg per day in pregnancy (26). The main reason for anemia during pregnancy is low iron deposits (17 21). Anemia may also occur with inadequate intake of foods such as vitamins B6, B12, folic acid, ascorbic acid, zinc and copper. Malnutrition, frequent pregnancy and women with previous history of anemia constitute a risk group for anemia (17).

During the first 4 months of pregnancy, iron requirement is low, so iron is not necessary during this period (19).

IODINE: The iodine is the most important compound of thyroid hormones that regulates growth, division and metabolism. Iodine deficiency in pregnancy causes inadequate secretion of fetal thyroid hormones. This causes the fetus to stop physical and mental development. Children of mothers with insufficient Iodine have a risk for cretinism, mental deficiency, spastic motor impairment, muscle weakness, speech difficulty, or deafness and dumbness. Iodine deficiency can be prevented by the use of iodized salts.

Daily iodine requirement in pregnancy is 175 micrograms (7, 17,21).

An adult human's body contains an average of 20-30 mg of iodine. Of these, 75% are in the thyroid gland, the remaining blood, the milk glands that secrete milk, the gastric mucosa and other tissues (7).

SODIUM: Regulation of metabolism, fluid and acid-base balance is largely dependent on sodium ions (7, 17). Extra salt is needed during pregnancy because of sodium content of fetal, placenta, amniotic fluid, plasma and edema fluid but excessive consumption should not be allowed (17). The sodium requirement of 2-4 g per day can be met by the salt added during cooking (7, 17).

ZINC: Zinc is an important mineral for normal growth, enzyme construction and immune system (9). An adult human body has an average of 2-3 g of zinc (7). If diet is sufficient in terms of protein and calories, it also provides adequate intake of zinc. Zinc-rich foods; meat, liver, cheese, walnuts, almonds, dried beans, wheat, mushrooms and shellfish. The absorption of zinc from animal products is higher (17).

MAGNESIUM: Magnesium is a key factor in cell metabolism and structural growth. It is found together with calcium and phosphorus in bone and teeth. Magnesium in body fluids helps to maintain osmotic pressure and acid-base balance. Magnesium deficiency can lead to neuromuscular dysfunction (17,21).

Magnesium prevents the formation of muscle cramps in pregnancy (7). Magnesium sources; almonds, walnuts, nuts, cacao, cereal products, green leafy vegetables, dried legumes, oil seeds and teaspoons (9, 17, 21).

POTASSIUM: After the first half of the pregnancy, the potassium concentration in the maternal plasma decreases by an average of 0.5mEq / L. Potassium deficiency may cause prolonged nausea and vomiting, hypokalemia and metabolic alkalosis (19).

SELENIUM: It is a substance in the structure of the enzymes used to remove toxic free radicals in the body. Intake is needed during pregnancy (15).

FLORUINE: Dentists recommend 2.2 milligrams of fluoride per day in pregnancy in order to be strong baby's teeth. This information does not have a complete scientific explanation (15).

COPPER: Most enzymes involved in the healthy process of metabolism contain copper in their structures. For this reason, copper is one of the substances that play a key role in energy production. Copper deficiency is uncommon during pregnancy because of increasing the protein substance which include (15).

MANGANESE: An adult has averagely 12-20 mg of manganese in his body (7). It functions as a cofactor for enzymes such as the polysaccharide and the glucosyltransferase necessary for the synthesis of glucoproteins. Manganese deficiency has not been observed in adult supplementantion during pregnancy is not indicated (19).

2.3.6. VITAMINS

Vitamins are the basic ingredients that affect the organism to grow, develop and live well (17). Vitamins are essential for growth, nerves, digestive tract development and other nutrients to be used in the body (7, 24). They are rarely found in foods and are not synthesized sufficiently on the body. A balanced diet meets all the vitamins that body needs. There is no need to take additional vitamins (17). It is controversial whether regular vitamin use is necessary in pregnancy except some special cases. All of the vitamins needed during pregnancy can be taken through regular diet (15). The use of high doses of vitamins in pregnancy, especially vitamin A, D, C, B6 adversely affect the fetus.

Besides taking a high dose of a vitamin can prevent the use of other vitamins by the body. Vitamins are classified according to their solubility. A, D, E, K are fat soluble vitamins and are stored in the liver.

Because they are not thrown by urine, these vitamins are toxic. Toxicity indication;

nausea, GIS disorder symptoms, dryness, cracking and hair loss. It has been reported that excessive use of vitamins A and D in pregnancy is teratogenic to the fetus (9, 17).

2.3.6.1. Fat Soluble Vitamins

VITAMIN A (RETINOL): Vitamin A is essential for the development of epithelial tissue, bones and teeth surrounding the body and organs, the development of health, growth, visual and reproductive events and resistance to diseases. Vitamin needs do not increase in pregnancy. It has been reported that excessive intake of vitamin A leads to fetal eye, ear and bone malformations, cleft palate renal anomalies and central nervous system damage (9, 21). A vitamin sources; dark green, yellow, orange vegetables and fruits, liver, milk yolk, carrot, apricot, butter and margarin (9, 21, 23).

VITAMIN D: The most important role of vitamin D is the absorption and utilization of calcium and phosphorus for the fetal skeletal development. Vitamin D is synthesized in the body by exposing 7 dihydrocholesterol found in the deep to sunlight. Staying in the sun for a short period of time helps to meet the need for vitamin D from sources such as fish and milk. The daily requirement of 5-10 micrograms is normally but it increases to 10 micrograms to meet the needs of the developing fetus in pregnancy. Vitamin D deficiency or inadequacy in pregnancy affects both mother and baby health (27). Symptoms; decrease in bone calcification, hypoplasia in tooth mine or intrauterine rickets. Excess intake of vitamin D is not about food. However, it concerns the taking of high-dose vitamin preparations. Over-dose cause fetal cardiac defects in pregnancy, especially aortic stenosis. Liver, milk, egg yolk and butter are the source of vitamin D (9, 21).

VITAMIN E: The main function of vitamin E is the integrity of the cell membrane and intracellular structure to keep protection of cell membrane and integrity of intracellular structures. This provides that all cells in the body are healthy. Vitamin E deficiency does not increase in pregnancy. The daily requirement varies between 5-30 mg. Soybean oil is

the richest source of vitamin E (9). Other vegetable oils, fatty seeds, soybean sprouts, green leafy vegetables, walnuts, nuts and eggs are other essential sources of vitamin E (9, 17, 21).

VITAMIN K: Vitamin K is a key factor for prothrombin synthesis which has a role in blood clotting. It is normally synthesized by *Escherichia coli* basil in the small intestines. Green leafy vegetables, liver and egg yolk are the main sources for vitamin K. Vitamin K normally requires 60 micrograms per day. This need does not increase in pregnancy. In a well-fed person, intake of K vitamins is usually sufficient. However, in the case of disease causing deterioration of fat absorption and long-standing antibiotic therapy, vitamin K insufficiency may occur (17).

2.3.6.2 Water Soluble Vitamins

Water-soluble vitamins are excreted in the urine, only a small fraction is stored. For this reason, they should be taken daily on diet. During pregnancy, the concentration of soluble vitamins decrease blood plasma of the maternal, but instead is found in the fetus at high concentrations (17).

VITAMIN C (ASCORBIC ACID): Requirement of vitamin C generally increase during pregnancy. The most important function of vitamin C is to shape and improve the connective and vascular tissue. Vitamin C requires for formation of collagen tissue. Collagenous tissue acts as a glue for cells to stick together. If ascorbic acid is deficient, it destroys the texture of the collagenous structure, cell functions are impaired and the cell is destroyed. Muscle weakness, capillary hemorrhage and even death may result.

Vitamin C is another known role of that protects against body infection, affect cholesterol metabolism and help the use of certain nutritional ingredients in the body. While maternal plasma vitamin C levels are gradually decreasing during pregnancy. Daily Vitamin C intake recommended as 60-75 mg for a normal adult (17). This need increases by 20% in pregnancy (19). This amount can be covered with a daily orange. Intake vitamin C is a flaky vitamins. During the processes such as cutting, peeling, crushing and drying, the air loses its activity of vitamin C which is oxidized with oxygen. Besides, it is very easily

dissolved in water, so it is easily destroyed during cooking. C vitamin sources are citrus fruits, tomatoes, strawberries, potatoes, broccoli and green leafy vegetables (17).

FOLIC ACID: Due to the increase in maternal erythropoiesis, due to fetal and placental development, folic acid requirement increases twice as much in pregnancy. Folic acid is directly related to maternal and child health, provides fetal growth and prevents macroscopic and megaloblastic anemia (9). Folic acid is important for cell proliferation, for the construction of blood cells and for the development of the baby's central nervous system (brain and spinal cord). Since baby's nervous system starts to develop very rapidly with the formation of more gestations, it is very important to be taken especially during the first weeks of pregnancy. Folic acid deficiency leads to Neural Tube Defects, which causes severe birth defects. The use of folic acid before pregnancy and during the first 3 months of pregnancy reduces the risk of neural tube defects. It is recommended that women planning pregnancy should use folic acid at 0.4 mg / day and risky women at 4 mg / day, starting at least one month before conception, and continue to use folic acid in the first trimester of pregnancy (9, 21, 28, 29). Deficiency of folic acid increases the likelihood of spontaneous abortion, fetal malformation and premature birth. Folic acid is found in many foods. Due to folic acid dissolve in water, it should be cooked carefully. If vegetables and meat cook with too much water causes loss of vitamins. Taking more vitamin A than daily necessity inhibits the absorption of folic acid (9). Folic acid sources are fresh, raw, frozen or cooked broccoli, cabbage, green beans, cauliflower, peas, okra, baked soybean, chickpea, kidney, brown bread, cereal, liver, fruit (21, 28).

VITAMIN B12: It concerns the development of maternal and fetal tissues. It is found only in animal sources. A pernicious anemia occurs when there is a congenital disability in the absorption of B12. Infertility is a complication of this type of anemia (17). At an advanced level, anemia and nervous system damage occur. Produced by bacteria flora of the intestines (21). Liver, sardines, eggs are the best sources of B12 (9).

VITAMIN B6: It acts like a coenzyme in amino acid metabolism. Affects the functioning of proteins (9). This is why the need during pregnancy increases (17). Liver, fish, eggs are the best sources of B6 (9, 21).

VITAMIN B1: Vitamin B1 is effective on the functioning of the heart, muscle and nervous system. Offal, dry legumes, cereals are good sources of vitamin B1 (9).

VITAMIN B2: It regulates the functioning of the relevant carbohydrates. It is aimed to regulate these vitamins. The best B2 sources are milk and dairy products, offal and meat (9).

Folic acid and iron are vitamins and minerals that should be taken in addition during pregnancy. Other vitamins and minerals can be taken by balanced diet. However, in order to avoid a possible vitamin and mineral deficiency, supplemental vitamins complex is recommended. Studies have shown an association between folic acid and neural tube defects, and 400 micrograms of folic acid per day has been found to reduce neural tube defects by 70% (19, 28).

2.4. FOOD GROUPS

Protein, fat, carbohydrate, vitamins and minerals necessary for feeding are provided with nutrients (7). Nutrients are different in terms of the nutrients and quantities they contain. For this reason, humans can collect nutrients by four groups in terms of their basic nutritive value. Daily diet contain nutrients from each group. Foods are divided into groups as meat and alternatives, milk and dairy products, cereals, vegetables and fruits (9).

2.4.1. Meat and Alternatives

This group includes foods such as meat, fish, poultry, eggs, meat, dried legumes, peanuts, peanut butter (9 17, 23). It is recommended that dry legumes be taken with animal proteins to increase protein value. Three portions a day are enough for this food group. Pregnants should meet at least one of the daily portions they receive from this group from animal proteins. Because some substances found in animal proteins (essential amino acids) are not found in plant proteins (7,9,17,30). Pregnant women are recommended to eat fish twice a week. The fish contains various fatty acids that are necessary for the development of the nervous system of the baby (7). However, there are some species of fish that must be avoided because of the high content of mercury. Due to the very high mercury content, the tuna fish and swordfish are not recommended more than once a week (9, 22).

2.4.2. Milk and Dairy Product

This group of foods contain milk and milk products, such as yoghurt, cheese, and residuum are the source of calcium and protein that make up the structure of bones and teeth (9, 17, 23, 30). 3-5 servings of any or a few of the foods are sufficient for daily calcium requirement. Milk and milk products are also rich in fat (7, 9, 17).

2.4.3. Grain Group

It is made up of grains such as bread, bulgur, pasta, rice, corn, noodle, tarhana, semolina, which are known as the basic energy sources (7, 22). It is enough to get 6-11 servings per day of any of the foods in this group (7, 9, 30).

2.4.4. Fruit and Vegetable Groups

This groups contains fresh vegetables and fruits. Vitamins and fibers found in vegetables and fruits which are important for pregnancy. Vitamin C in these foods is useful for the placenta. It protects the body from disease agents and facilitates the absorption of iron into the intestines. A certain amount should be taken every day because it is not stored in the body. Most of the vitamin C is lost in foods that are stored for a long time, cut and stuck in wait, or washed and cooked. For this reason, fresh and vitamin C-protected foods should be consumed (9).

2.4.5. Sugars

Eating too much sugar can lead to unbalanced feeding. Foods such as honey, molasses, jam and marmalade are included in this group (9). When sugar is craved in pregnancy, it should be taken occasionally (17). Dairy desserts should be preferred when dessert is craved (9).

Table 2.2. A portions Quantity of Some Nutrients

Food	Measure	Quantity
Milk, Yoghurt	1 water glass	200 g
Cheese	2 slices	50-60 g
Olive	5	15 g
Meatball	3	60-90 g
Meat Cubes	3-4 small pieces	30 g
Chicken, Fish	3-4 big pieces	90-100 g
Egg	2	100 g
Bread	1 small piece	25 g
Soup	1 bowl	-
Rice or Bulgur	1 small bowl	120-150 g
Legumes	1 small bowl	100-120 g
Potato	1 medium size	100 g
Apple	1 medium size	100 g
Orange	1 small size	100 g
Banana	1/2 medium size	60 g
Strawberry	10-15	100 g
Pear	1 medium size	100 g
Tomato	1 small size	100 g
Lettuce	8-10 leafs	100 g
Cucumber	1 small size	100 g
Green beans, Okra (cooked)	1 small bowl	120-150 g
Carrot	1 medium size	100 g
Pea (cooked)	1 small bowl	120-150 g

2.4.6. Water

Fluid balance of the body is very important. Approximately 60% of the human body is made up of water (31). Water is the most important element that comes after oxygen in human life. Water is necessary for the digestion and absorption of nutrients, transport to tissues, preservation of fluid balance in the body, the use of harmful wastes that are formed in the cells, and excessive heat generated in the body (7, 9, 17, 22, 32). Fluid intake is often overlooked as a nutrient. It is also important to take as much fluid as vitamins and minerals for a healthy pregnancy. A pregnant woman should drink an average of 8-10 glasses of water daily. The remaining liquid requirement need to be provided with milk and fruit (17).

If a woman has a high level of activity, a woman is living in a place with a high oxygen level or a high air temperature, and a high fiber diet that can cause constipation, the amount of water taken per day must also increase. In order to stretch the muscles and connective tissues that allow the baby to move down through the birth canal, a sufficient amount of fluid must be available on the body. Sufficient fluid intake makes the person more active, energetic and increases the concentration (17).

2.5. MATERNAL SMOKING AND ALCOHOL USE

Recent studies have shown that importance of lifestyle on pregnancy outcome, child's health both during childhood and adulthood as well as on maternal health (33, 34). This is all relevant to the concept of intrauterine programming, which states that exposure to certain environmental factors during pregnancy causes adaptation changes in the fetus, which may lead to its developmental disorders and an enhance in the risk for the occurrence of non-communicable chronic diseases at later life (35, 36, 34). Exposure to stimulants or substance use for example drinking alcohol or cigarette smoking, both actively and passively, are among environmental factors that cause adaptation changes in human body (36, 37). Alcohol crosses placental barrier and is metabolized 2-fold slower by the fetus as compared to the mother and it has stronger teratogenic effect occurs between the 1st and 8th week of gestation. However, alcohol has negative effects throughout the period of pregnancy and depends on the ingested dose and frequency of intoxication. Alcohol enhances the risk of abortion, occurrence of fetal alcohol syndrome (FAS), alcohol-related birth defects (ARBD) as well as alcohol-related neurodevelopmental disorders (38, 39). In addition, tobacco use, both active and passive, increase the level of carbon monoxide and nicotine in the blood of the mother and fetus. Nicotine diminish blood flow with the maternal-placental circulation, which enhances the risk of IUGR (intrauterine growth retardation) and premature separation of the placenta. There is a clear association between the smoking cigarettes, passive or active, and the occurrence of low birth weight (<2500 g). Smoking cigarettes during pregnancy causes ectopic pregnancy, preterm placenta abruption, preterm birth, which alone causes more infant deaths than any other known cause. The most severe result of smoking tobacco during pregnancy is intrauterine fetus death (40, 39, 37). Cigarette smoke inhaled by the mother get into fetal circulation and cause many disorders, such as tachycardia, tachyarrhythmia and a decline in immunity. Children, who have been exposed to smoke of cigarette during fetal life are at higher risk for the development of cardiovascular disorders, allergies and asthma. On the other hand, substance use by mothers during pregnancy has been indicated to enhance the risk of psychiatric disorders, attention deficit hyperactivity disorder (ADHD) and poor school performance (39).

2.6. RISK FACTORS DURING PREGNANCY

2.6.1. Anemia

Anemia indicates that the level of hemoglobin in the blood is below the normal limit (41,42). The hemoglobin level is less than 11 g / dl in the first and third trimester and less than 10.5 g/dl in the second trimester are called gestational anemia (41). Symptoms of anemic pregnancies are palpitations, dizziness, fatigue, pale color on the lips and lower eyelids. While the infant starts to fill the iron deposits, especially since from the second half of the pregnancy, the risk of anemia increases. For this reason it is recommended that the foods should be taken rich with iron, along with foods containing vitamin C which increases their absorption from the intestines. Consumption of drinks such as tea, coffee, cola together with meals causes anemia (9).

In a study by Aytuğ et al. pregnancy training was found to have a significant effect on the knowledge level of the pregnant women but it was also found to be inadequate to prevent the development of anemia (43).

In a study conducted by Göker et al., the hemoglobin level of %23 of participants is lower than 11 g / dL and 30.4% of pregnant women of hematocrit levels found to be below than 33% (44).

2.6.2. Preeclampsia, Eclampsia

The common name of the disease called pregnancy poisoning. Preeclampsia is not really poisoning, and the underlying problem is; plesantinin is not able to feed the baby with excessive constriction of fine curved arteries that lie on the cervical bed (45). Preeclampsia is a serious disease that can cause infant and maternal deaths with symptoms such as high blood pressure, hand foot and face swelling (edema), excessive amount of protein excretion in the urine (45).

Preeclampsia indicates after the 20th week of pregnancy, the systolic blood pressure is observed at 140/90 mmHg and protein appears in the urine. This often accompanies with edema. It can be said that the cause is vascular bed disorder. The underlying problem is; plesantan can not feed the baby with excessive narrowing of the fine curved arteries that lay the uterus bed. In pregnancy follow-ups, blood pressure increases after 20th gestational week of mother who has normal blood pressure, it is called preeclampsia if edema and protein leakage accompany idiopathic. This is called eclampsia if the epileptic seizures that we call convulsions are added (45).

Causes and Frequent Cases of Preeclampsia;

- First pregnancy
- Under 18 years old and over 35 years old pregnancy
- Twin pregnancy
- Mothers with hypertension in previous pregnancy
- Gestational diabetes and latent diabetes
- Mothers with chronic kidney disease
- Mother with autoimmune disease (such as Lupus)
- Pregnancy with hydronephrosis called hydrops fetalis
- Mothers who gave birth to four or more
- Obese mothers (45).

2.6.3. Pica (Earth Eating)

Pica has heard that pregnant woman wants to eat excessive amounts of food that is inappropriate from a cultural and developmental point of view, and usually occurs in the first trimester of pregnancy. These are materials such as soil, clay, starch, ice, burnt match, wall paint, etc., which are not edible (17).

It has been determined that this habit develops mainly in the anemia of iron deficiency. Complications related to Pica; excessive constipation associated with excessive overcrowding of soil, rapid weight loss due to malnutrition, parasitic infections related to soil contamination, poisoning with wall coatings, and disturbances (17).

In a study by Irge et al; 14.9 % of the pregnant women were determined to be prone to eating clay, soil or gypsum (46).

2.6.4. Gastrointestinal Problems

GI complaints are common in pregnancy. With pregnancy gastrointestinal mucosal secretions and absorption change and motility can be affected. The main reason for the variability is thought to be increased pregnancy hormones (47). Changes of gastrointestinal functions may occur during pregnancy. These changes do not pose a big problem. With minor changes in diet, it may be possible to get rid of these discomforts. Many women experience problems such as nausea and vomiting during the first months of their pregnancy. Avoiding spicy and oily foods, small changes such as feeding with easy-to-digest foods that will help to overcome this problem (7).

Heartburn is also a common problem in pregnancy. A burning sensation occurs when the stomach contents return to the esophagus. This is usually due to the growth of the uterus. By controlling the type of food and the amount of food, this problem can be prevented (7).

Constipation occurs when the expanding uterus compresses the intestines and the smooth muscles of the intestinal system relax with hormonal effects. Iron preparations also cause constipation. To solve this problem, it is recommended to add enough liquid and fibrous food to the diet (7, 48).

2.6.5. Eating Disorders

Anorexia nervosa and bulimia are serious eating disorders that threaten the life of the mother and fetus, such as electrolyte imbalance and organ damage leading to malnutrition and fetal growth retardation. Anorexia nervosa is a condition in which the person is extremely afraid of gaining weight. Excessive diet, excessive exercise and excessive methods to lose weight such as laxative and diuretic use or vomiting. Amenorrhea and infertility coexist because of the balance in the body disorder is totally impaired.

Whether or not there is an eating disorder at the beginning of the pregnancy should be investigated. Women who are under normal weight before pregnancy or who express great fluctuations in their weight should pay attention to this problem (17).

2.6.6. Gestational Diabetes

Gestational diabetes is characterized with high blood sugar that develops during pregnancy. Pregnant women with gestational diabetes can not produce enough insulin which a hormone that helps control blood sugar levels. Gestational diabetes mellitus (GDM) affects 5–10% of pregnant women, especially GDM is a higher prevalence in obese women (49). Gestational diabetes cause health problems for maternal and also fetus. Children exposed *in utero* to GDM are at higher risk of neurodevelopmental difficulties, including attention deficit hyperactivity disorder, impaired motor development and autism spectrum disorders (50).

Symptoms of Gestational Diabetes;

- increased thirst
- needing to pee more often than usual
- dry mouth
- Tiredness

Gestational diabetes mellitus (GDM) is typically diagnosed approximately 24-28 weeks using an oral glucose tolerance test (51).

There are some factors that cause GDM. These factors are, a family tendency, high body mass index, advanced age and ethnic origin. And Other risk factors are maternal factors (high reproduction rate, weight gain during pregnancy, etc.) and factors relating to pregnancy (multiple pregnancies, hypertension during pregnancy, etc.) (52, 53).

3. MATERIAL AND METHOD

3.1. Material

This study was carried out in order to determine the assesment of nutritional status of pregnant women who consult to gynecology policlinic of Özel Yüzyıl Hospital in Istanbul.

The sample size of the study will be determined by 100 pregnant women who consult to gynecology policlinic for he first time between 01.11.2017 – 31.12.2017. participants were selected as 100 women who are pregnant.

The exclusion criteria of the study were: age under 18, health problems (eg. Gestational diabetes mellitus, intrahepatic cholestasis of pregnancy, pregnancy induced hypertension), multiple gestation and following elimination diets (eg. gluten free diet). Questionnaire was implemented. The last question of the questionnaire is related to the frequency of food consumption.

3.2. Method

The General Nutrition Information Questionnaire was used to confirm the purpose of the thesis presented in the study. The questionnaire consist of 18 questions in total. Age, education level, working status, monthly income, number of pregnancies, status of change in eating habits during pregnancy, smoking status, control status on their own health, the idea of completing the pregnancy process with a dietician, status of getting information about nutrition during pregnancy, , breakfast habits, snacks, meals, meal skipping status, daily water consumption and eating with whom the food was questioned. And the last question of the questionnaire is related to tha frequency of food consumption.

3.3 Statistical Method

For the prospective cohort study, data were collected using a questionnaire that provided information on the general characteristics of the pregnant women, their eating habits and their knowledge of the contents of food.

Statistical analyses were performed using the SPSS program (IBM SPSS Statistics 24). Frequency tables and descriptive statistics are used in the interpretation of findings.

In the analysis of the relations between two qualitative variables, " χ^2 -cross tables" were used according to the expected value levels (Pearson, Yates-continuity correction).

RESULTS

Table 4.1. Distribution of Findings Related of research

Variable (N=100)	N	%
Education level		
Primary school	37	37,0
High school	43	43,0
University	20	20,0
Working condition		
Be in employment	26	26,0
Not be in employment	74	74,0
Monthly income		
1000-2000 TL	31	31,0
More than 2000 TL	69	69,0
Which pregnancy		
First	51	51,0
Second	24	24,0
Third and over	25	25,0
Changes in eating habit		
Yes	63	63,0
No	37	37,0
Smoking		
Yes	12	12,0
No	88	88,0
Having control over your own health		
More	9	9,0
Moderate	66	66,0
Less	25	25,0
Completing the pregnancy process with dietitian		
Yes	19	19,0
No	51	51,0
Not sure	30	30,0
Having nutritional knowledge		
Yes	38	38,0
No	62	62,0
Source of information about nutrition		
Book and encyclopedia	3	3,7
Family elders /neighbour /friend	24	29,3
Newspaper /television /internet	38	46,3
Health professional (doctor / dietitian)	17	20,7

It was determined that 43 persons (43.0%) were in high school education level and 26 persons (26.0%) were working. 69 of them (69.0%) had a monthly income of more than 2000 TL and 51 of them (51.0%) were the first pregnancies. 63 participants (63.0%) changed eating habits and 88 (88.0%) were not smoking. 66 people (66.0%) were found to have moderate control over their own health. It was determined that 51 people (51.0%) did not complete the pregnancy period with dietician, 62 people (62.0%) did not get information about nutrition and 38 people (46.3%) received information about nutrition with newspaper / TV / internet.

Table 4.2. Distrubition of Findings Related to Research

Variable (N=100)	N	%
Breakfast habit		
Yes	81	81,0
Sometimes	10	10,0
No	9	9,0
Snack habit		
Yes	43	43,0
Sometimes	37	37,0
No	20	20,0
Skip snack meals		
Yes	45	45,0
No	22	22,0
Sometimes	33	33,0
Number of meals		
Two	28	28,0
Three	47	47,0
More than three	25	25,0
Daily water consumption (lt)		
Less than 1 litre	30	30,0
1-2 litre	39	39,0
More than 2 litres	31	31,0
Person who eats together		
At home with family	81	81,0
Outside with friends	6	6,0
Alone	13	13,0

Table 4.2. was determined that 81 (% 81.0) of the individuals were breakfast habits, 43 (43.0%) were snack meal habits, and 45 (45.0%) skipped snack meals. It was determined that 47 people (47.0%) consumed three meals a day, 39 people (39.0%) consumed 1-2 liters of water a day, and 81 people (81.0%) eat together with their family at home.

Table 4.3. Distribution of Findings According to the Foods Consumed by the Participant

Değişken (N=100)	n	%
Milk consumption		
1 to 4 times a day	38	38,0
1 to 6 times a week	27	27,0
Once every 15 days to never	35	35,0
Cheese consumption		
1 to 4 times a day	89	89,0
1 to 6 times a week	7	7,0
Once every 15 days to never	4	4,0
Red meat consumption		
1 to 4 times a day	6	6,0
1 to 6 times a week	67	67,0
Once every 15 days to never	27	27,0
White meat consumption		
1 to 4 times a day	6	6,0
1 to 6 times a week	59	59,0
Once every 15 days to never	35	35,0
Fish consumption		
1 to 4 times a day	1	1,0
1 to 6 times a week	56	56,0
Once every 15 days to never	43	43,0
Legumes		
1 to 4 times a day	8	8,0
1 to 6 times a week	66	66,0
Once every 15 days to never	26	26,0
Oil seeds		
1 to 4 times a day	44	44,0
1 to 6 times a week	29	29,0
Once every 15 days to never	27	27,0
Egg consumption		
1 to 4 times a day	64	64,0
1 to 6 times a week	26	26,0
Once every 15 days to never	10	10,0
Green leaved vegetable consumption		
1 to 4 times a day	40	40,0
1 to 6 times a week	52	52,0
Once every 15 days to never	8	8,0
Other vegetables		
1 to 4 times a day	20	20,0
1 to 6 times a week	71	71,0
Once every 15 days to never	9	9,0
Fruit consumption		
1 to 4 times a day	81	81,0
1 to 6 times a week	15	15,0
Once every 15 days to never	4	4,0

Table 4.3 was showed that 38 pregnant women (38,0%) consumed 1 to 4 times a day milk, 89 of them (89,0%) consumed 1 to 4 times a day cheese, 67 participants (67,0%) consumed 1 to 6 times a week level red meat and 59 participants (59,0%) consumed 1 to 6 times a week level white meat. 56 person (56.0%) consumed 1 to 6 days a week fish and 66 (66.0%) were legumes consumption 1 to 6 times a week . It was also determined, 44 participants (44.0%) consumed 1 to 4 times a day fat seeds, 64 person (64.0%) consumed 1 to 4 times a day eggs, 52 women (52.0%) consumed green leafy foods 1 to 6 times a week, while 71 participants (71.0%) consumed 1-6 times a week other vegetables 81 of them (81.0%) consumed 1 to 4 times a day fruit.

Table 4.4. Distribution of Findings According to the Foods Consumed by the Participants

Variable (N=100)	N	%
White bread consumption		
1 to 4 times a day	77	77,0
1 to 6 times a week	2	2,0
Once every 15 days to never	21	21,0
Bulghur consumption		
1 to 4 times a day	8	8,0
1 to 6 times a week	71	71,0
Once every 15 days to never	21	21,0
Rice and pasta consumption		
1 to 4 times a day	15	15,0
1 to 6 times a week	67	67,0
Once every 15 days to never	18	18,0
Convenience food consumption		
1 to 4 times a day	11	11,0
1 to 6 times a week	36	36,0
Once every 15 days to never	53	53,0
Oil consumption		
1 to 4 times a day	94	94,0
1 to 6 times a week	3	3,0
Once every 15 days to never	3	3,0
Fat consumption		
1 to 4 times a day	35	35,0
1 to 6 times a week	23	23,0
Once every 15 days to never	42	42,0

Honey-jam-molasses consumption		
1 to 4 times a day	47	47,0
1 to 6 times a week	26	26,0
Once every 15 days to never	27	27,0
Yoghurt consumption		
1 to 4 times a day	62	62,0
1 to 6 times a week	30	30,0
Once every 15 days to never	8	8,0
Kefir consumption		
1 to 4 times a day	4	4,0
1 to 6 times a week	1	1,0
Once every 15 days to never	95	95,0
Brown bread		
1 to 4 times a day	21	21,0
1 to 6 times a week	6	6,0
Once every 15 days to never	73	73,0
Carbonated beverage		
1 to 4 times a day	6	6,0
1 to 6 times a week	10	10,0
Once every 15 days to never	84	84,0

77 people (77.0%) consumed white bread 1 to 4 times a day, 71 (71.0%) participants consumed 1 to 6 times a week bulgur, 67 of them (67.0%) consumed 1 to 6 times a week rice / pasta and 53 women (53.0) consumed convenience foods once every 15 days to never. 94 of them (94.0%) consumed 1 to 4 times a day oil and 42 of them (42.0%) consumed once every 15 days to never fat. 47 pregnant women (47.0%) consumed 1 to 4 times a day honey, jam, molasses, 62 of them (62.0%) consumed yoghurt 1 to 4 times a day while 95 of them (95.0%) consumed kefir once every 15 days to never. 73 participants (73.0%) consumed once every 15 days to never brown bread and 84 of them (84.0%) consumed carbonated beverages once every 15 days to never.

Table 4.5. Analyzing of Some Findings Related to Research

Variable (N=100)	Education Level			p*
	Primary school (n=37)	High School (n=43)	University (n=20)	
Smoking				
Yes	3 (%8,1)	5 (%11,6)	4 (%20,0)	0,417
No	34 (%91,9)	38 (%88,4)	16 (%80,0)	
Having nutritional knowledge				
Yes	10 (%27,0)	15 (%34,9)	13 (%65,0)	0,017
No	27 (%73,0)	28 (%65,1)	7 (%35,0)	
Kefir consumption				
1 to 4 times a day	1 (%2,7)	2 (%4,7)	1 (%5,0)	0,806
1 to 6 times a week	-	1 (%2,3)	-	
Once every 15 days to never	36 (%97,3)	40 (%93,0)	19 (%95,0)	

* "X2-cross tables" were used according to the expected value levels when the relations between the two qualitative variables were examined.

There was no statistically significant relationship between education level and smoking status and kefir consumption status ($p > 0,05$).

A statistically significant relationship was found between education level and having nutritional knowledge in pregnancy ($\chi^2 = 8,257$; $p = 0.017$). 27 primary school graduate participants (73.0%) and 28 high school graduate participant (65.1%) did not get nutrition information during pregnancy. 13 of them who graduate university (65.0%) were found to have nutrition knowledge in pregnancy. It has been determined that those who are primary and high school graduates do not get nutrition information in pregnancy while those who are university graduates get nutrition information.

Table 4.6. Analyzing of Eating Habits

Variable (N=100)	Working condition		p*
	Be in employment (n=26)	Not be in employment (n=74)	
Skipping meals status			
Yes	14 (%53,8)	31 (%41,9)	0,506
No	4 (%15,4)	18 (%24,3)	
Sometimes	8 (%30,8)	25 (%33,8)	
Person who eats together			
At home with family	16 (%61,5)	65 (%87,8)	0,000
Outside with friends	6 (%23,1)	-	
Alone	4 (%15,4)	9 (%12,2)	

* "X²-cross tables" were used according to the expected value levels when the relations between the two qualitative variables were examined.

There was no statistically significant relationship between working status and skipping meals status ($p > 0,05$). A statistically significant relationship was found between working status and person who eats together situation ($\chi^2 = 18,874$; $p = 0,000$). It was determined that 16 of the working people (61.5%) were eating at home with their family members, while those who were not working had never eaten outside with their friends.

Table 4.7. Analyzing of Some Findings Related to Research

Variable (N=100)	Which pregnancy			p*
	First pregnancy (n=51)	Second pregnancy (n=24)	Third and over pregnancy (n=25)	
Change in nutritional habit				
Evet	37 (%72,5)	14 (%58,3)	12 (%48,0)	0,099
Hayır	14 (%27,5)	10 (%41,7)	13 (%52,0)	
Having nutritional knowledge				
Evet	23 (%45,1)	6 (%25,0)	9 (%36,0)	0,240
Hayır	28 (%54,9)	18 (%75,0)	16 (%64,0)	

* "X2-cross tables" were used according to the expected value levels when the relations between the two qualitative variables were examined.

There was no statistically significant relationship the status of the pregnancy of the individuals and the state of changes in nutritional habit and having nutritional knowledge status ($p > 0,05$).

Table 4. 8. Analyzing of Breakfast Habit

Variable (N=100)	Breakfast habit			p*
	Yes (n=81)	Sometimes (n=10)	No (n=9)	
Egg consumption				
1 to 4 times a day	59 (%72,8)	4 (%40,0)	1 (%11,2)	0,000
1 to 6 times a week	16 (%19,8)	6 (%60,0)	4 (%44,4)	
Once every 15 days to never	6 (%7,4)	-	4 (%44,4)	
Snack meal habit				
Yes	35 (%43,2)	4 (%40,0)	4 (%44,4)	0,658
Sometimes	32 (%39,5)	3 (%30,0)	2 (%22,2)	
No	14 (%17,3)	3 (%30,0)	3 (%33,4)	

*"X2-cross tables" were used according to the expected value levels when the relations between the two qualitative variables were examined.

There was a statistically significant relationship between breakfast habit and egg consumption status ($\chi^2 = 24,884$; $p = 0,000$). It was determined that 59 pregnant women who had good breakfast habit (72.8%) consume egg 1 to 4 times a day, 6 women who had breakfast sometimes(60%) consume egg 1to 6 times a week.

There was no statistically significant relationship between breakfast habit and snack meal habit ($p > 0,05$).

Table 4.9. Analyzing of Having over Control Own Health

Variable (N=100)	Having control over your own health			p*
	Much (n=9)	Intermediate (n=66)	Few (n=25)	
Smoking				
Yes	-	4 (%6,1)	8 (%32,0)	0,002
No	9 (%100,0)	62 (%93,9)	17 (%68,0)	
Convenience food consumption				
1 to 4 times a day	-	6 (%9,1)	5 (%20,0)	0,340
1 to 6 times a week	4 (%44,4)	26 (%39,4)	6 (%24,0)	
Once every 15 days to never	5 (%55,6)	34 (%51,5)	14 (%56,0)	
Daily water consumption(lt)				
Less than 1 litre	3 (%33,3)	3 (%30,3)	7 (%28,0)	0,181
1-2 litre	1 (%11,1)	30 (%45,5)	8 (%32,0)	
More than 2 litres	5 (%55,6)	16 (%24,2)	10 (%40,0)	

*"X2-cross tables" were used according to the expected value levels when the relations between the two qualitative variables were examined.

A statistically significant relationship was found between control status on own health and smoking status ($\chi^2 = 12,902$; $p = 0,002$). It has been determined that not all of the 9 individuals (100.0%) who have much control over their own health have smoked. It was found that 4 individuals (6.1%) with moderate control over their own health and 8 individuals with modest control (32.0%) were smoking cigarettes. It has been determined that those who have low control over their own health have a higher smoking rate than those with moderate levels of smoking.

There is no statistically significant relationship control of own health and the frequency of ready-to-eat food consumption and daily consumed water (lt) ($p > 0.05$).

Table 4.10. Analyzing of Relationship Between Montly Income and Go to Dietitian

Variable (N=100)	Monthly income		p*
	1000-2000 TL (n=31)	2000 TL and above (n=69)	
Completing the pregnancy process with dietitian			
Yes	6 (%19,4)	13 (%18,8)	
No	17 (%54,8)	34 (%49,3)	0,820
Not sure	8 (%25,8)	22 (%31,9)	

*"X2-cross tables" were used according to the expected value levels when the relations between the two qualitative variables were examined.

There was no statistically significant relationship between monthly income and completing the pregnancy process with dietitian ($p > 0,05$).

Table 4.11. Analyzing of Snack Habit and Fruit Consumption

Variable (N=100)	Fruit consumption			p*
	1 to 4 times a day (n=81)	1 to 6 times a week (n=15)	Once every 15 days to never (n=4)	
Snack habit status				
Yes	38 (%46,9)	3 (%20,0)	2 (%50,0)	0,013
Sometimes	26 (%32,1)	11 (%73,3)	-	
No	17 (%21,0)	1 (%6,7)	2 (%50,0)	

*"X2-cross tables" were used according to the expected value levels when the relations between the two qualitative variables were examined.

A statistically significant relationship was found between fruit consumption status and snack habit status ($\chi^2 = 12,710$, $p = 0,013$). It was found that 38 participants who consumed fruit 1 to 4 times a day (46.9%) had snack meal habit, 11 of them who consumed fruit 1 to 6 times a week (73.3%) had sometimes snack meal.

5.DISCUSSION

This study was carried out to identify the nutritional status of pregnant women. Our study showed while fruit, egg and milk consumption were 1 to 4 times a day, bulgur, meat and legume consumption were 1 to 6 times a week but kefir and brown bread were once every 15 days to never consumption (tablo3-4). In the studies of Fowles et al., meat, egg, legume and grain consumption were be sufficient but fruit and dairy product consumed insufficient among pregnant women (54). Also, study of Baysal et al., the study showed that intake of energy of pregnant women were provided by bread, bulgur, flour, sugar besides intake of meat, egg, dairy product consumption were lower than recommended. These studies have similarty with our results on the other hand some result were opposite.

As the education level of pregnant women increase, nutritional knowledge level also increase that is expected situation. This study supported that educational level of participants increase meanwhile level of having nutritional knowledge also increase(tablo 5). Yavuz et al., found similar results. the study reported at the same result (55).

While nutritional knowledge received from doctors, mostly at the study of Yavuz et al.,(55) our study showed that 46.3% of having nutritional knowledge have received information from newspaper- television-internet (tablo 1). The source of information about the nutrition of the pregnant women may affect the knowledge level of the pregnant women. The reliability of the information received from the source and the effectiveness of the information transfer is also important.

Recommended foods during pregnancy should be consumed at regular intervals and in the recommended amount (56). This tudy found that %37 of participants did not alter nutritional habit compared to pre-pregnancy (tablo 1). Few studies showed similar result. %44.3% of women were not modify nutritional habit (Arslan et al.) (57).Likewise, 18.4% of pregnants were not alter nutritional habits compared to pre-pregnancy (Sözeri et al.) (58).

The study of Arslan et al. revealed to consume 3 and more meals a day among 89.4% of participants (57). Otherwise, our results showed only 47% of pregnant women consumed 3 meals a day. This ratio was found to be lower than the other study.

Studies conducted in different cities of Turkey by Kublay et al., have yielded variable results for women, who smoke during pregnancy: 18% reported in *Izmir*, 17% in Sivas, 23% in Malatya, 16% in Eskişehir, 16% in Trabzon, 11.6% in Kocaeli (59). Our study demonstrated, 12% of pregnant women smoked (table 1). The results are similar to the literature. Our expectation is never any cigarette use during pregnancy.

Studies by Jaddoe et al. (60) also showed the negative impact of smoking during pregnancy on head and chest circumference of the newborns. Smoking tobacco increases the risk of bleeding and preterm birth, which is related to preterm placental abruption (61,62,63,64). Furthermore, smoking tobacco negatively affects the newborn health status and increases the risk of hypoxia and infections in the newborn (65). Smoking cigarette during pregnancy also increases the risk of the occurrence of birth defects, including heart defect, which was demonstrated in the present study as well as by other investigations (66, 67, 65).

The study of Erkkola has demonstrated that pregnant women who in 3. Trimester consume meat, fish and chicken insufficient amount while this study showed that its consumption is moderate amount (68).

Study by Ahmed showed %13.8 of pregnant women consume fruit 4-7 times on week, this study demonstrate %81 of women consume fruit more than once a day (69).

Ayaz and Kabaran by study has found out that monitoring of adequate and balanced nutrition by dietician with weight control from pre-pregnancy period can reduce risk of problems that may occur during pregnancy, also, this study showed 19% women thought completing the pregnancy process with dietitian (70).

Similar to this study, the study of Kadanalı et al. indicate that baby's birth weight is affected by many variables. Factors affecting birth weight in the worst way Knowing and

correcting the ideal birth of the baby perinatal morbidity as well as birth weight and mortality will significantly reduce the risk (71).

The study of Uzdil et al. accomplish that weight gain in pregnancy is important for maternal health as well as fetus development and healthy birth. Sufficient weight gain during pregnancy is required. Low birth weight below recommended leads to preterm births. Weight gain over the recommended weight leads to obesity and obesity-related pregnancy health problems. The gestation needs to be fed adequately and balancedly in terms of the energy and nutrients necessary for weight gain. The amount of food consumed should not be below the recommended amounts. Vitamins and minerals should be diversified by consuming nutrients from different food groups. Iron and folic acid are nutrients that increase the need for gestation. Increased blood volume of the mother, use of the fetus from the fetus's mother's spleen, iron deficiency due to mistake made in the feeding should be prevented with iron supplement. Folic acid deficiency resulting from fetal neural tube defect can be prevented by using folic acid supplement starting from the beginning of pregnancy. Calcium and vitamin D are important in protecting the fetal bone development and the mother's calcium deposits, as well as preventing tooth decay. Dietary supplementation should be used when sufficient calcium is not available with the foods (72). This study have also similarity.

Study that conducted by Taş et Al. remarked that adequate, healthy, balanced diet is necessary for continued maternal and fetal health. In this study, subjects with normal pre-pregnancy BMI and adequate weight gain during pregnancy follow-ups. we found a serious deficiency in micronutrient items. Daily intake of vitamins D, iron, folic acid and zinc, especially in the diet, was significantly lower than recommended levels. Following the pregnancy, the overall nutritional status, gestational weight gain, dietary macro nutrient content, and detailed micronutrient content should be assessed throughout the pregnancy from the preconceptional period. That it is necessary to educate, raise awareness of healthy nutrition of pregnant women and increase the variety of items rich in micronutrients in diet (73). The aim of this study is also in this direction.

The study of Bağbozan showed that pregnancy before the ideal weight of the mother reaching a pregnancy with a balanced diet, as suggested above, and taking vitamins, which are likely to be met by this diet and require increased vitamins, at the time recommended will be the most appropriate behavior for the health of the mother and the child (74). This result is also achieved in this study.

The study of Kangalgil resulted that the weight gain recommended during pregnancy is important for maintaining optimal health of newborns and for the formation of healthy societies. Regular weight training during pregnancy and giving more importance to nutrition education in pregnancy is required. Pregnant women should be trained in nutrition and body weight control. It is considered that more comprehensive studies are needed for a clearer understanding of the effects of newborn over total weight gain during pregnancy (75). This study have also similarity.

6. CONCLUSION

1. Pregnant women with higher levels of education are significantly more likely to receive nutrition information during pregnancy than those with lower levels of education ($\chi^2=8,257;p=0,017$).
2. Non-working participants have no eating habits outside
3. Pregnants who have breakfast habit also consume adequate egg. ($\chi^2 = 24,884; p = 0,000$).
4. Women who have much control over their own health have not smoke otherwise individuals who have low control over their own health have a higher smoking rate than those with moderate levels of control.
5. Most of participants who have snack meal habit consumed adequate fruit.
6. There was no statistically significant relationship between monthly income and completing the pregnancy process with dietitian ($p > 0,05$).
7. There was no statistically significant relationship between education level and smoking status ($p > 0,05$)

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Ethical Approval

For the research, approval was obtained from Yeditepe University Clinical Research Ethics Committee on 07.12.2017 that it is ethically and scientifically appropriate to conduct the study. Ethics committee approval number is 37068608-6100-15-1398.





T.C. YEDİTEPE ÜNİVERSİTESİ

Sayı : 37068608-6100-15-1398
Konu: Klinik Araştırmalar
Etik kurul Başvurusu hk.

07/12/2017

İlgili Makama (Dilara Aslınur Altınel)

Yeditepe Üniversitesi Sağlık Bilimleri Fakültesi Beslenme ve Diyetetik Bölümü Yrd. Doç. Dr. İskender Karaltı'nın sorumlu olduğu "**Özel Pendik Yüzyıl Hastanesi Kadın Doğum Polikliniğine Başvuran Gebelerin Gebelik Döneminde Beslenme Durumlarının Değerlendirilmesi**" isimli araştırma projesine ait Klinik Araştırmalar Etik Kurulu (KAEK) Başvuru Dosyası (1373 kayıt Numaralı KAEK Başvuru Dosyası), Yeditepe Üniversitesi Klinik Araştırmalar Etik Kurulu tarafından **06.12.2017** tarihli toplantıda incelenmiştir.

Kurul tarafından yapılan inceleme sonucu, yukarıdaki isimi belirtilen çalışmanın yapılmasının etik ve bilimsel açıdan uygun olduğuna karar verilmiştir (**KAEK Karar No: 765**).

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9. CIRRICULUM VITAE

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