

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

19 Jun 2026

### **Evaluation of the effect of nutritional education according to the national guidelines based on the pender model on gestational weigh gaining, pre-eclampsia, gestational diabetes and anthropometric indicators at birth in four groups of body mass index.**

#### **Protocol summary**

##### **Study aim**

The determine of the effect of nutritional education according to the national guidelines based on the pender model on gestational weigh gaining, pre-eclampsia, gestational diabetes and anthropometric indicators at birth in four groups of body mass index

##### **Design**

A controlled randomized clinical trial, in parallel, performed on at least 320 patients. There are at least 160 people in the intervention and control groups. In each group, at least 40 people are assigned to underweight, normal, overweight and obese.

##### **Settings and conduct**

Community health centers, medical centers and private clinics Based on stratified sampling, 15 health centers, 5 hospitals and 15 private offices will be selected. The intervention program for each individual includes four training sessions.

##### **Participants/Inclusion and exclusion criteria**

Inclusion: Single, physically and mentally healthy women, primiparous, TSH (0.13-4.16). Exclusion: Medical problems affecting body weight (untreated thyroid disease), type 1 or 2 diabetes mellitus , specific mental illness , smoking and drug addiction , nutritional deficiencies and problems, chronic disease , usage of drugs except supplements, Kidney disease, all anemias , having a special diet, BMI> 35,

##### **Intervention groups**

Pregnant women at 6-10 weeks that are devoted to one of underweight, normal, overweight and obese strata in intervention/control group (n=40). They will be educated to obey balance and diversity principles in nutrition, consider different food groups, and weight gain pattern. Also, each person receives especial nutrition education related to her BMI. The control group will also receive routine training assigned by health care providers based

on national dietary guidelines which may be provided by pamphlet or brochure.

##### **Main outcome variables**

Gestational weigh gaining, Pre-eclampsia, Gestational diabetes and anthropometric indicators at birth.

#### **General information**

##### **Reason for update**

##### **Acronym**

##### **IRCT registration information**

IRCT registration number: **IRCT20160120026129N2**

Registration date: **2021-10-26, 1400/08/04**

Registration timing: **registered\_while\_recruiting**

Last update: **2021-10-26, 1400/08/04**

Update count: **0**

##### **Registration date**

2021-10-26, 1400/08/04

##### **Registrant information**

##### **Name**

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##### **Recruitment status**

**Recruitment complete**

##### **Funding source**

##### **Expected recruitment start date**

2021-09-23, 1400/07/01  
**Expected recruitment end date**  
2024-03-19, 1402/12/29  
**Actual recruitment start date**  
2021-09-23, 1400/07/01  
**Actual recruitment end date**  
2024-07-22, 1403/05/01  
**Trial completion date**  
2024-08-22, 1403/06/01

### Scientific title

Evaluation of the effect of nutritional education according to the national guidelines based on the pender model on gestational weight gaining, pre-eclampsia, gestational diabetes and anthropometric indicators at birth in four groups of body mass index.

### Public title

Evaluation of the effect of nutrition education according to national guidelines on some complications of pregnancy and anthropometric indicators at birth.

### Purpose

Prevention

### Inclusion/Exclusion criteria

#### Inclusion criteria:

Single pregnancy, Healthy primiparous women (Physically and mentally) TSH (0.13-4.16 )

#### Exclusion criteria:

Medical problems affecting body weight (untreated thyroid disease Type 1 or 2 diabetes mellitus Specific mental illness Smoking and drug addiction Nutritional deficiencies and problems, Chronic disease Usage of drugs that interfere with the performance of the procedure or interfere with the study goals, such as drugs that affect blood sugar and gestational hypertension, except supplements which are prescribed by specialist or midwife. Kidney disease, All anemias including thalassemia minor, Having a special diet, Body mass index greater than 35, Problems such as hyperemesis gravidarom.

### Age

From **18 years** old to **35 years** old

### Gender

Female

### Phase

3

### Groups that have been masked

*No information*

### Sample size

Target sample size: **320**

Actual sample size reached: **320**

### Randomization (investigator's opinion)

Randomized

### Randomization description

Randomization method of participants is stratified randomization to reduce the possibility of heterogeneity due to pre-pregnancy body mass index in intervention and control groups as much as possible. Also, considering the sample size of less than 100 people in each class and also that pregnant mothers appear in the study for 6-10 weeks continuously and are not known before, it seems a suitable method. Therefore, for a

sample size of 320 people; there are four categories that are determined based on pre-pregnancy body mass index (underweight, normal, overweight and obese) and include at least 80 people (40 intervention and 40 control). Then, in each category with block randomization, 80 relevant people are placed in the intervention or control group. In this way, we have 20 quadruple blocks, which is the most common block size, and the order in which pregnant mothers are placed in them is 6, and the number related to the sequence of each block is from 1 to 6, and only one of research members is aware of the size, sequence, or order of blocks. In the next step, the responsible person who does not participate in any of the research steps, will select a sequence of random numbers using R software. The first number is assigned to the block with the same sequence number, and according to the special order of the block, pregnant mothers in each category are assigned to the intervention or control group; prior to the allocation, the assigned group for each participant in the study should not be specified in order to allocation concealment. If the second number in the obtained sequence of random numbers is not related to the sequence of blocks of each class (1 to 6), is discarded until we reach a number that introduces the sequence number of the next block and again in the special order of that block, pregnant mothers will be placed in the intervention or control group. In this way, the adequate sample size will be determined. Numbers related to the sequence of blocks may be repeated several times in a row. R software: <https://cran.r-project.org/web/packages/randomizeR/randomizeR.pdf> Uschner D, Schindler D, Hilgers RD, Heussen N. randomizeR: an R package for the assessment and implementation of randomization in clinical trials. J Stat Softw. 2018 Jun 19;85(8):1-22 Random sequencing is performed to allocate samples by random permutation blocks using R software and blockrand package. The program codes are as follows: `## stratified by obesity status, 80 in stratum, 2 treatments library(blockrand) obese <- blockrand(n=80, id.prefix='obese', block.prefix='obese',stratum='obese') overweight <- blockrand(n=80, id.prefix='overw', block.prefix='overw',stratum='overweight') normal <- blockrand(n=80, id.prefix='norm', block.prefix='norm',stratum='normal') underweight <- blockrand(n=80, id.prefix='undrw', block.prefix='underw',stratum='underweight') my.study <- rbind(obese,overweight,normal,underweight) Snow G, Snow MG. Package 'blockrand'. The Comprehensive R Archive Network. 2013.`

### Blinding (investigator's opinion)

Not blinded

### Blinding description

#### Placebo

Not used

#### Assignment

Parallel

### Other design features

## Secondary Ids

empty

## Ethics committees

### 1

#### Ethics committee

##### Name of ethics committee

School of Medicine - Isfahan University of Medical Sciences(Research Ethics Committee)

##### Street address

Hezar Jarib Street

##### City

Isfahan

##### Province

Isfahan

##### Postal code

8174673461

##### Approval date

2021-06-14, 1400/03/24

##### Ethics committee reference number

IR.MUI.MED.REC.1400.206

## Health conditions studied

### 1

#### Description of health condition studied

Excessive weight gain in pregnancy, unspecified trimester

##### ICD-10 code

O26.00

##### ICD-10 code description

Excessive weight gain in pregnancy, unspecified trimester

### 2

#### Description of health condition studied

Pre-eclampsia

##### ICD-10 code

O14

##### ICD-10 code description

Pre-eclampsia

### 3

#### Description of health condition studied

Gestational diabetes mellitus

##### ICD-10 code

O24.41

##### ICD-10 code description

Gestational diabetes mellitus in pregnancy

## Primary outcomes

### 1

#### Description

Gestational weight gain and maternal weight after childbirth.

#### Timepoint

At 6-10 weeks, 18, 26, 36-34 weeks of pregnancy and also, 6 and 12 months after birth.

#### Method of measurement

The participants' weight with an accuracy of 1.0 kg, is measured with a 1.0 kg digital scale.

### 2

#### Description

Pre-eclampsia

#### Timepoint

At 26 and 36-34 weeks of pregnancy

#### Method of measurement

Pre-eclampsia is diagnosed by a single gynecologist based on blood pressure  $\geq 90/140$ , edema, and proteinuria. Such a way that edema is diagnosed by a single gynecologist, and proteinuria is determined by the results of a single laboratory test. To measure blood pressure, participants rested for 10 minutes and then their blood pressure with a mercury sphygmomanometer will be measured after a 5-minute sitting on the right hand in a sitting position in two separate times and the mean of two will be calculated. Systolic blood pressure is defined by the first sound that appears (phase one corticofa) and diastolic blood pressure by the disappearance of the sound (phase five cortocof).

### 3

#### Description

Gestational diabetes mellitus

#### Timepoint

At 6-10 weeks, 18, 26, 36-34 weeks of pregnancy

#### Method of measurement

-Gestational diabetes is diagnosed by a single specialist according to the criteria of the International Association of Diabetes and Pregnancy Study Groups (IADPSG) determined in 2010.

### 4

#### Description

Birth anthropometric indicators

#### Timepoint

At birth weight

#### Method of measurement

-Birth weight is measured with an accuracy of 1.0 kg by a special scale after the stopping the movements, while his/ her limbs should not fall to the ground or anywhere else. -Birth height is measured with an accuracy of 1.0 cm in such a way that he is lying on the height gauge table and his head is carefully in contact with the piece of metal that is glued to the beginning of the meter. Then the moving part of the tool is moved in such a way that it comes in contact with the sole of the neonate. - Birth head circumference with an accuracy of 1.0 kg is measured in such a way that the tape crosses from the most prominent point on the back, front and sides of the head.

### 5

#### Description

Infant anthropometric indexes.

#### Timepoint

6 and 12 months after birth.

### **Method of measurement**

The infant's weight is measured in such a way that the scale do not rest on a place and after the stopping the movements, while his/her limbs do not come into contact with the ground or any other place. In addition, the shoes and warm clothes are removed and the weight of their under wearight clothes is finally reduced. -After taking off his hat and warm clothes, the infant's height is measured; while he is lying on his back, while the flat plate is at the top of the child's head and perpendicular to the top of the table and in front of the number zero. After the stopping the movements, the number in front of which the baby's heel is placed is read. -To measure the head circumference, the special meter is used and the head circumference is measured, while lying on its back and passing the meter at the most prominent point behind the head and forehead.

### **Secondary outcomes**

empty

### **Intervention groups**

#### **1**

#### **Description**

Intervention group1 Considering that the description of the educational intervention in four sessions and based on Pender principles has a high volume of information, first the training (Includes training objectives, description of training sessions, general training strategies) was said for the normal group and then more specific cases related to other body mass groups were described in their special groups. Intervention 1: Educational intervention for normal pregnant women : Prenatal care for the control and intervention group is usually performed under the supervision of midwives and specialists. The intervention program for each individual includes four training sessions. Each person is given two booklets containing training session information, which are listed in the appendices. The Nutrition advisory Group is a member of the research team and will be in constant contact with the researcher throughout the study. The content of the training sessions was based on the Comprehensive Nutrition Guide for Pregnant Mothers of the Ministry of Health, food safety book, nutritional health, and also according to the results of needs assessment for research units in the pre-test stage, respectively. Objective group: Pregnant women referring to selected health centers and private clinics in Isfahan. Main Objective: Nutrition education in pregnant women to prevent weight gain, adherence to principles of proper nutrition (balance and variety of diet plans), food safety, prevention of gestational diabetes, hypertension, edema and preeclampsia Gestational diabetes mellitus, hypertension, edema and pre-eclampsia, as well as measuring the effect of nutrition education on weight, height and head circumference at birth, six and twelve months. Training based on the Pender's model is also assessed by raising awareness, perceived benefits,

perceived self-efficacy, promoting feelings related to behavior and commitment to program implementation, reducing perceived barriers, reducing and eliminating instant competitive preferences and demands. During the first visit, the principles of healthy eating are presented. Also, the correct weight gain during pregnancy is explained based on the pre-pregnancy body mass index. Pregnant mothers also receive a chart related to their body mass index and in each training session, weight changes are drawn on the relevant charts in front of the mothers' eyes. So that mothers whose weight changes are within the appropriate range, the result of following the educational points is seen and encouraged, and the rest see the result of not following the educational points and decide to follow the educational points of the next steps. If the participant has not observed the training points, the result will be recorded for the analyzed data and they will be asked about the decision to follow the training points. In case of decision not to participate, the cancellation will be registered. If they decide to continue participating in the intervention, they are allowed to participate, and given that they have received feedback from their performance, it is emphasized to observe the training points. However, if the educational points are observed and the weight changes are not in the appropriate range, the result will be recorded for analysis and the pregnant woman will be examined for thyroid function, gestational diabetes, etc. in consultation with the relevant specialist doctor, and action will be taken to eliminate it. Finally, in the absence of a problem, the result is recorded as a lack of proper weight gain due to the observance of training tips for data analysis, which can be genetic. During the remaining time of the training sessions, the questions of pregnant mothers are answered. During the remaining time of the training sessions, the questions of pregnant mothers are answered. The focus of the next sessions is on nutrition education (healthy eating habits). Physical activity is assessed with the relevant questionnaire in weeks 6-10, 18, 36-34. The health of the fetus is always taken into consideration and for this purpose, the case of prenatal care is reviewed by the researcher several times. To estimate the daily energy intake (along with protein, fat, and carbohydrate intake), the 24-hour feeding recall for three days, including a day off, is completed for each pregnant mother at weeks 6-10, 26, and 36-34. The focus of the intervention program will be on proper weight gain, optimal energy intake and establishing healthy eating habits in accordance with the recommendations of the Ministry of Health, as well as eliminating misconceptions such as eating for two. A) Cognitive goals: After completing the training program, pregnant mothers will know that: 1- What is the appropriate body mass index (BMI)? 2- What are the criteria for inappropriate weight gain in pregnant mothers and important recommendations about it? What are the principles of proper nutrition? 4- How can balance and variety be observed in the daily diet? 5- What are the food groups? 6- What are the unauthorized foods? What are the dietary recommendations for obese pregnant women (BMI over 30)? 9 What are the dietary recommendations for lean pregnant women (BMI under

18)?10- What is the correct way of cooking food? 11- What are the four keys to preserving nutrients when cooking food? 12- What is the method of cooking? 13- What are the benefits of cooking food? What is the method of frying and frying? 16- How can the fat and oil consumption during cooking be reduced? 17- What are the necessary tips for steaming vegetables? 18- Which dishes are suitable for packing and storing food? What basic cooking utensils can be used? 20. What points help the health of the frying method? 21- What are the advantages and disadvantages of the microwave cooking method? B) Attitudinal goals: 1- By observing the principles of nutrition (variety and balance in the daily diet), inappropriate weight gain during pregnancy can be prevented. 2- Observing variety and balance in the daily diet is necessary and useful. 3- By observing the principles of proper nutrition, blood sugar can be increased. And prevented gestational diabetes. 4- Barriers to improper weight gain during pregnancy can be easily removed. 5- Everyone is able to easily prevent improper weight gain during pregnancy by applying the principles of proper nutrition. 6- Knowing the key and important points related to each From food groups, it contributes to health and safety. 7- Reducing the intake of fats and sugars in the daily diet has many effects for overweight and obese pregnant women. 8- Increasing the intake of dietary fiber is very beneficial for health. 9- Increasing the intake of protein, vitamins and minerals for lean pregnant mothers should be considered. 10- Proper methods of cooking food are necessary for the health and safety of nutrition during pregnancy. Prevented hypertension and pre-eclampsia. C) Behavioral goals of the participants: 1- They will observe balance and variety in their daily diet. 2- They will consider the important recommendations related to proper weight gain of pregnant mothers. 3- They will not consume various foods as much as possible. Pay attention to the important recommendations related to improper weight gain in pregnant mothers. 5. Consider a regular program to prevent improper weight gain. 6. Use ways to reduce fat intake. 7. Increase protein intake when needed They will pay attention. 8- They will increase their daily fiber intake. Training program of the first session (6-10 weeks of pregnancy): General Objective: Familiarity with the correct weight gain during pregnancy, principles of proper nutrition and maintaining balance and variety in the daily diet, key points of food groups, nutritional recommendations for thin, overweight and obese pregnant women. Partial Objectives: Introduction and familiarity with pregnant mothers - Familiarity with pregnancy weight gain according to the instructions and charts of the Ministry of Health, Treatment and Medical Education - Familiarity with the benefits of following the trained items - Familiarity with the side effects of inappropriate weight gain At birth, six and twelve months) - Familiarity with the food pyramid and the number of necessary shares of food groups - Familiarity with healthy eating habits - Familiarity with nutritional self-efficacy and its goals, as well as commitment to behavior. Attitudinal Objectives: Improper weight gain during pregnancy endangers the health of mother and child. - It is necessary to observe

the principle of balance and variety in the daily diet. - Consumption of various substances (including sugars and fats such as sugar, sweets, oils, butter, Cream, salt, chocolate, mayonnaise, jams, fizzy drinks, pickles and salts) endanger health. Consumption of different food groups is considered according to the body mass index of each person. Training method Since pregnant mothers of 6-10 weeks are introduced separately, the training of the first session is provided individually. In this way, with face-to-face training, Booklet No. 1 is taught in 2.5-2 hours with 5-minute intervals. The booklet is then given to pregnant mothers along with a specific weighting chart for each body mass index. The question and answer process is used to ensure learners' learning. Required materials Educational booklet No. 1 Based on the comprehensive guide to nutrition during pregnancy and food safety book, nutritional health was designed to make it easier to transfer information to pregnant mothers. Evaluation of the educational program to evaluate the questionnaire to pre-test the benefits Perceived, perceived barriers, self-efficacy and other constructs of the Pender model are used. 3 24-hour food reminders are also taken from pregnant mothers to measure previous behavior. Drawing and reviewing the weighting diagram, as well as preparing a daily food ration record, are taught to mothers to check the observance of the taught points in the next sessions. Instructor: Researcher The training program of the first session (6-10 weeks of pregnancy) Since the pregnant mothers of 6-10 weeks were introduced separately, the training of the first session is provided individually. In this way, with face-to-face training, Booklet No. 1 is taught in 1.5-2 hours with 5-minute breaks. The question and answer process is used to ensure learners' learning. Presenting an educational booklet to the participants and explaining it. This booklet is designed in such a way that it is possible to convey the information to the pregnant mother more easily. The questionnaire was used to pre-test perceived benefits, perceived barriers, self-efficacy and other constructs of Pender model. Also, three 24-hour food memos (which are taught to pregnant mothers while participating in the study of writing) are taken from mothers for analysis with N4 software. Writing three 24-hour food diaries is recommended. Participating mothers are instructed in drawing and reviewing pregnancy weighting charts. Emphasis is placed on referral for pregnancy tests. Special boxes are listed. Strategies used for the perceived benefits in the first session 1. The benefits of preventing inappropriate weight gain during pregnancy and beyond, as well as the benefits for the child during pregnancy up to one year and then for pregnant mothers are expressed in the form of questions from pregnant mothers. It was emphasized (refer to the questionnaire). The researcher also explains the results of his previous research for pregnant mothers, spouses and companions. 2- Using slides, educational booklets in order to provide information based on scientific evidence. 3- Consulting with a senior nutritionist and nutritionist. 4- Problems and consequences of inappropriate weight gain and costs imposed on the individual and society are explained. Strategies used for perceived self-efficacy in the first session: 1. The food

pyramid and the number of required portions of each food group are taught in a completely clear and easy way in the first session. 2. It is provided to facilitate training and these points are written in a rectangular box (booklet number one). Ways to reduce fat, sugars, breads and cereals, increase protein intake are taught to participating mothers in short, simple tips (Booklet 1). 3- With the permission of pregnant mothers, the weight gain chart of successful people during pregnancy is shown to others. 4- If the weight gain of pregnant women was in accordance with the weighting chart, they will be informed to be encouraged in this way and if they wish, they will be asked to share their experiences with others. In twelve weeks, the results of the mothers' examination are checked and recorded; Therefore, people receive physiological answers according to the teachings. Given that weight gain during pregnancy is not very noticeable in the first weeks, but the test results show well how well the participants and pregnant mothers perform. 6- Pregnancy weight gain chart including safe weight gain range, minimum and maximum weight gain levels for pregnant mothers are drawn in each training session and the necessary points are given. Also, in the first session, pregnant mothers are asked to draw the share of food intake in the daily table, and in the second session, to present their experiences, obstacles, solutions, and to be aware of their strengths and weaknesses. 7- Pregnancy weight gain chart, nutrition guide pyramid for pregnant and lactating mothers, food groups and key points, ways to reduce fat, sugar, bread and cereal intake, increase protein intake, nutritional recommendations for thin, normal, overweight and obese people are taught. 8. The method of brainstorming and group discussion about obstacles and ways to overcome it. 9- Two mobile and landline numbers are given to the participants to contact the researcher in case of any problem or question and to reduce their stress. They are also trained in stress management and are asked in group meetings to discuss ways to reduce their stress. The food pyramid and the number of required portions of each food group are taught in a completely clear and easy way in the first session. Strategies used for situational influences in the first session: According to the pre-test results and the fact that participation in the class was one of the measures of this structure, it is tried to hold the classes with the necessary accuracy and for all mothers. In the first session, a special individual class is held. In the next sessions of the group class, and when necessary, a special individual session and consultation with a senior nutrition expert is held. Telephone counseling is also provided for the participants, thus taking into account the different tastes of the participants in the class in order to increase the score of the mentioned structure. For each training session, a special booklet containing details was prepared for those interested in reading the training materials to conclude. Behavior Commitment Strategies in the First Session: 1. Prepare a daily schedule for recording food intake based on food rations for pregnant mothers. 2. Advise to write a letter to the child in which the mother states that she uses the taught points as much as possible, in addition to the health of the fetus, the health of the later stages of her child's life

should be ensured. Educational program of the second session (18th week of pregnancy): General purpose: Familiarity with the obstacles to following the taught items, familiarity with self-efficacy On increasing the importance of positive results and providing evidence based on the relationship between positive results and lessons learned, familiarity with related emotions. Second Session Training Program (Week 18 of Pregnancy): Main goal: Familiarity with the barriers to following the taught items, familiarity with self-efficacy and its importance in observing the trained items, emphasizing the importance of positive results and providing evidence based on the relationship between positive results and taught tips, familiarity with related emotions with proper nutrition. Partial Objectives - Reviewing the contents of the previous session and answering questions - Discussing the barriers to following the training provided - Familiarity with nutritional self-efficacy and its objectives - Familiarity with social support from others and its role in following the training - Familiarity with psychological factors Feelings related to nutritional behavior and attitudinal goals - barriers to observance of educational points and also barriers to healthy nutrition during pregnancy can be easily removed. - Preventing overweight during pregnancy is possible for any body mass index. - Prevention of hyperglycemia and gestational diabetes is possible by following the training tips for each body mass index. Improper weight control during pregnancy. The teaching method of teaching the second session is applied for groups of 2-4 people, so the teacher (researcher) uses the question and answer process in order to review the contents of the previous session, express the barriers to observing the taught points and coping strategies of pregnant mothers. Brainstorming and group discussion are suggested to express emotions related to proper eating behavior, which also helps to facilitate the evaluation of these emotions. It also discusses how to deal with negative emotions and barriers to proper nutrition. Evaluate the review of the food ration registration table that is prepared daily in the interval of two sessions. The training of the second session is applied for groups of 2-4 people, so the teacher (researcher) uses the question and answer process in order to review the contents of the previous session, express the obstacles to implementing the taught points and solutions to deal with pregnant mothers. PowerPoint presentation of the image Perceived Barrier Strategies: 1. For example, it is recommended that fruits and vegetables be eaten at the right time to be cost-effective. The method of preparing special foods with legumes and vegetables with the desired taste is taught. The second meeting interpersonal strategies: (1) provide training sessions for wife emphasizing the necessity of proper weight gain during pregnancy .2-- Preparation of a special training session to increase the support of mothers and mothers-in-law, in order to increase the support applied by them, especially in cases where the provision of household food, including maternity leave, is the responsibility of them. The strategy used for behavior-related emotions in the second session: 1- Group discussion and thought flow (expression of

personal experiences) is used to express emotions related to proper eating behavior, which also helps to facilitate the evaluation of these emotions. It also discusses how to deal with negative emotions and barriers to proper nutrition. 2. Mothers are asked to discuss how to deal with negative emotions and barriers to proper nutrition. 3- Mothers are asked to study how to care for and deal with the baby in various aspects of nutrition, health, clothing and other items to increase personal strength to strengthen positive emotions. 4- Preparing and collecting beautiful photos in different ways (appropriate to individual taste and ability Such as the Internet) is another suggested solution. Training program of the third session (26th week of pregnancy): General goal: Familiarity with the effects of situation on behavior, familiarity with the role of commitment to healthy eating behavior, familiarity with the role of immediate preferences and interference with nutritional self-care, familiarity with proper cooking methods. Partial Objectives - Reviewing the contents of the previous session and answering questions - Familiarity with the types of situational influencers - Familiarity with the role of commitment to healthy eating behavior - Familiarity with the role of immediate preferences and its interaction with nutritional self-care - Familiarity with proper cooking methods - Familiarity With proper cooking utensils - Familiarity with proper food storage and packaging utensils - Familiarity with the keys to nutrient preservation during cooking. Attitudes Objectives: 1- Do not consume or consume the least nutrients. Miscellaneous substances are essential for the health of pregnancy. 2- Consumption of minimal fats and reduction of consumption of sugars, bread and cereals have many benefits for the health of overweight and obese mothers. Follow all the principles of proper nutrition. 4- To prevent overweight during pregnancy, it is necessary to follow the correct methods of cooking. 5- Preserving nutrients and health and safety of food is not separate from healthy cooking methods. 6- Healthy cooking and food preparation methods can be applied to everyone by planning and taking time. The teaching method is lecturing, question and answer, brainstorming, group discussion to achieve the stated behavioral goals. Video projectors and special slides are used for training. Training in cooking food in practical and workshop methods is costly and the budget set for the implementation of the present project does not meet the desired costs. For this purpose, slides of the correct methods of cooking food are prepared in a simple, understandable and colorful way and along with the necessary explanations (lecture method by the researcher) are taught by computer in various health centers. It also teaches how to prepare three healthy foods that were in line with the intended goals, to be used as a model for preparing other foods and for proper cooking. For this purpose, a special CD is prepared and provided to pregnant mothers. Booklet No. 2 is also prepared and provided to some pregnant mothers according to their needs. According to the questions of the people in the previous sessions and in order to encourage them as much as possible, an accompanying educational CD containing educational points beyond the

intended goals, including food storage, packaging and safety is prepared to answer learners' questions and make it more productive. Training classes also have reinforcing effects. Evaluation A questionnaire was used to pre-test the cooking methods. Pender constructs (situational influencers, commitment to program implementation, competing preferences and demands) are tested using a questionnaire. Also, in order to measure the commitment to the implementation of the program, the daily tables of the share of food received are reviewed and the necessary feedback is given to the participants. Questions are prepared from Booklet No. 1, and if the student answers correctly, the commitment to the implementation of the program will be scored. In the first session, mothers were also asked to write a letter to their child expressing their commitment to education. In this meeting, written letters are taken from mothers. From the results of the analysis, three 24-hour food reminders are given to mothers. A written letter of commitment to the child is also taken from the mothers. Pregnancy weighting chart is drawn in front of pregnant mothers and the necessary feedback is provided to them. The 24-hour recall of food is also taken from pregnant mothers. Learn the four keys to preserving nutrients while cooking. Cognitive training on slides for teaching cooking methods and teaching how to cook healthy and desirable food with a demonstration film. Urgent preference and demand strategies: 1- Since the practical demonstration of cooking and providing the possibility of tasting healthy food is not practical in terms of facilities and space; It tries to teach how to prepare healthy and tasty food by using educational slides and showing movies. 2- Due to the lack of budget and suitable space, the preparation of several samples of healthy main food, which is a model for the preparation of other foods, is taught in separate sessions using the relevant color slides, and the preparation order of three of them is mentioned in Appendix 2. Strategies used for commitment in the third session: 1- Installing vegetables in the form of vegetables on the refrigerator, placing small amounts of nuts on the dining table, kitchen counter and shelves of the house that are available and also a reminder. Posting dairy posters and photos in the right place to eliminate the necessary share of dairy products, which is one of the main nutritional problems in our society. will be done. 2- Our research team introduces pregnant mothers and assures them that recommendations and answers to their questions are done under the supervision of a group of experts. Strategies used for situational influencers in the third session: A special training session was prepared in this session on cooking methods to discredit mothers who have the ability to change the kitchen environment in order to prepare healthy food. 2- The relevant booklet and CD were also given to the mothers Education of the fourth session (32-36 weeks): General Objective: Emphasis on fetal growth, prevention of edema, hypertension and blood sugar concentration and pre-eclampsia and gestational diabetes, answering mothers' questions Partial objectives: Familiarity with the results of previous research Measuring the effect of nutrition education on pregnancy - Determining the number of

special food shares from different food groups - Discussing with mothers about barriers and problems

**Attitudinal Objectives**

- To prevent inappropriate pregnancy weight, reduce intrauterine growth, gestational diabetes and pre-eclampsia, it is necessary to follow the taught tips. Eclampsia is very useful and necessary. Lecture teaching method, using a computer to display an educational CD. Preparing an educational booklet and presenting it to pregnant mothers. The question and answer process is used to repeat and emphasize the taught points as much as possible. The method of brainstorming and group discussion is also used to exchange information between mothers and help remove possible mental barriers by mothers. Instructor Researcher. Evaluation A questionnaire is used to retest the correct cooking methods. Three 24-hour food reminders are also taken from pregnant mothers. Questionnaires as well as three 24-hour food recalls were also taken from pregnant mothers..

### Category

Prevention

## 2

### Description

Intervention group2 Intervention 2: Educational intervention for overweight mothers (BMI 25-29) It should be noted that the general principles described in the intervention of normal people in order to Pender model- based education including, (training objectives, description of training sessions, training strategies and evaluation) are also considered for this group, which is recommended to refer to the intervention of normal people due to the high volume of content and avoidance of repetition. In addition, the following points for overweight people are also considered for pregnant women in this group. Some of the major causes of excessive weight gain to increase participants' knowledge include: Improper eating habits and behaviors, including excessive consumption of starchy food sources (bread, rice, ma caroni), fatty and fried foods, chips, fried potatoes, fast food, industrial beverages (cola, beer) Are high in sugar, sweets and chocolate. Sedentary and lack of physical activity. Edema and fluid retention or in some cases preeclampsia. Nutritional recommendations for overweight and obese pregnant women: For overweight or obese pregnant women or pregnant women who have a BMI of more than 25 at the beginning of pregnancy, as well as pregnant women who have gained more than the desired amount during pregnancy. The following nutritional recommendations are considered: To control weight gain in overweight and obese mothers, the following methods are recommended: 1. Reduce the consumption of high-calorie foods such as sweets, cakes, candies, chocolate, cheese and soft drinks, 2- Reducing the consumption of fats (reducing the consumption of oil during cooking, consuming food in boiled or steamed form, choosing low-fat meat, fish and chicken, using vegetable proteins such as legumes) 3- Reducing the consumption of sugars and starches 4 -Increase protein intake 5- Increase consumption of fiber-rich food sources -6 Improvement of inappropriate eating habits and

behaviors -7 Adequate mobility through regular daily walking in the absence of medical prohibition)

**A) Ways to reduce fat intake** - Avoid frying foods and even cook food in the form of boiled, steamed and grilled. Eliminate fats, including animal butter, margarine, cream, buttermilk, tail, tallow, and remove visible fats from red meat and chicken skin before cooking. Use low-fat milk and dairy products (less than 2.5% fat) instead of high-fat milk and dairy products. Limit the consumption of sweets, raw cakes and high-fat or sweet desserts. - Bake fish and chicken instead of frying them (chicken breast has less fat. Limit the consumption of offal, heart, offal, tongue and brain, sausages, hot dogs and pizza. - Roast vegetables in low-fat broth or tomato juice instead of oil. Mayonnaise and salad dressings and use healthy sauces (low-fat yogurt, a little salt, olive oil, lemon juice or orange juice) instead of mayonnaise - Do not add fat and tail to the meat when mincing - Use apples Boiled or baked ground instead of fried. - Limit egg yolk consumption to three per week (separately or in a variety of foods such as cocoa and omelets). - Do not use high-fat snacks such as chips, dumplings, chocolate and the like. The use of non-stick cookware (Teflon) to cook food to reduce the amount of oil consumed. Due to the importance of fat-soluble vitamins, not all fats and oils should be eliminated, but the type and amount of oil consumed is important.

**B) Ways to reduce sugar intake**

- Using fresh fruits instead of sweets and chocolate as a snack
- Limiting the consumption of sweet breads (sugar bread, milk bread, sweets, cakes, etc.) and types of chocolate and Candy
- Consume low-salt and non-carbonated buttermilk, water and natural fruit juices instead of carbonated beverages.
- Use fruits such as apples, peaches and pears that have less sugar.
- Avoid fruit compote. If you want to consume fruit compote, it is better to prepare it at home. To do this, boil the pieces of fruit with a small amount of water without adding sugar for a few minutes and then store it in the refrigerator for daily consumption.
- Use dates, raisins or dried berries (in small amounts) instead of sugar with tea.

**C) Ways to reduce the intake of bread and cereals**

- Limit consumption of bread, rice and caroni (to 7 servings per day).
- Refraining from consuming rice and ma karuni at dinner.
- Using wholemeal breads instead of fancy breads. Sangak bread has more bran than other breads.
- Refrain from eating bread with rice when eating.
- Use a variety of foods with some bread instead of rice at dinner.
- Use fruits or vegetables and sauces (lettuce, cucumber, tomato and carrot) instead of bread and cheese, biscuits or cakes between meals.

**D) Ways to increase protein intake**

To increase protein intake in the diet, the following foods are recommended:

- Boiled or grilled chicken
- Fatty meat.
- Freshly steamed or grilled fish (white meat such as chicken and fish is recommended at least twice a week)
- Low-fat milk and dairy products including yogurt, cheese, curd
- Use of legumes (lentils, beans, Mung bean, beans, etc.) with cereals, for example, in the form of lentils, beans, lentils with bread, bean feed with bread.
- Whole-cooked egg whites. Egg yolk is high in cholesterol; But egg whites, which have a high biological value, can be used as a valuable source of protein in the diet to provide

protein.E) Ways to increase fiber intake 1. Daily consumption of vegetables, local vegetables or salads (lettuce, cabbage, tomatoes, cucumbers, carrots, green peppers, etc.) with food (2. Consumption of fresh fruits as Snack 3. Preferably use the fruit itself instead of fruit juice 4. Use dried fruits (apricot leaves, raisins, etc.) and fresh vegetables (carrots, cauliflower, cucumber, tomato, etc.) as a snack 5. Use more legumes (beans, lentils, mung beans and chickpeas) in soups and stews and, in general, eat more foods that contain legumes such as lentils, beans and stews. 6. Use vegetables such as lettuce Tomatoes, parsley, onions, cabbage and peppers in homemade sandwiches. (Sangak bread, barley bread) instead of breads made with white flour such as lavash bread, barberry, fancy bread).F) Improving eating habits and behaviors to control appetite and prevent overeating in pregnant women that cause overweight and obesity The following points are recommended: 1. Sit while eating in a fixed place. 2. Drink a glass of water five minutes before lunch or dinner. 3. Eat salad (without mayonnaise) before eating. 4. Try not to skip the main meals (breakfast, lunch and dinner), because they will have to eat snacks. 5. At the dinner table, eat only one type of food. 6. Use fresh fruits and vegetables as a snack. 7. Put the food in a smaller container to eat less. 1. Definition of snacks: Frequent consumption of small meals, including snacks and snacks. 8. Store food in a place out of sight. 9. Avoid buying and consuming low-value snacks that contain only fats or sugars, such as soft drinks, chips, etc. 10. Refrain from buying and storing sweets and chocolates at home. 11. Leave the table immediately after eating. 12. Eat slowly and calmly. 13. Avoid frying food as much as possible and, if necessary, use special frying oil instead of ordinary liquid oil or solid oil. Limit eating nuts and seeds that are high in fat.

### Category

Prevention

## 3

### Description

Intervention group 3 Intervention 3: Educational intervention for obese mothers ( BMI  $\geq 30$ ) It should be noted that the general principles described in the intervention of normal people in order to Pender model-based education including (training objectives, description of training sessions, training strategies and evaluation) are also considered for this group, which is recommended to refer to the intervention of normal people due to the high volume of content and avoidance of repetition. In addition, the following points for obese pregnant mothers are also considered for pregnant women in this group. Some of the major causes of excessive weight gain to increase participants' knowledge include: Improper eating habits and behaviors, including excessive consumption of starchy food sources (bread, rice, ma caroni), fatty and fried foods, chips, fried potatoes, fast food, industrial beverages (cola, beer) Are high in sugar), sweets and chocolate. Sedentary and lack of physical activity. Edema and fluid retention or in some cases preeclampsia. Nutritional recommendations for

overweight and obese pregnant women: For overweight or obese pregnant women or pregnant women who have a BMI of more than 25 at the beginning of pregnancy, as well as pregnant women who have gained more than the desired amount during pregnancy. The following nutritional recommendations are considered: To control weight gain in overweight and obese mothers, the following methods are recommended: 1. Reduce the consumption of high-calorie foods such as sweets, cakes, candies, chocolate, cheese and soft drinks, 2- Reducing the consumption of fats (reducing the consumption of oil during cooking, consuming food in boiled or steamed form, choosing low-fat meat, fish and chicken, using vegetable proteins such as legumes) 3- Reducing the consumption of sugars and starches 4 -Increase protein intake 5- Increase consumption of fiber-rich food sources -6 Improvement of inappropriate eating habits and behaviors -7 Adequate mobility through regular daily walking in the absence of medical prohibitionA) Ways to reduce fat intake - Avoid frying foods and even cook food in the form of boiled, steamed and grilled. Eliminate fats, including animal butter, margarine, cream, buttermilk, tail, tallow, and remove visible fats from red meat and chicken skin before cooking. Use low-fat milk and dairy products (less than 2.5% fat) instead of high-fat milk and dairy products. Limit the consumption of sweets, raw cakes and high-fat or sweet desserts. - Bake fish and chicken instead of frying them (chicken breast has less fat. Limit the consumption of offal, heart, offal, tongue and brain, sausages, hot dogs and pizza. - Roast vegetables in low-fat broth or tomato juice instead of oil. Mayonnaise and salad dressings and use healthy sauces (low-fat yogurt, a little salt, olive oil, lemon juice or orange juice) instead of mayonnaise - Do not add fat and tail to the meat when mincing - Use apples Boiled or baked ground instead of fried. - Limit egg yolk consumption to three per week (separately or in a variety of foods such as cocoa and omelets). - Do not use high-fat snacks such as chips, dumplings, chocolate and the like. The use of non-stick cookware (Teflon) to cook food to reduce the amount of oil consumed. Due to the importance of fat-soluble vitamins, not all fats and oils should be eliminated, but the type and amount of oil consumed is important.B) Ways to reduce sugar intake 1. Using fresh fruits instead of sweets and chocolate as a snack 2. Limiting the consumption of sweet breads (sugar bread, milk bread, sweets, cakes, etc.) and types of chocolate and Candy 3. Consume low-salt and non-carbonated buttermilk, water and natural fruit juices instead of carbonated beverages. 4. Use fruits such as apples, peaches and pears that have less sugar. 5. Avoid fruit compote. If you want to consume fruit compote, it is better to prepare it at home. To do this, boil the pieces of fruit with a small amount of water without adding sugar for a few minutes and then store it in the refrigerator for daily consumption. 6. Use dates, raisins or dried berries (in small amounts) instead of sugar with tea.C) Ways to reduce the intake of bread and cereals 1 - Limit consumption of bread, rice and caroni (to 7 servings per day). 2 - Refraining from consuming rice and ma karuni at dinner. 3- Using wholemeal breads instead of fancy breads. Sangak bread has more bran than other breads.

4 - Refrain from eating bread with rice when eating. 5 - Use a variety of foods with some bread instead of rice at dinner. 6 - Use fruits or vegetables and sauces (lettuce, cucumber, tomato and carrot) instead of bread and cheese, biscuits or cakes between meals.

**D) Ways to increase protein intake** To increase protein intake in the diet, the following foods are recommended: 1. Boiled or grilled chicken 2. Fatty meat. 3. Freshly steamed or grilled fish (white meat such as chicken and fish is recommended at least twice a week) 4. Low-fat milk and dairy products including yogurt, cheese, curd 5. Use of legumes (lentils, beans, Mung bean, beans, etc.) with cereals, for example, in the form of lentils, beans, lentils with bread, bean feed with bread. 6. Whole-cooked egg whites. Egg yolk is high in cholesterol; But egg whites, which have a high biological value, can be used as a valuable source of protein in the diet to provide protein.

**E) Ways to increase fiber intake** 1. Daily consumption of vegetables, local vegetables or salads (lettuce, cabbage, tomatoes, cucumbers, carrots, green peppers, etc.) with food (2. Consumption of fresh fruits as Snack 3. Preferably use the fruit itself instead of fruit juice 4. Use dried fruits (apricot leaves, raisins, etc.) and fresh vegetables (carrots, cauliflower, cucumber, tomato, etc.) as a snack 5. Use more legumes (beans, lentils, mung beans and chickpeas) in soups and stews and, in general, eat more foods that contain legumes such as lentils, beans and stews. 6. Use vegetables such as lettuce Tomatoes, parsley, onions, cabbage and peppers in homemade sandwiches. (Sangak bread, barley bread) instead of breads made with white flour such as lavash bread, barberry, fancy bread).

**F) Improving eating habits and behaviors to control appetite and prevent overeating in pregnant women that cause overweight and obesity** The following points are recommended: 1. Sit while eating in a fixed place. 2. Drink a glass of water five minutes before lunch or dinner. 3. Eat salad (without mayonnaise) before eating. 4. Try not to skip the main meals (breakfast, lunch and dinner), because they will have to eat snacks. 5. At the dinner table, eat only one type of food. 6. Use fresh fruits and vegetables as a snack. 7. Put the food in a smaller container to eat less.

1. Definition of snacks: Frequent consumption of small meals, including snacks and snacks. 8. Store food in a place out of sight. 9. Avoid buying and consuming low-value snacks that contain only fats or sugars, such as soft drinks, chips, etc. 10. Refrain from buying and storing sweets and chocolates at home. 11. Leave the table immediately after eating. 12. Eat slowly and calmly. 13. Avoid frying food as much as possible and, if necessary, use special frying oil instead of ordinary liquid oil or solid oil. Limit eating nuts and seeds that are high in fat.

### Category

Prevention

### 4

#### Description

Intervention group 4 Intervention 4: Educational intervention for overweight mothers (BMI  $\leq 18.5$ ) It should be noted that the general principles described in the intervention of normal people in order Pender model-

based education including (training objectives, description of training sessions, training strategies and evaluation) are also considered for this group, which is recommended to refer to the intervention of normal people due to the high volume of content and avoidance of repetition. In addition, the following points for underweight pregnant mothers are also considered for this group. Maternal weight gain is essential for optimal fetal growth and development. Babies whose mothers did not gain enough weight during pregnancy are born underweight. The risk of low birth weight babies is twice as high as normal weight mothers. Slim women who did not have a proper diet before and during pregnancy will experience inadequate calorie and nutrient intake. If these mothers suffer from nutritional deficiencies after giving birth, they will also suffer from anemia; Therefore, nutritional interventions are necessary to improve the nutritional status of lean pregnant women. Gathering information including eating habits and behaviors, food sources, food and fluid intake, and lifestyle is essential in improving the nutritional status of lean pregnant women. In these cases, things like nausea, vomiting, loss of appetite, low purchasing power of food, decreased absorption of nutrients due to infection and excessive physical activity should also be examined. Women who were thin before pregnancy or did not gain weight during pregnancy need regular monitoring to record the weighting process. Lean pregnant women need to gain more weight than normal pregnant women and it is necessary to increase their calorie intake and weight by using proper nutritional recommendations. On the other hand, a lean pregnant woman will experience a decrease in protein intake as well as a decrease in energy intake; Because the protein consumed is used to produce energy. In counseling and educating these women, while emphasizing the use of the main food groups, their diet should be changed and by selecting and consuming appropriate foods in the main meals and snacks, their energy and nutrient intake should be increased; So by fortifying (adding energy substances including sugars, starches, fats and oils) and nourishing food) adding protein-rich foods such as red meat, chicken, fish and legumes, rich sources of vitamins and minerals. Minerals (such as fruits, vegetables, and dairy products) can help them gain weight. Useful nutritious snacks such as nuts (pistachios, almonds and walnuts), milk, ice cream, and porridge are recommended for thin women. Despite all of the above, the nutrition counselor should pay attention to the factors that affect a person's habits and eating patterns (such as income and culture). In these cases, based on the household budget and purchasing power, the food program should be prepared and, if necessary, low-income families should be introduced to organizations and charities in accordance with the existing instructions of the Ministry of Health so that part of their nutritional needs can be helped. Organizations should be provided.

**Ways to increase energy intake (tonic) are:** 1. Use jam, honey, dates, grape juice and date juice with breakfast 2. Use at least two snacks including biscuits (preferably whole-grain) cake, cookies, bread and Cheese, bread and potatoes, bread and eggs, bread and dates, oily bread, milk bread with a glass of

milk and a variety of fruits at intervals between main meals. 3. Consume more bread and grains such as bread, rice and caroni. Lean pregnant women can consume up to 11 servings of this group daily, which is equivalent to 330 grams of bread or 770 grams of cooked rice (about 6 skimmers). 4. Use more potatoes in a variety of foods or between meals. 5. Eat bread with other foods such as rice at lunch and dinner. 6. Use pasteurized ice cream and sweet fruits (grapes, melons, figs, berries, dates), sweets and nuts as a snack. 7. Use high-fat dairy products (high-fat milk and yogurt, cream cheese and curd). Add some butter to food at every meal 9. Use olive oil in salads 10. Eat butter, cream and butter for breakfast 11. Use sheep and beef pen in cooking. Ways to increase the intake of protein, vitamins and minerals (nutritious meal) 1. Increase the intake of milk and dairy products (yogurt, cheese, curd and ice cream) 2. Increase the intake of meat, eggs, legumes and nuts 3. Receive a group of fruits and vegetables. Ways to increase the intake of milk and dairy products 1. Use milk, yogurt, cheese, and ice cream as a snack (biscuits and milk, bread and yogurt, bread and cheese, milk rice, porridge and the like). Slim pregnant women can consume up to 4 servings of this group of substances daily. 2. Consumption of low-salt, concentrated and non-carbonated butter in meals. 3. Use of curd in foods such as curd soup, buttermilk soup, eggplant curd in the daily diet. Increased intake of meat, eggs, legumes and nuts. 1. More use of foods prepared with a variety of meats (cutlets, kebabs, stews). 2. Use eggs in breakfast or snacks (boiled, half, omelet) 3. Use eggs with food ( Lentil pilaf or noodles with dough) 4. Use of foods prepared with eggs (types of cocoa, cutlets, etc. 5. Use of foods prepared with a variety of legumes (some stews, stews, snacks, broth, Lentils, beans. 6. Consume a variety of nuts and nuts (walnuts, pistachios, almonds, etc.) as a snack. Ways to increase the intake of fruits and vegetables 1. Use vegetables such as tomatoes, carrots, cucumbers, celery stalks as a snack 2. Use more foods prepared with vegetables (soups, soups, some stews, Cocoons) 3. More use of fruits as a snack Ways to increase the appetite of lean pregnant mothers are: 1. Eating food on a larger plate 2. Using colored vegetables (carrots, tomatoes, bell peppers, etc.) In food in order to beautify food and increase appetite 3. Adequate rest during the day (skinny pregnant women must rest for hours during the day. Especially rest after eating is recommended. 4. The family to create an environment of calm and help her with daily chores in order to reduce the workload of the pregnant woman, in this regard, consultation with her husband and other family members should be done.

#### **Category**

Prevention

### **5**

#### **Description**

Control group 1 Regular training for pregnant women in the control group in normal body mass: The same training intended by a gynecologist or midwife, which is done according to the national guidelines for nutrition of pregnant women, and in some public health centers or

private offices would be accompanied with pamphlets or booklets. It includes training the main food groups, observing the principle of balance and diversity, and weight gain according to the chart related to body mass index. Some routine recommendations include not consuming or consuming minimal sugars after hyperglycemia, not consuming energetic and high-calorie substances, balance in salt intake after weight gain and slight increase in blood pressure, consumption of vegetables and fiber to prevent or eliminate constipation, consumption of protein substances for fetal growth, consumption of calcium to improve muscle cramps and prevent tooth decay, fish and seafood due to the high prevalence of hypothyroidism.

#### **Category**

Prevention

### **6**

#### **Description**

Control group 2 Regular training for pregnant women in the control group in over weight women: The same training intended by a gynecologist or midwife, which is done according to the national guidelines for nutrition of pregnant women, and in some public health centers or private offices would be accompanied with pamphlets or booklets. It includes training the main food groups, observing the principle of balance and diversity, and weight gain according to the chart related to body mass index. Overweight women are also referred to a nutritionist at community health centers or private offices.

#### **Category**

Prevention

### **7**

#### **Description**

Control group 3 Regular Training for pregnant women in the control group in obese women: The same training intended by a gynecologist or midwife, which is done according to the national guidelines for nutrition of pregnant women, and in some public health centers or private offices would be accompanied with pamphlets or booklets. It includes training the main food groups, observing the principle of balance and diversity, and weight gain according to the chart related to body mass index. Obese women are also referred to a nutritionist at community health centers or private offices.

#### **Category**

Prevention

### **8**

#### **Description**

Control group 4 Regular Training for pregnant women in the control group in underweight women: The same training intended by a gynecologist or midwife, which is done according to the national guidelines for nutrition of pregnant women, and in some public health centers or private offices would be accompanied with pamphlets or booklets. It includes training the main food groups, observing the principle of balance and diversity, and

weight gain according to the chart related to body mass index. Underweight women are also referred to a nutritionist at community health centers or private offices. Control group:

**Category**

Prevention

## Recruitment centers

### 1

**Recruitment center**

**Name of recruitment center**

Based on stratified sampling, 15 community health centers, 5 hospitals and 15 private offices will b

**Full name of responsible person**

Midwives in selected community health centers and gynecologists in private offices.

**Street address**

Streets where sampling centers are located.

**City**

Isfahan.

**Province**

Isfahan

**Postal code**

81746-73461

**Phone**

+98 31 3792 5285

**Fax**

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**Email**

masoumeh\_goodarzi@nm.mui.ac.ir

**Web page address**

<https://mui.ac.ir>

## Sponsors / Funding sources

### 1

**Sponsor**

**Name of organization / entity**

Esfahan University of Medical Sciences

**Full name of responsible person**

Bureau of research and technology administration

**Street address**

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**City**

Isfahan

**Province**

Isfahan

**Postal code**

81746-73461

**Phone**

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**Email**

masoumeh\_goodarzi@nm.mui.ac.ir

**Web page address**

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**Grant name**

**Grant code / Reference number**

**Is the source of funding the same sponsor organization/entity?**

Yes

**Title of funding source**

Esfahan University of Medical Sciences

**Proportion provided by this source**

100

**Public or private sector**

Public

**Domestic or foreign origin**

Domestic

**Category of foreign source of funding**

*empty*

**Country of origin**

**Type of organization providing the funding**

Academic

## Person responsible for general inquiries

**Contact**

**Name of organization / entity**

Esfahan University of Medical Sciences

**Full name of responsible person**

Masoomeh Goodarzi-Khoigani

**Position**

Ph.D by research

**Latest degree**

Ph.D.

**Other areas of specialty/work**

Health Promotion

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## Person responsible for updating data

### Contact

**Name of organization / entity**  
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**Full name of responsible person**  
Masoomeh Goodarzi-Khoigani  
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**Latest degree**  
Ph.D.  
**Other areas of specialty/work**  
Health Promotion  
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## Sharing plan

### Deidentified Individual Participant Data Set (IPD)

Undecided - It is not yet known if there will be a plan to make this available

### Study Protocol

Undecided - It is not yet known if there will be a plan to make this available

### Statistical Analysis Plan

Undecided - It is not yet known if there will be a plan to make this available

### Informed Consent Form

Undecided - It is not yet known if there will be a plan to make this available

### Clinical Study Report

Undecided - It is not yet known if there will be a plan to make this available

### Analytic Code

Undecided - It is not yet known if there will be a plan to make this available

### Data Dictionary

Undecided - It is not yet known if there will be a plan to make this available