Adequate Weight Gain in Pregnancy: An Analysis of Its Determinants in a Cross-Sectional Study

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SUMMARY

Introduction Prenatal care is considered an important tool for promoting a healthy lifestyle, but has not been studied as a predictor for maternal weight gain during pregnancy, especially in Romania, where evidence about pregnancy and nutrition is scarce.

Objective This study has aimed to explore the relationship between pre-gestational body mass index (BMI), adequacy of prenatal care and weight gain during pregnancy.

Methods We carried a cross-sectional study on a sample of 400 pregnant women admitted at the "Cuza Voda" Obstetrics and Gynecology Hospital in Iasi. Information regarding demographic characteristics, number of prenatal visits, date of the initial hospital record, nutritional education during pregnancy were registered throughout a questionnaire filled out by means of a direct interview. The anthropometric indicators analyzed were the pre-gestational BMI and the pregnancy weight gain. Data on caloric intake were obtained using a food frequency questionnaire.

Results Weight gain within the limits of the Institute of Medicine recommendations was noticed at 44.35% of the women who declared that they received nutritional advice compared to 40.7% of those who did not receive advice regarding diet during pregnancy. Overweight (53.1%) and obese women (66.7%) had a larger weight gain than those with a normal pre-pregnancy BMI (29.8%) ($p<0.001$). The variables that were identified with an effect on weight gain in this sample of pregnant women were: inadequate prenatal care, pre-gestational BMI and energy intake.

Conclusion Identifying the pre-gestational BMI and diet changes as predictors of weight gain underline the importance of an individualized prenatal care.

Keywords: pregestational BMI; pregnancy weight gain; prenatal care; nutritional education

INTRODUCTION

Epidemiological studies have shown existing links between the birth weight and illnesses which begin several decades after birth. Barker proved that a delay in intrauterine growth causes a fetal programming which increases the risks of cardiovascular events and other degenerative diseases [1]. Intrauterine programming is commonly defined by an alteration of the genes expression, different levels of activity of enzymatic systems, a variation of the cellular divisions leading to a decreased number of cells in certain organs and an adjustment of the concentration or sensibility of the hormones [2].

The effects of maternal over-eating on intrauterine programming of later life disorders arises great interest, mostly due to the increasing number of fertile women who are obese or have diabetes. Overweight and maternal hypertriglyceridemia have been associated with an increase in birth weight, adiposity, inflammatory cytokines and leptin hormones in children. All these lead to insulin-resistance and a higher risk for diabetes and obesity. Various studies on animals fed with diets rich in carbohydrates or saturated lipids during pregnancy have given emphasis to the centrally predominant growth of the adipose tissue proportion, as well as the change that can be observed in the expression of hepatic genes and those involved in the cellular development and in that of the insulin and leptin secretion in descendents [3].

Subsequently to the report published by the Institute of Medicine (IOM, Washington) in 1990 on recommendations for weight gain during pregnancy, numerous studies have similarly pointed out the effects of weight gain on the mother's and child's wellbeing. Overweight has been linked with an increase in the risk of pre-eclampsia, gestational diabetes and cesarean section [4, 5] as well as the failure to initiate and sustain breastfeeding [6, 7]. Overweight and pregestational maternal obesity have been associated with a larger mass of adipose tissue in newborns and children [8].

A series of authors have criticized the monitoring of weight gain during pregnancy using such arguments as the insufficient lack of evidence to attest the benefit of so doing on a routine basis. There are studies who conclude that weight gain as a unique indicator is not sufficiently sensible or specific in order to accurately evaluate the pregnancy outcome. Given the inconsistency of weight gain amongst women with low risk pregnancies and that of the multifactor origin as observed in perinatal conditions, using weight gain as a singular screening method is not recommended. As revealed by plenty of studies, any growth outside of body

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mass index (BMI) recommendations can be related to a higher risk of complications than generally anticipated under the recommended limits [9].

A series of nutritional deficiencies have been observed in pregnant women and children in Romania. These findings have actually founded the basis of developing significant interventions in the National Health Program for Women and Children [10].

OBJECTIVE

The main objective of the study was to assess the maternal anthropometrical indicators and the effects of prenatal care and nutritional education on weight gain during pregnancy.

METHODS

In September 2010, we carried out an observational study on 400 pregnant women hospitalized at the "Cuza Voda" Obstetrics and Gynecology Hospital in Iasi. The exclusion criteria were twin pregnancies, the patients' denial to participate, and obstetrical pathology. The information obtained from mothers was directly registered in a well-structured questionnaire filled in as a part of direct interview. The questions here comprised referred to the following aspects: demographic data, previous pregnancy experiences, using prenatal care, aspects regarding nutritional education during actual pregnancy, and aspects regarding changes in diet during pregnancy

The evaluated anthropometrical maternal parameters were pregestational BMI (established from the information written down by the family doctor in the patient's file or by using self estimations where these data were not available); height and weight at the end of the pregnancy, determined before birth; weight gain during pregnancy (the difference between the weight at the first doctor's visit and that as measured before giving birth).

In order to evaluate the nutritional state before pregnancy we used the WHO standards. The women in the group were divided according to the BMI in under-weight (BMI<18.5 km/m^2), normal weight (BMI 18.5-24.9 kg/m^2), overweight (BMI 25-29.9 kg/m^2) and obese (BMI>30 kg/m^2). In view of weight gain evaluation by standards of pregestational BMI, we used 2009 recommendations given by the Institute of Medicine [11].

The adequacy of prenatal care has been evaluated by determining the Adequacy of Prenatal Care Utilization Index (APCNUI) which regards the starting moment of prenatal care and the number of prenatal visits. The index is based on ACOG (American College of Obstetricians and Gynecologists) recommendations for high risk pregnancies and it consists of 4 categories. The one for inadequate prenatal care includes women registered with prenatal medical visits only after their 4th month of pregnancy or those with less than 50% of the recommended number of visits. Women prenatally consulted after the 4th month with 50-79% of the recommended number of visits are a part of the intermediate category. Those who begin their prenatal care within the first 4 months and participate 80-109% of the recommended number of visits stand for the adequate category while those with more than 110% of visits are the part of the adequate plus number of checks [12].

Data on energy intake during pregnancy were obtained using a previously validated food frequency questionnaire (FFQ) on a sample of young women [13]. The FFQ was completed by interview during 48 to 72 hours after delivery, because in our country almost all women were hospitalized for at least 3 days post-partum.

Sample size calculation was done using a single proportion formula [14]. We examined whether our participants differed from the regional population on the basis of age, area of residence and marital status by comparing them with census data using the Student t test.

Continuous data was expressed as an average, medium, minimum, maximum and standard deviation. The Shapiro-Wilk test was used to evaluate the normal distribution of the analyzed data. The chi-square test was used to determine significant differences between various categories formed out of the frequency data. The variance analysis (ANOVA) with independent/ uncorrelated scores was applied so as to compare means and the Levene test was used to verify the homogeneity of variance. We subsequently made use of the Bonferroni test in order to compare the categories of variables. When intending to identify the kind of variables with a predictor role associated to weight gain during pregnancy, we performed the multinomial logistic regression, the forward stepwise method. We determined the value Sig. Goodness-of-Fit ($p>0.05$) so as to check whether the model was adequate in terms of data. For the statistical processing of the data, we applied the SPSS programme (Statistical Package for Social Sciences) version 13.0 for Windows (Chicago, IL, USA).

The study was approved by the management department of the "Cuza Voda" Hospital of Obstetrics and Gynecology Iasi and the Ethics Commission of „Gr. T. Popa" Medicine and Pharmacy University. The study was conducted under informed consent of the mothers here involved. We paid full respect to the confidentiality and intimacy terms when maneuvering the data and records keeping of the participating subjects in the study.

RESULTS

Description of the analyzed sample

In the studied sample, the proportion of women from the rural environment was of 45.8%, and that from the urban environment was 54.3%. The average age of pregnant women in this lot was 27.53 years old. Most of them were between 19 and 30 (63.8%). The categories we established in terms of education levels were as follows: below 5 grades (4% of participants), between 5-8 grades (21.5%), between 9-12 (40%) and above 12 grades of school (34%). Women at their first birth predominated (49.5%), while women

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expecting their second child made up 32.3% of the group. Women with more than 3 pregnancies made up 18.2% of the group.

Most women (96%) benefitted from primary healthcare, while 81.4% visited their general practitioner in their first trimester. The average number of check-ups was 9.58 (ESM=0.24, SD=4.88). Out of this lot, 18% underused prenatal care (under 4 visits), 28.5% had between 5-9 check-ups, while 53.5% had more than 10 visits of the general practitioner and a specialist. We established the APNCUI index (adequacy of prenatal care utilization) which showed that 23% of the women had inadequate prenatal care; 8.3% a medium level of care, 15.3% were adequate, while 53.5% had an adequate plus level of care.

In the studied sample, 42.3% of the women declared that they received advice regarding diet during pregnancy. Amongst the women who declared having received dietary advice the predominant proportion inclined to the favor of the women with an adequate plus by the APNCUI index (70.4%). Those with just adequate care made up 10.1% of the women who received nutritional advice. Women with an inadequate and intermediate index made up 10.7% and 8.9%, respectively of the women who were counseled in terms of their diet (χ^2=40.36; p<0.001).

In the studied lot 39.5% of the pregnant women declared to ate more than it is commonly the rule, 11.3% said they ate less, while 49.2% did not make any diet changes throughout the pregnancy.

Weight before pregnancy, the pregestational BMI and pregnancy weight gain were determined for 95.5% of the subjects from within the group (382 pregnant women). The average pregestational BMI was 22.31 kg/m^2 (95%CI; 21.92-22.68 kg/m^2). Underweight women made up 11.8%, normal weight women were 66.6%, those overweight were 17% of the group while the obese made up 4.6% of the total.

Average weight gain in this lot was around 14.24 kg (95%CI: 13.79-14.86 kg). It was noticed that 22.7% of the participants had a slower weight gain than usually recommended, while 35% had a larger weight gain than advised for that particular BMI category. The adequate weight gain process was observed in 42.3% of the participants.

Analysis of the determinants of weight gain

We analyzed the weight gain of women in the studied sample according to the 2009 recommendations from the Institute of Medicine for each BMI category [11]. The weight gain of women with a pregestational BMI<18.5 kg/m^2 was around 15.28±4.94 kg. The weight gain of normal weight women was of 14.34±4.77 kg, while that of overweight women was 13.41±5.61 kg, and for the obese the gain was about 13.11±7.52 kg.

In the group of women with a pregestational BMI<18.5 kg/m^2, 26.7% had a weight gain below the recommended one, 22.2% above the recommended one and 51.1% were in the recommended limits of the IOM.

In the group of normal weight women 27.5% had a weight gain below the recommended one, 29.8% above the recommended one and 42.7% within the limits of relevant recommendations. As far as overweight women are concerned, 6.3% had a weight gain lower than the recommended one, 53.1% a larger gain than so recommended while 40.6% had an optimal weight gain. In the group of obese women, with a BMI≥30 kg/m^2, 16.7% had a suboptimal increase, 16.7% an optimal weight increase and 66.7% a weight gain higher than that recommended during pregnancy (Table 1).

We noticed a larger proportion of women with a weight gain higher than IOM recommendations amongst obese and overweight women than among normal weight and underweight ones. A weight gain lower than recommended was more frequently noticed among underweight and normal weight women. The categories of women with a weight gain within the recommended limits of IOM were the normal weight and underweight ones (χ^2=29.52; p<0.001) (Table 1).

A weight gain higher than recommended was registered in 37.1% of the women who received dietary advice compared to 33.5% of those who did not receive such advice. Weight gains within the recommended limits were most often seen among women who received nutritional advice during pregnancy (44.3% compared to 40.9%) but this association was not statistically revealing (χ^2=2.66; p=0.264). Adequate prenatal care was linked to weight gain. As a part of the group with an inadequate index, the women with a lower weight gain than recommended were the ones who prevailed. An intermediate and adequate prenatal care was more frequently associated with a weight gain within the recommended limits by the IOM (50% and 40% respectively). Women with an adequate plus APNCUI had adequate weight gain (40%) or an excessive one (40.8%) (χ^2=29.85; p<0.001) (Table 1).

Energy mean intake was 2197.65 Kcal (95%CI: 2139.56-2255.74 Kcal): 25% of women reported a calorie intake less than 1741.13 Kcal daily, while 25% of them exceeded 2587.84 Kcal/daily. Average protein intake 86.01 g/day (95%CI: 83.64-88.39), lipid intake 76.97 g/day (95%CI: 74.59-79.35) and carbohydrates intake 297.12 g/day (95%CI: 287.86-306.36) were estimated. Women with weight gain lower than the IOM recommendations had a smaller intake of energy (2126.38 Kcal vs. 2359.95 Kcal, p=0.005); proteins (80.86 vs. 93.58 g, p<0.001); carbohydrates (286.45 g vs. 320.86 g, p=0.009) as compared with those with excessive weight gain.

In general, intakes of energy and nutrients were slightly higher in women with a higher as compared with those with adequate weight gain during pregnancy (Table 2).

We noticed that women with a caloric intake on the upper quartiles had more frequently a higher weight gain than the recommendations of IOM (χ^2=16.13; p=0.003) (Table 2).

Predictors of weight gain

The multinominal logistic regression was calculated in order to establish which of the following factors can

Table 1. Analyses of weight gain determinants during pregnancy according to the Institute of Medicine recommendations

Determinants		Pregnancy weight gain			p
		Reduced (%)	Adequate (%)	Excessive (%)	
APNCUI	Inadequate	42.9	35.1	22.1	0.000
	Intermediary	28.1	50.0	21.9	
	Adequate	21.7	40.0	38.3	
	Adequate +	14.6	44.6	40.8	
Background	Urban	17.1	41.7	41.2	0.003
	Rural	29.5	43.4	27.1	
Age (years)	≤18	20	70	10	0.022
	>18	22.7	40.9	36.5	
Studies (grades)	<5	40.0	40.0	20.0	0.192
	5–8	30.0	42.5	27.5	
	8–12	22.9	41.4	35.7	
	>12	41.9	40.1	41.8	
Number of births	≤2	20.0	44.1	35.9	0.027
	≥3	35.5	33.9	30.6	
Wanted pregnancy	Yes	21.6	42.8	35.6	0.302
	No	33.3	36.4	30.3	
Marital status	Married	21.7	41.1	37.3	0.157
	Not married	26.5	48.5	25.0	
Pregestational BMI (kg/m^2)	<18.5	26.7	51.1	22.2	0.000
	18.5–24.9	27.5	42.7	29.8	
	25–29.9	6.3	40.6	53.1	
	≥30	16.7	16.7	66.7	
Nutritional advice	Yes	18.6	44.3	37.1	0.264
	No	25.6	40.9	33.5	
Dietary changes	Eat less	44.2	48.8	7	0.000
	Eat more	15.9	35.8	48.3	
	No changes	22.5	46.3	30.9	
Caloric intake (Kcal)	<1741.13	29.8	45.7	24.5	0.003
	1741.13–2587.84	19.2	47.2	33.7	
	>2587.84	22.5	42.4	35.1	

APNCUI – Adequacy of Prenatal Care Utilization Index; BMI – body mass index

determine three different categories of weight gain during pregnancy (1 – small, 2 – recommended, 3 – large): the APNCUI index, age, background, number of births, pregestational BMI and caloric intake throughout the pregnancy. The predictor variables with substantial contributions to the regression model as selected through the forward stepwise method were: APNCUI index, age, pregestational BMI, energy intake (likelihood ratio Chi-Square test $p<0.001$)

Table 3 shows the adjusted odds ratios (95% confidence intervals – CIs) for the associations between these characteristics and the category of weight gain according to the IOM recommendations. To interpret the results, the odds ratios for the 'lower than recommended', and 'higher than recommended' classes should be compared against the 'adequate weight gain' category.

Women in the "lower weight gain than recommended" category had higher odds of inadequate prenatal care (compared adequate + APNCUI index) and smaller odds of being adolescent or overweight (compared with the women with prenatal normal weight).

Women in the 'higher weight gain than recommended' category had higher odds of pregestational obesity (compared with those with normal pregestational BMI) and of an energy intake on the upper quartile (compared with the women with caloric intake in the second and third quartiles), while adolescents had smaller odds of an excessive weight gain during pregnancy (Table 3).

DISCUSSION

The "Weight Gain during Pregnancy: Reexamining the Guidelines" [11] report underlined the fact that there are multiple determinants of weight gain during pregnancy. Environmental factors such as social factors (living standards, cultural factors, mass media, access to the means of physical exercise) were mentioned along with community factors (public health programs, prenatal care) and family determinants (family violence, marital status, family support). There are also maternal factors: demographical ones (age and parity), genetic, physiological and anthropometrical ones (pregestational BMI, metabolic and hormonal changes), psychological and behavioral factor (food consumption, physical exercise). The analysis of the determinants of weight gain is complex enough and it must integrate their intervention in a holistic model [15]. In our sample, a number of 42.3% of participants had an adequate weight gain.

An inadequate weight gain was associated with inadequate prenatal care, diet changes and prenatal BMI. In-

Table 2. Dietary intake and weight gain according to the Institute of Medicine recommendations

Variable	Weight gain category						p
	Reduced (N=87)		Adequate (N=161)		Excessive (N=134)		
	Mean	σ	Mean	σ	Mean	σ	
Caloric (Kcal)	2126.38↓	571.26	2106.15↓	507.53	2359.95	625.9	0.005; 0.0002
Proteins (g)	80.86↓	23.14	82.65↓	20.69	93.58	23.99	0.0001; <0.00001
Lipids (g)	76.0↓	20.71	72.80↓	21.07	82.58	26.90	0.0006
Carbohydrates (g)	286.45↓	95.07	283.83↓	84.20	320.86	96.69	0.009; 0.0005
Proteins (%)	15.30↓	2.17	15.87	2.74	16.04	2.36	0.019
Lipids (%)	32.75	5.94	31.22	6.16	31.51	5.69	NS
Carbohydrates (%)	53.40	6.85	53.62	6.74	54.18	6.90	NS

N – number of patients (N=382); NS – not significant

Table 3. Predictors of weight gain

Weight gain category[a] (IOM recommendations)			B	p	OR	95% CI for OR	
						Lower bound	Upper bound
Lower than recommended	Intercept		0.079	0.933			
	Area of residence	Urban	-0.347	0.256	0.707	0.389	1.286
		Rural	0[b]				
	Age (years)	<18	-1.35	0.031	0.258	0.075	0.886
		≥18	0[b]				
	APCNUI	Inadequate	1.481	0.000	4.398	2.099	9.217
		Intermediary	0.441	0.371	1.554	0.592	4.079
		Adequate	0.614	0.144	1.848	0.811	4.213
		Adequate +	0[b]				
	Caloric intake (kcal)	<1741.13	0.341	0.312	1.406	0.726	2.722
		>2119.13	0.600	0.102	1.822	0.887	3.741
		1741.13–2119.13	0[b]				
	BMI (kg/m^2)	<18.5	-0.131	0.750	0.877	0.392	1.962
		25–29.9	-1.40	0.009	0.246	0.086	0.705
		>30	1.072	0.235	2.921	0.497	17.173
		18.5–24.9	0[b]				
Higher than recommended	Intercept		1.377	0.093			
	Area of residence	Urban	0.524	0.056	1.689	0.987	2.893
		Rural	0[b]				
	Age (years)	<18	-1.58	0.049	0.206	0.043	0.993
		≥18	0[b]				
	APCNUI	Inadequate	0.039	0.919	1.040	0.486	2.224
		Intermediary	-0.608	0.236	0.545	0.199	1.489
		Adequate	0.067	0.852	1.069	0.529	2.163
		Adequate +	0[b]				
	Caloric intake (kcal)	<1741.13	-.417	0.190	0.659	0.353	1.230
		>2119.13	0.712	0.019	2.038	1.122	3.703
		1741.13–2119.13	0[b]				
	BMI (kg/m^2)	<18.5	-0.287	0.489	0.750	0.332	1.694
		25–29.9	0.496	0.121	1.642	0.877	3.074
		>30	2.031	0.011	7.621	1.590	36.536
		18.5–24.9	0[b]				

[a] The reference category is recommended.
[b] This parameter is set to zero because it is redundant.
IOM – Institute of Medicine; OR – odds ratio; CI – confidence interval

adequate prenatal care was an important predictor of a smaller weight gain than recommended. This observation could be a consequence of social inequity or particular health believes.

A review underlined the fact that belonging to certain ethnic groups, education levels and a low pre-gestational BMI, as well as the lack of nutritional advice, can constitute predictive factors of a lower weight gain than recommended while overweight, multiparity and young age can be indicative of a higher weight gain than recommended by the IOM [16]. In our study, women who benefitted from a larger number of prenatal checkups had an optimal

weight gain more often. However, we noticed the lack of major associations between nutritional advice and weight gain. Weight gain within recommended limits was most frequent among women who received nutritional advice during pregnancy but this association is not statistically significant.

The impact of recommendations regarding weight gain were emphasized in numerous studies, highlighting the fact that messages transmitted during prenatal consultations can influence the women' perceptions regarding the optimal weight gain [17]. The characteristics of intervention methods, the content and frequency of educational measures as well as the socio-economic particularities of the pregnant women groups led to discordant results in interventional studies [9]. The effect of recommendations regarding adequate weight gain is also influenced by the attitude of the people receiving prenatal education. An evaluation of the participants in the the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC program) emphasized the importance of prenatal care in preventing a low weight gain at the beginning of the pregnancy and a high weight increase throughout the entire pregnancy [18].

In order to optimize pregnancy weight gain the best strategy is preventative, encouraging women to reach and maintain an optimal weight from the preconceptional stage [19, 20]. In the analyzed lot, overweight and obese women had a smaller weight gain than other women, but this was higher than recommended. We also noticed that the frequency of a higher than recommended weight increase was greater amongst obese and overweight women than normal weight and underweight ones. However, a weight gain smaller than recommended was observed more repeatedly among underweight and normal weight women. The groups of women with a weight gain within the recommended limits were that of normal and underweight women.

Pregestational BMI is reversely correlated to weight gain. Chu et al. [21] have emphasized that pregestational obesity is the strongest factor which affects weight gain during pregnancy and that obese women report the smallest weight gain, similar to the results of our study.

Studies performed in the USA pointed towards a percentage of 30-50% of pregnant women with a weight increase outside the limits recommended by the IOM [16]. Data from the WISH project (Women and Infants Starting Healthy) showed that 24.1% of overweight and obese women had a weight gain larger than recommended while 51.2% of underweight women had a lower gain than recommended [11].

In this sample, teenagers had a lower risk of inadequate weight gain, with 70% of them presenting a weight gain within the limits recommended by the IOM. This conclusion is quite surprising if taking into consideration the fact that this age category is considered to be at a high nutritional risk and it requires high nutritional guidance [22]. This finding is important taking into account the consequences of inadequate weight gain for adolescents. A greater weight gain than recommended was associated with an increase in the frequency of macrosomic infant girls [23] and has been linked to overweight and obesity [24].

In our sample, there was a significantly higher intake of macronutrients among women with excessive weight gain. These women had a significantly higher average intakes of protein (%), lipids and carbohydrates.

In the meta-analysis conducted by Kramer, there were not significant differences in macronutrient intake between the groups of weight gain in early pregnancy, while in the late pregnancy there were significant differences between categories and particularly in the case of overweight women. The total amount of protein, fat and carbohydrates contributed to weight gain. Energy intake from macronutrients was associated with weight gain only among overweight women [25]. In another study, weight gain at the end of the second trimester of pregnancy was associated with a higher proportion of protein and animal fat intake and with low intakes of carbohydrates [26].

The limitations of the study

As far as the pregestational weight is concerned, we used the value declared by the women in the study. In order to appreciate this parameter, it is recommended to use the weight reported by them or that registered in the first two months of pregnancy [27]. In both situations, there are systematic errors. This constitutes a source of error in the case of overweight women who tend to declare a smaller weight than the real one. As a consequence, if declaring their weight to be normal, the results of the study can underestimate the relationship between pregestational BMI and weight gain during pregnancy [28]. Regardless of this, there are studies which show that the value declared by the mother is correlated to the real weight [29]. A study done by Oken et al. [30] demonstrated a 0.99 correlation coefficient between the self-reported weight and the registered one.

The participants in the current study proved to be highly indicative of the pregnant women category here, in this specific region of Romania. Thus, we must therefore be cautious about the conclusions we draw as a consequence of the subgroup analysis and test the hypotheses that arise from these findings in future studies.

CONCLUSION

Pregestational BMI has a major role in the weight gain during pregnancy. By applying the multinominal logistic regression, we were able to thus identify predictors of weight gain, as follows: inadequate prenatal care, pregestational BMI, changes in diet. Overweight and obese women as well as underweight ones must be more carefully examined throughout their pregnancy. Any dietary changes ought to be closely monitored as a part of the prenatal consultations in order to ensure that an adequate weight gain is maintained within the limits of the recommended guidelines.

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Одговарајуће повећање телесне тежине током трудноће: анализа детерминанти унакрсним истраживањем

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КРАТАК САДРЖАЈ

Увод Пренатална нега се сматра значајним средством унапређења здравог начина живота. Досад, међутим, нису обављена истраживања на ову тему, као предиктора добијања на тежини труднице, а нарочито не у Румунији, где су веома ретки подаци о трудноћи и исхрани.

Циљ рада Истраживање је било усмерено на испитивање односа између прегестационог индекса телесне масе, адекватности пренаталне неге и добијања на тежини током трудноће.

Методе рада Ово унакрсно истраживање је обухватило 400 трудница које су примљене на Клинику за гинекологију и акушерство „Куза Вода" у Јашију, у Румунији. Подаци који се односе на демографске одлике испитаница, број пренаталних прегледа, датум првог бележења података у болници и едукација о исхрани током трудноће добијени су упитником који је попуњаван током директног интервјуа. Анализирани антропометријски показатељи обухватили су прегестациони индекс телесне масе и добијање на телесној тежини током трудноће. Подаци о калоријском уносу добијени су применом упитника о учесталости уноса хране.

Резултати Добијање на тежини у границама одређеним у складу с препорукама Института за медицину у Вашингтону забележено је код 44,35% жена, које су, према сопственој изјави, добиле савет о исхрани током трудноће, у односу на 40,7% жена које нису добиле такав савет. Код трудница прекомерне тежине (53,1%) и гојазних испитаница (66,7%) утврђено је веће повећање тежине него код жена нормалне телесне тежине током трудноће (29,8%) (p<0,001). У овој групи трудница установили смо следеће варијабле које могу утицати на добијање тежине: неодговарајућа пренатална нега, прегестациони индекс телесне масе и енергетски унос.

Закључак Одређивање прегестационог индекса телесне масе и промена у исхрани као предиктора за добијање на тежини истиче значај индивидуализације пренаталне неге.

Кључне речи: прегестациони индекс телесне масе; добијање на тежини током трудноће; пренатална нега; нутритивна едукација

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