Effect of Nutrition Education Package on Pregnant Women Knowledge and Healthy Dietary Practice

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Abstract: Background: *Pregnant women need more essential nutrient than other women. Pregnant woman needs 300 calories per day to support the growth of the baby .The **aim** of this study was evaluate the effect of nutrition education package on pregnant women knowledge and healthy dietary practice. **Design**: A quasi-experimental study. **Sample**: A purposive sample. **Setting**: Women were recruited from maternity &childhood hospital, Zagazig university hospitals. **Tools of data collection**: Self-administered and food frequency questionnaire were used for data collection measuring height and weight together to calculate body mass index. **Results**: The majority of participants (51.7 %) were classified over weight while (24.5) and (23.2) of participant were classified as normal and obese respectively. About (22.5%) of participants were overweight who ate chicken three to four times per week while (26.6%) of participants were overweight consumed rarely fish per week and about (23.3%) of pregnant women were obese who consumed rarely cheese during pregnancy. **Conclusion**: Most of differences between BMI category and dietary habits but the dietary habits of pregnant women were unhealthy and more than half of participants ate fast foods. **Recommendation:** Pregnant women should be provided with adequate knowledge about fundamental aspects of healthy dietary behaviors during pregnancy to enhance making healthy food choices, and the effect of dietary practices on the pregnancy, newborn and postpartum period.*
Key words: *Dietary Practice, Education package , Nutrition .*

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I.   Introduction:

A healthy, adjusted eating routine within pregnancy is basic to help ideal development and improvement of the fetus and the physiological changes that happen in the mother. Crucial parts of solid dietary practices amid pregnancy incorporate expending sustenance that contain ideal measures of vitality and also large scale and micronutrients, accomplishing suitable weight gain, holding fast to general and pregnancy-explicit nourishment wellbeing suggestions, and staying away from ingestion of unsafe substances [1, 2].

Previous studies show that, if such behaviors are not followed, there is an increased risk of unsatisfactory pregnancy outcomes including preeclampsia [3], low birth weight, [4] pre-term birth[5], and neurodevelopmental problems such as fetal alcohol spectrum disorder [6].

Although most women are aware of the importance of healthy eating during pregnancy, women may have lack of knowledge of the specific dietary recommendations or may not have the skills required to improve their dietary habits [6]. Healthy eating may also be challenging during pregnancy as women face barriers such as food aversions, nausea, vomiting, cravings, constipation, hemorrhoids, tiredness, and heartburn [7]. Women may receive and follow advice from a variety of sources, including health professionals, relatives, and educational resources, which command their choices during pregnancy [8]. In this context of change, challenge, and cultural variance in nutritional patterns, one must consider the impacts and implications of nutrition to women during pregnancy.

Although most women know that smart dieting is imperative amid pregnancy, ladies may need information of explicit dietary suggestions or might not have the right stuff required to enhance their eating routine [6]. Smart dieting may likewise be trying amid pregnancy as ladies confront boundaries, for example, sustenance repugnancies, desires, sickness, heaving, tiredness, clogging, hemorrhoids, and acid reflux [7]. Ladies may get and pursue counsel from an assortment of sources, including wellbeing experts, peers, and instructive assets, which impacts their decisions amid pregnancy [8]. In this setting of progress, challenge, and social fluctuation in healthful examples, one must think about the effects and ramifications of sustenance to the pregnant women.

Nourishment training about solid eating routine within pregnancy is ideal time to promote satisfactory daily folic acid consumption, and other pregnancy explicit sustenance [7]. Nourishment training bundle upgrade members' dietary admissions amid pregnancy by advancing adjusted eating regimen. Research proof proposes that sustenance instruction amid pregnancy has critical effect on information and dietary propensity for pregnant ladies, which empowers to enhance maternal and neonate [14-16]

The extent of knowledge and practice of pregnant women improved by nutrition education interventions in Zagazig governorate remain largely unknown. Therefore this study aimed to evaluate the effect of nutrition education package on pregnant women knowledge and healthy dietary practice in Zagazig, Egypt.

The nurse should catch any opportunity to deliver important health education massage to pregnant women about fundamental aspects of healthy dietary behaviors during pregnancy to enhance making healthy food choices, and the effect of dietary practices on the pregnancy, newborn and postpartum period

(1.1)Aim of the study
The aim of this study was evaluate the effect of nutrition education package on pregnant women knowledge and healthy dietary practice.

(1.2)Research Questions:
 1. What was the knowledge of pregnant women about health Dietary practice?
 2. What was the effect of Instructional learning brochure toward Healthy Dietary Practice?

(1.3)Hypothesis:
1-There will be a difference between before and after intervention.
2-There will be a difference between the posttest knowledge score and selected demographic variables among pregnant mothers.

II.   Subjects and Methods:
Research Design: Descriptive designs as well as intervention designs were used for this study.
Setting: This study was carried out at antenatal clinics, maternity and child hood hospital, Zagazig university hospitals.
Sample: A purposive sample.
Subjects: A total sample of 150 pregnant women attending the antenatal clinics was selected from the previously mentioned settings to be included in this study. The subjects of this study were selected according to the following criteria: Pregnant women in their first trimester of pregnancy had normal current pregnancy and their age ranged between 18-35 years.

III.   Tools for data collection:

1. A structured interviewing questionnaire sheet includes data about socio-demographic characteristics (age, education, occupation, and income….etc.). Obstetric profile (last menstrual cycle, gestational age by weeks and anemia during current pregnancy and ante natal care.

2.   A Structured interview schedule about women knowledge pertaining to their dietary need which consists of the following parts: What types of food do she eats most of the day? **red meat, chicken, fish, vegetables, &milk**, What foods do she avoids while she is pregnant? , The amount she eats of each type of food during pregnancy?, What did she prefer in various meals ?, What is the importance of a balanced diet during pregnancy?, Which advice do you use concerning feeding from your surroundings?, and Did you feel tired or having upset stomach during your pregnancy? .

The scoring system regarding women's knowledge was as follow:
• Women who mentioned more than two food items= Complete correct answer (was given score 2).
• Women who mentioned two food items =Incomplete correct answer (was given score 1).
• Women who mentioned one food item at all and/or don't know = Don't know (was given score zero).
        The total knowledge score level calculated by (7 questions× 2 = 14) which categorized was as follows:
1) Complete correct answer >75% = (>10.5 scores). **2)** Incomplete correct answer 50% - < 75% = (7- < 10.5 scores). **3)** Don't know < 50%. The diet diary questionnaire contain an open-ended questions that the participants were asked to listing all foods, beverages, and supplements that they had decreased, increased, or added to their diets using their own words. Also, participants were asked to include the frequency of food consumption during pregnancy for each of the items. When more than one reason was listed for a food item, each reason was coded separately.

3-**Instructional learning brochure:** This includes instruction for women in intervention group about healthy diet during pregnancy.

Field work:

A 24-h diet recall was conducted immediately after the interview which took place in from first of January to end of March 2017. All pregnant women were provided by voluntary informed consent, either verbally or written depending on their literacy level. Interviews were conducted as one to one interactions lasting about 20 to 45 min. each by the researcher. In each case the setting provided privacy and ensured confidentiality.

This study used an open-ended questionnaire, which can be considered strength as it allowed participants to include any type of food or beverage that was altered in the diet and reason(s) for these changes. This questionnaire format allowed women to use their own words in describing their experience.

A Pilot study:

After the development of tools, a pilot study was carried out on 10% of the studied subjects who were excluded from the main study sample.

The purposes of the pilot study were to:

-Ascertain the clarity and the applicability of the tools.
-Ascertain the relevance and content validity of the tools.
-Estimate the time needed to complete the sheet.
- Detect any problem peculiar to the statements such as sequence and clarity that might interfere with the process of data collection . The necessary changes were undertaken.

Results of the pilot study:

After conducting the pilot study, it was found that:

The tools were clear and applicable; however, few words were modified.Tools were relevant and valid.No problem that interferes with the process of data collection was detected. Following this pilot study the tools were made ready for use.

Validity:

Tools I, II,III were developed and used by the researchers' after extensive of current and relevant literature, also translated into Arabic and were submitted on both Arabic and English language and examined by panel of five experts in the field of the study at faculty of medicine and nursing, Zagazig university to be tested for its translation and its content validity also to determine whether the included items clearly and adequately cover the domain of content addressed, The percentage of consensus among experts regarding the structured interviewing questionnaire was 94% and the pre-post-test was 87%. Accordingly, necessary modifications were done.

Limitation of the study: Although the instrument used open ended questions, most women often answered with only one to two word responses. A second limitation was reliance on a local research to collect dietary recalls.

IV. Results:

Table.1. Frequency Distribution of Participants According To Their Demographic Characteristics

Items	NO	%
Age		
<20	16	10.7
20-30	86	57.3
>30	48	32.0
Educational levels		
Primary School	22	14.7
Secondary School	18	12.0
Diploma	75	50.0
University	35	23.3
Total	150	100
Job status		
	108	72.0
Housewife	42	28.0
Employee		
Total	150	100.0

Table (1): Illustrates the frequency distribution of socio-demographic characteristics of the studied women. It was observed that more than one third of women (34.5%) were aged from 26 to less than 30 years old. Regarding the educational level, it was found that half of the women (50.0%) of the women diploma

education and 23.3% had university education. Concerning the occupation, it was showed that almost three quarters of the women (72.0%) were housewives, and 28.0% were employee.

Table.2 Dietary Pattern and selected behaviors of participants

Variable	no.	%
Times she eats red meat per week		
Two to three times	64	42.7
Three to four times	18	12.0
Daily	18	12.0
Rarely	50	33.3
Times she eats chicken per week		
Two to three times	47	31.3
Three to four times	55	36.7
Daily	41	27.4
Rarely	7	4.7
Times she eats fish per week		
Two to three times	44	29.3
Three to four times	14	9.3
Daily	17	11.3
Rarely	75	50.0
Times she eats fruits and vegetables per week		
Two to three times	44	29.3
Three to four times	14	9.3
Daily	17	11.3
Rarely	75	50.0
Cups of milk she drinks daily		
Once	73	48.7
Two to three times	30	20.0
Three to four times	20	13.3
More than four times	12	8.0
Rarely	15	10.0
Times she eats sweets per week		
Once	42	28.0
Two to three times	48	32.0
Three to four times	23	15.3
More than four times	15	10.0
Rarely	22	14.7
Having Fast foods		
Yes	79	52.6
No	22	14.7
Sometimes	49	32.7
Frequency of fast foods per week		
Three times	13	8.7
Twice	31	20.7
Once	106	70.7
Times she practice sports per week		
Once	12	8.0
Twice	8	5.3
Three times	3	2 .0
Rarely	127	84.7

Table 2 illustrated the dietary pattern and selected behaviors of participants. It indicates 42.7% ate red meat two to three times per week and 36.7 % of pregnant women ate chicken three to four times per week. While half of the women (50.0%) reported eating fruits and vegetables rarely per week, and partially equal percentage drank one cup of milk per day (48.7%), and 32.0% were eating sweets two to three times per week, meanwhile more than half of the women (52.6%) reported that they eat fast food during pregnancy 70.0% of them eat it once a week, and the majority of women (84.7%) rarely practice sports during pregnancy.
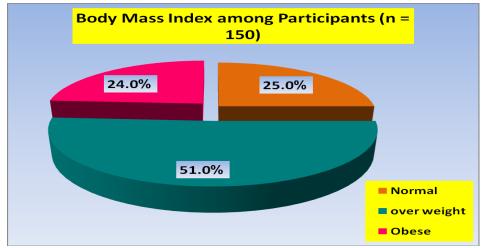
Figure (1) frequency distribution of participants according to their body mass index (BMI).

Fig.1 illustrates that 24.0% of the participants were obese and 51.0% were overweight. The rest had normal BMI.

Table (4): Distribution of the studied women according to their knowledge about food items during pregnancy during the study phases.

Food items	Before		Immediate after		Follow up		FET	P value
	No	%	no	%	no	%		
Types of food she eats most of days red meat, chicken, fish, vegetables, &milk							68.568	**0.000**
Complete correct answer	5	13.9	35	97.2	32	88.9		
Incomplete correct answer	28	77.8	1	2.8	4	11.1		
Don't know	3	8.3	0	0.0	0	0.0		
Foods she avoids while she is pregnant							37.886	**0.000**
Complete correct answer								
Incomplete correct answer	**8**	**22.2**	**31**	**86.1**	**26**	**72.2**		
Don't know	22	61.1	5	13.9	10	27.8		
	6	16.7	0	0.0	0	0.0		
The amount she eats of each type of food during pregnancy							47.534	**0.000**
Complete correct answer								
Incomplete correct answer	**6**	**16.7**	**30**	**83.3**	**28**	**77.8**		
Don't know	19	52.7	6	16.7	8	22.2		
	11	30.2	0	0.0	0	0.0		
She Prefer various meals during pregnancy							37.868	**0.000**
Complete correct answer								
Incomplete correct answer	**5**	**13.9**	**29**	**80.6**	**23**	**63.9**		
Don't know	27	75.0	7	19.4	13	36.1		
	4	11.1	0	0.0	0	0.0		
The importance of a balanced diet during pregnancy.							42.865	**0.000**
Complete correct answer								
Incomplete correct answer	**4**	**11.1**	**25**	**69.4**	**20**	**55.6**		
Don't know	19	52.8	11	30.6	16	44.4		
	13	36.1	0	0.0	0	0.0		
Advice she uses concerning feeding from her surrounding							42.724	**0.000**
Complete correct answer								
Incomplete correct answer	**3**	**8.3**	**28**	**77.8**	**25**	**69.4**		
Don't know	31	86.1	8	22.2	11	30.6		
	2	5.6	0	0.0	0	0.0		
Feeling tired or having upset stomach while she is pregnant							37.868	**0.000**
Complete correct answer	**5**	**13.9**	**29**	**80.6**				
Incomplete correct answer	27	75.0	7	19.4	**23**	**63.9**		
Don't know	4	11.1	0	0.0	13	36.1		
					0	0.0		

Table 4 describe women knowledge about their dietary need throughout the program phases. It was clear that the majority of women had complete correct answer about ,type of food the woman should eat, type she should avoid\eliminate , and her preference of certain diet immediately after program [97.2%,86.1%,80.6%] respectively. On other hand less proportion of women had knowledge about the quality of good balanced diet or concerning to other neighborhood advices [69.4%, 77.8%]. Differences observed were statistically significant.

V. Discussion

A healthy and balanced diet is quit essential in life time and during pregnancy in exacting. The maternal diet must provide adequate energy and nutrients to meet the mother's usual requirements, over and above the needs of the growing fetus and enabling mother to sustain her own stores of nutrients required for fetal and infant health as well as for future breastfeeding practices. The main recommendation is to follow a healthy, balanced diet (1) .Adequate nutritional intake is one of the most important factors affecting on one's health and well-being, especially during g pregnancy.

Fundamentally, the purpose of the education is to reduce undesirable behaviors and change them by appropriate and useful behavior leading to healthy life (9). This study sought to answer the question of whether nutrition education can influence a positive change to improve levels of nutritional knowledge of pregnant women. The present study showed significant improvements in awareness level of pregnant women who received at least two educational sessions on healthy nutrition in which it was significantly increased from much effort was needed to improve nutrition education to adequately provide the necessary information which is crucial to prevent the Intergenerational effect of malnutrition. The study suggested the imperative for promotion of prenatal care to invite women to openly discuss traditional and mainstream practice in order to have healthier pregnancies and healthier baby (10).

The current study findings revealed that one third of the women (32.0%) were aged more than 30 years old, half of the women had Diploma education and more than one fifth had university education. Concerning the occupation, it was showed that almost three quarters of the women (72.0%) were housewives and (28.0%) were employee. in contrary to Forbes et al., (2018) (11) study in Canada about " Dietary Change during Pregnancy and Women's Reasons for Change " who reported that the mean age of participants was 31 years and most of them were had achieved an education level above a high school diploma and working.

When study participants interviewed on the type of food and dietary habits, it was observed that intake of milk, chicken and meat are preferred as essential protein source followed by fruits and vegetables among half of participants (50%).mean while the majority of them eat fast food once weekly and rarely to practice sport during pregnancy. This finding in the same line with Zelalem et al., (2017) study in Addis Ababa who reported that, 204 (50.2%) were in line with meat and legume servings (protein foods), 172 (42.4%) in line with dairy products, and 187 (46.1%) in line with green vegetable servings. Less than half (44.1%) of the pregnant women reported eating at least two fruits per day. The similarity of these results may be due to similar intervention strategies used.

In terms of nutritional status using body mass index (BMI), the current study findings showed that half of participants 51.0 % were classified over weight and 24.0 of them had morbid obesity, meanwhile quarter of women had normal BMI. This in partial agreement with study findings of Fallah et al ., (2013) (12) in Iran about "Effects of Nutrition Education on Levels of Nutritional Awareness of Pregnant Women in Western Iran " reported that 41% had normal weight, 28% were overweight, 26% were obese and 5% were underweight.

After the implementation of Nutrition education during pregnancy period the present study findings revealed statistical significant improvement in knowledge items among the majority of pregnant women after implementation of the instructional package. This corresponds well with Zelalem et al., (2017) (13) study which indicates proportion of pregnant women with good knowledge of nutrition during pregnancy increased from 53.9% to 97% which support the previous study conducted in Iran: the positive effect of nutrition education observed in knowledge change was from 3% to 31%. [14]. This is in agreement with study done in India which found an overall nutritional knowledge improve emend from mean score of 22 to 32.7 at pre and post assessment respectively [15].

These outcomes can ensnare the adequacy of sustenance training in enhancing information of pregnant ladies on nourishment amid pregnancy. Higher change in sustenance information among pregnant ladies in this investigation could likewise be because of the short interim between the pre and post appraisal and the way that there was just a single post training evaluation

The present study also shows that there was appositive statistically correlation between total knowledge and total practice scores before, immediately after, and at follow up phases of instructional package implementation(p ≤ 0.0001). This in agreement with a Dutch study where there was a significant increase in the amount of almost all the food groups consumed in the post- Nutrition Education as compared to non-Nutrition Education and pre- Nutrition Education group [16].

VI.   Conclusion:

Most of differences between BMI category and dietary habits but the dietary habits of pregnant women were unhealthy and more than half of participants ate fast foods.

VII.   Recommendation:

Pregnant women should be provided with adequate knowledge about fundamental aspects of healthy dietary behaviors during pregnancy to enhance making healthy food choices, and the effect of dietary practices on the pregnancy, newborn and postpartum period.

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