Daily Dietary habits and Nutrition Attitude of Pregnant Women in Port-said city

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Abstract

Background: Nutrition during pregnancy has a significant impact on pregnancy outcomes and is seen as a critical component of a healthy and successful pregnancy, as well as the offspring's long-term health. **Aim:** This study aimed to explore daily dietary habits of women regarding healthy nutrients during pregnancy. **Subjects and Methods:** A descriptive study was used to apply the research in prenatal clinics at six health centers in Port Said, with a total of 270 women receiving antenatal care. The tools used for data collection consisted of; a structured interviewing form, Food Frequency Questionnaire (FFQ), and the nutritional attitude scale. **Results**: The current study revealed that more than three quarter of the studied women had unsatisfactory level of knowledge related to nutrition during pregnancy. Most of them had positive attitude related to nutrition during pregnancy in Port-said city. A statistically significant relationship was found between total knowledge level and total attitude level of the pregnant women related to nutrition during pregnancy whereby p-value ≤ 0.05. **Conclusion**: Most of the studied women reported low level of knowledge regarding healthy nutrients during pregnancy. Moreover, more than half of the studied women didn't change their diet habits during pregnancy, because they were convinced that their nutrition is actually healthy. **Recommendations**: Applying nutrition counseling to all pregnant women to improve their practices.

Keywords: Daily dietary habits, Nutrition attitude, Pregnant women.

Introduction:

Pregnancy is an important achievement in a woman's life that necessitates special attention from conception through delivery. It's also a fantastic opportunity for expectant mothers. A woman's pregnancy is a one-of-a-kind experience, and each pregnancy is distinct (Daba, Beyene, Fekadu & Garoma., 2013). As a result, women must have knowledge and understanding of nutrition throughout pregnancy, as appropriate prenatal care is critical to both mother and child's health. Pregnancy and nursing provide unique dietary needs since more nutrients are necessary to preserve and maintain health, favorable delivery outcomes, and baby health (Zelalem, A., Endeshaw, M., Ayenew, M., Shiferaw, S.,Yirgu, R., 2017).

Nutritional education is an important component of attaining healthy eating habits and subsequent diet quality improvements, as well as ensuring excellent pregnancy outcomes (Mugyia, Tanya, Njotang & Ndombo, 2016). Eating habits are described as the observable behavior or behavior of eating habits, and they can be classified as either good or bad. Nutritional intake during pregnancy is vital for a successful pregnancy, as it affects maternal and child health as well as dietary treatments during pregnancy. Due to anatomical and physiological changes that occur during pregnancy, energy requirements increase by about 14%. Women who are pregnant need to fuel not just their bodies, but also their babies' growth (American College of Obstetricians and Gynecologists (ACOG), 2018).

During pregnancy, the incidence of nutritional mistakes related to dietary habits and patterns is higher than during any other stage of the life cycle. Many women in developing nations restrict their food consumption during pregnancy for a variety of reasons, including B. having smaller kids, who have a lower risk of birth difficulties, cultural reasons, and the severity of birth issues, as larger babies make delivery more difficult. Low intake of important nutrients (such as

protein, energy, vitamin C, vitamin A, and iron) is linked to maternal mortality, low birth weight, and intrauterine development due to poor dietary habits, as well as environmental, social, and infectious variables. Retardation has a variety of causes (Belay, Cherkos, and Taye, 2022).

If the standards are not met, the mother and infant may suffer serious repercussions. If the mother's prenatal diet lacks the nutrients she and the fetus require, the fetus' demands are satisfied by consuming it from the expectant mother's tissues. This weakness the mother, even more, raising the risk of catastrophic life-threatening problems. There is evidence that fetal malnutrition, intrauterine development retardation, low birth weight (LBW) in newborns, preterm birth, some genetic birth abnormalities, and pregnancy problems can all be caused by nutrient deficits or excesses. Furthermore, poor food habits during pregnancy have been linked to increased maternal infection, preeclampsia, chronic energy shortage, anemia, premature birth, and miscarriage (Jouanne, Oddoux, Nol, and Voisin-Chiret, 2021).

While most women understand the importance of eating well during pregnancy, they may be unaware of particular dietary recommendations or cannot modify their eating habits. Food aversion, nausea, vomiting, cravings, constipation, hemorrhoids, exhaustion, and heartburn can all make it difficult to eat healthily during pregnancy. While most women understand the need of eating well during pregnancy, they may require clear nutritional counsel or lack the necessary information to modify their eating habits (Rockliffe, Peters, Heazell, & Smith, 2021).

Nutrition education during pregnancy has been shown to have a considerable impact on maternal knowledge and dietary habits, with the potential to improve maternal and neonatal pregnancy outcomes (Alina et al., 2013). Nurses are health-care professionals who are uniquely qualified to offer nutritional advice to pregnant women because they regularly interact with them at prenatal sessions. Furthermore, Teweldemedhin, Amanuel, Berhe, Gebreyohans, Tsige, & Habte, (2021) consider health promotion and education to be among the most important activities nurses perform with pregnant women as advocates of health and well-being, not disease managers.

As nutritionists, maternity and community nurses must be able to improve pregnant women's nutritional knowledge and practice in vital nutrients and metabolic function, as well as the selection of a balanced diet, daily dietary guidance, and diet. Alternative eating habits improve general health, boost reproductive health, and lower mother and newborn mortality. As a result, the purpose of this study was to look into the nutritional awareness of pregnant women as indicated by their knowledge, attitudes, and nutritional habits regarding the meaning, importance, and components of a balanced diet and important nutrients (Arrish, Yeatman & Williamson, 2017).

Significance of the study:

According to Fouda et al. (2012), about half of women of reproductive age lack sufficient information about the meaning, value, and components of a balanced diet, according to a study conducted at El Menshawy Hospital in Egypt. This finding is in line with findings from an Egyptian study on the prevalence of malnutrition among pregnant women. According to the World Bank's collection of development indicators from officially recognized sources, it was 22.6 percent in 2016. According to research, nutritional awareness influences the quality of food consumed and the purchasing of healthy foods (World Bank Development Collection, 2016).

As a result, paying attention to healthy eating habits and nutrient intake will offer adequate nutrition, which can lead to behavioral changes that enhance maternal eating habits, food choices, and dietary regulatory behaviors (Lucas, Charlton, Brown, Brock& Cummins ,2014).. As a result, more research is needed on the relation between mother attitude knowledge and food behaviors.

Aim of the study:

This study aimed to explore the daily dietary habits and attitude of women regarding healthy nutrients during pregnancy in Port-said city.

The aim of the study was achieved through the following objectives:

- Assess knowledge of the women about healthy nutrients during pregnancy.
- Evaluate daily dietary habits regarding healthy nutrients during pregnancy.
- Examine nutrition attitude of pregnant women .

Subjects and Method:

Study design: A descriptive study design was utilized for this study.

Study Settings

The research was carried out in ante-natal clinics in 6 health centers in Port-said city selected randomly, namely: El Manakh, El Kuwait, Bank Elescan, El- Erab, Omar Ebn Elkhatab, and Osman Ebn Afan centers.

Target population: The target population involved pregnant women during antenatal care visits at the previously mentioned setting and fill the following criteria.

Inclusion criteria

Both primi and multi-pregnant women at reproductive age without any high-risk conditions.

Study Sample:

A minimum total sample size of 270 pregnant women was sufficient to detect the effect size of 0.23, a power (1-β=0.95) of 95% at a significance probability level of $p< 0.05$ partial eta squared of 0.05. A total sample size of 270 was applied. The sample size was calculated according to G*Power software version 3.1.9.2. (Faul et al., 2007)

Sample type: A purposive sample of pregnant women fulfilling inclsion criteria was used during time of data collection.

Tools of Data Collection:

Three tools were used for collecting data for this study:

Tool I: Structured interviewing form:

The researchers developed it in the Arabic language through an extensive literature review. It was used to collect the information from the women, and it consists of (3) parts:

Part (1): socio-demographic data involved data such as age, education level, residence, family income, and work status.

Part (2): obstetrical history included the number of pregnancies, parity, number of living children, type of last delivery and weeks of gestation of current pregnancy.

Part (3): Knowledge regarding pregnancy and nutrition during pregnancy:

to assess women's knowledge of nutrition during pregnancy. Questions to assess pregnant women's nutritional knowledge of essential nutrition during pregnancy. Food definitions, the characteristics of a balanced diet, and the relevance of food or good nutrition during pregnancy are all discussed.

Tool II: The Food Frequency Questionnaire (FFQ):

The FFQ was adapted from the Canadian version of the Diet History Questionnaire (DHQ) (Csizmadi, et al, 2007) which was originally developed by the National Cancer Institute in the United States (Subar, et al, 2001). The tool was translated into Arabic and retranslated into English by the researchers and a language expert, and tested for its validity and reliability. This tool included questions regarding woman's food habits such as the number of meals per day, snacks, fluids, food likes and dislikes, food purchase and preparation, and any related problems.

Tool III: Nutrition attitude scale:

The nutrition attitude scale was adopted from (kwok, Mann, Wong & Blum, 2009). This tool included questions regarding behaviour of the mother about the type of information considered most useful by the women. The tool was translated into Arabic and retranslated into English by the researchers and a language expert, and tested for its validity and reliability.

In the next set of questions, we are interested in finding out what factors influence your choice of food. Listed below are a series of factors that may be relevant to your choice

of foods. Read each item carefully and decide how important the item is to you. Put a tick in the box that best reflects your feelings. Remember, there are no right or wrong answers - we are interested in what is important to you.

Scoring System

Knowledge: Finally, the knowledge of respondents on nutrition were scored and computed for the nutrition knowledge variables. For the knowledge items, a correct response will be scored 1 and the incorrect zero. For each area of knowledge, the scores of the items will be summed-up and the total divided by the number of the items, giving a mean score for the part. Knowledge will be considered satisfactory if the percent score is 60% or more and unsatisfactory if less than 60% (**Daba et al., 2013).**

Attitude: For each part, the scores of the items will be summed-up and the total divided by the number of the items, giving a mean score for the part. The attitude will be considered adequate if the percent score is 60% or more and inadequate if less than 60%.

II- Operational Design:

The operational design includes the preparatory phase, tools validity, reliability, pilot study, and fieldwork.

1-Preparatory phase

During this phase, researchers review literature, diverse studies, and theoretical knowledge on many elements of research issues using books, articles, the Internet, magazines, journals, and journals to gain knowledge about research themes and techniques.

2-Tools validity and reliability

It was ascertained by a jury consisting of seven experts in the nursing field. They reviewed the tools for clarity, relevance, and comprehensiveness. Cronbach alpha coefficient calculated to assess the reliability of the developed tool through their internal consistency was = 0.920.

3 -Pilot study

A pilot study was carried out on 10 % (27) of the women's going to the clinic excluded from total study sample to test the applicability of the tool then necessary modification was done according to the results of the pilot study.

4 -Fieldwork

Data have been collected for 12 months by the researchers throughout the period from the beginning of April 2019 to the end of April 2020. The researchers met the pregnant women individually and explain the aim of the study and gain their support and cooperation. Oral consent was obtained and data was collected using the pre-constructed tools in total privacy. The sheet consumed about 20 to 30 minutes to be answered.

III- Administrative Design:

An official letter from the dean of the faculty of nursing was sent to the director of the selected area of the study. The director of each clinic was contacted and informed to obtain permission to include the nurses and the women in the present research.

Ethical consideration

The Research Ethical Committee approved the study of the Faculty of Nursing at Port Said University. The researchers informed women about the nature, process, and expected outcomes of the study reassured them that the research was safe, assured them that information was obtained confidential and used only for the study, and informed them about their rights to withdraw at any time throughout the research. Oral approval was obtained from the participants.

IV- Statistical Design:

Collected data were coded and analyzed using Personal Computer with the Statistical Package for Social Sciences (SPSS version 20) and tabulated, frequency and percentages were calculated. The level of significance selected for this study was a p-value equal to or less than 0.05. The used tests were the Chi-square test, Monte Carlo, and Fisher exact test which are used for the testing relationship between categorical variables and to present statistics to quantify the difference between the two groups, and the ANOVA test was used whenever the expected frequency of any cells of 2×2.

Results:

It was clear from this **figure 1** that more than three quarter of the studied women (77%) had unsatisfactory level of knowledge related to nutrition during pregnancy while, only 23% of them had satisfactory level.

Table (1) shows the distribution of the nutritional habits among the studied pregnant women. More than half of the studied women (53.3%) didn't change their diet habits during pregnancy, 38.2% of them stated that it was due to their diet being healthy and balanced food before. On the other hand, 46.7% of the studied women changed their diet during pregnancy, and 45.2% of them stated that was due to they found to change diet after becoming pregnant. The same table reveals that 30% of pregnant women were taking caffeinated products during pregnancy, and 29.6% of them were taking tea. Slightly less than three quarters (71.9%) of the studied pregnant women ate sweets and salty snacks during pregnancy, 47.4% of them ate it one time per day. Also, 70.0% of them used fats or oil when cooking and more than half of them (51.9%) used butter or margarine.

Table (2) shows the distribution of the nutritional habits regarding the number of food items taken per day based on weekly habits among pregnant women. More than half of the studied women were taking 1-2 servings of fruits and vegetables (53.0% & 51.1% respectively). Less than half of the sample (46.3%) were taking 1- 5 servings of beans per day, 38.1% of them were taking water (1 cup=100 ml) 4-5 times per day and 45.9% of them were taking fresh juice(1 cup=100 ml) once time per day.

Figure (2) demonstrates that only about one-fifth (21.5 & 22.2% respectively) of the studied pregnant women were always taking breakfast and launch. More than three-quarters (79.3%) of them sometimes take dinner, and near to half (47.4%) had sometimes fast food.

Table (3) represents that more than half of the studied women (57.0%) weren't taking nutritional supplements during pregnancy. About only half of the studied women (50.4%) were advised to take the supplements by the physician.

It was obvious from this **figure3** that most of the studied women (83.3%) had a positive level of attitude related to nutrition during pregnancy while only 16.7% of them had a negative attitude level.

Table (4) represents that there is a statistically significant relationship between personal characteristics and the total attitude level of the pregnant women in the areas of educational level and occupational status whereas the p-value is ≤ 0.05.

Table (5) elicits that there is a statistically significant relationship between the total knowledge level and total attitude level of the pregnant women related to nutrition during pregnancy whereby the p-value ≤ 0.05.

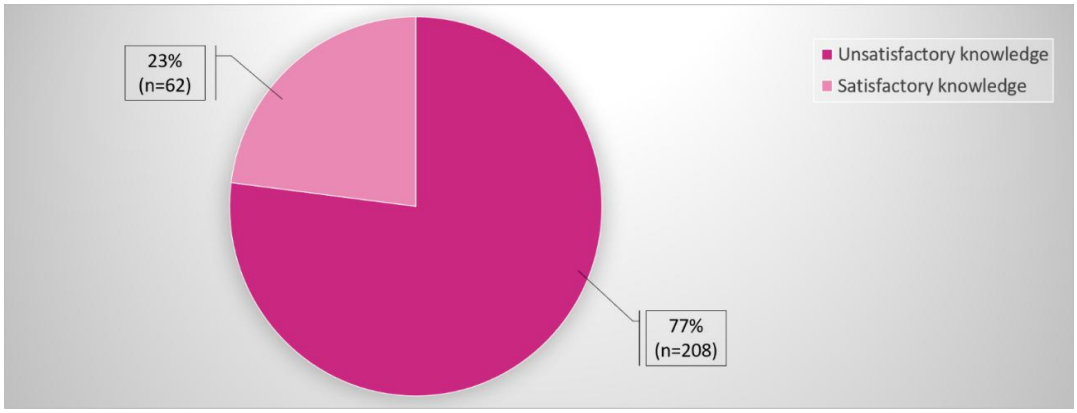

Figure (1): Distribution of pregnant women concerning total knowledge related to nutrition during pregnancy (n=270)

Table (1): Distribution of the nutritional habits of pregnant women (n=270)

Distribution of the nutritional habits of pregnant women	N	%
Changed diet habits due to pregnancy		
No	144	53.3
Yes	126	46.7
Reasons for not changing diet habits (n = 144)		
It was very difficult	19	13.2
It was healthy and balanced food	55	38.2
I didn't think I needed to make any changes	41	28.5
I did not know what changes were required	29	20.1
Time of started to change diet habits (n = 126)		
Less than one month before pregnancy	22	17.5
1-3 months before pregnancy	29	23.0
More than 3 months before pregnancy	18	14.3
After I found out that I am pregnant	57	45.2
Taking caffeine during pregnancy		
No	189	70.0
Yes	81	30.0
Type of caffeine or cigarettes do you take (n = 81)		
Tea	24	29.6
Coffee	23	28.4
Soft drinks	15	18.5
Cigarettes	19	23.5
Taking sweets or salty snacks		
No	76	28.1
Yes	194	71.9
If yes, how many times? (n = 194)		
Once	92	47.4
2 - 3 times	58	29.9
4 - 5 times	20	10.3
More than 5 times	24	12.4
Using fats or oil when cooking		
No	81	30.0
Yes	189	70.0
Type of fat or oil used (n = 168)		
Butter or margarine	87	51.8
Oil	81	48.2

Table (2): Distribution of the nutritional habits of pregnant regarding the number of food items taken per day (n=270)

Number of food items taken per day	N	%
Fruits		
Rare	57	21.1
1-2 servings/day	143	53.0
More than 2 servings/day	70	25.9
Vegetables		
Rare	74	27.4
1-2 servings/day	138	51.1
More than 2 servings/day	58	21.5
Beans		
Rare	100	37.0
1-5 servings/day	125	46.3
More than 5 servings/day	45	16.7
Water (1 cup=100 ml)		
Once	33	12.2
2 - 3 times	78	28.9
4 - 5 times	103	38.1
> 5 times	56	20.7
Fresh Juice (1 cup=100 ml)		
Once	124	45.9
2 - 3 times	98	36.3
4 - 5 times	25	9.3
> 5 times	23	8.5

Figure (2) Distribution of the nutritional habits of pregnant regarding the number of meals taken per week (n=270)

Table (3): Distribution of the nutritional habits of pregnant women regarding intake of nutritional supplements in current pregnancy (n=270)

Intake of nutritional supplements in the current pregnancy	N	%
Taking any nutritional supplements during pregnancy		
No	154	57.0
Yes	116	43.0
The person who advised to take the supplements (n = 116)		
Physician	48	50.4
Nurse	45	38.8
Relatives/Friends	23	19.8

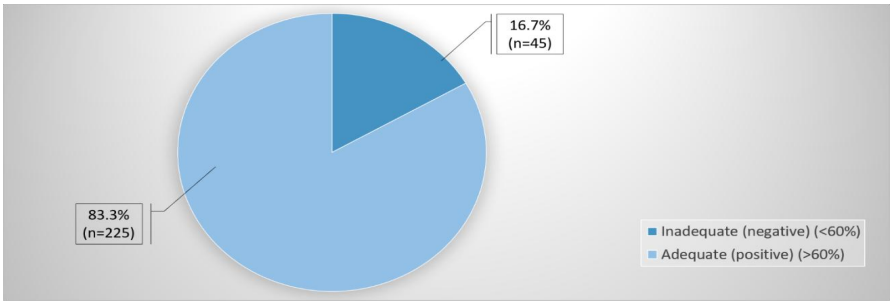

Figure (3): Distribution of pregnant women's total attitude level related to nutrition during pregnancy (n=270)

Table (4): Relation between personal characteristics and total attitude level of the pregnant women

Personal characteristics	Total Attitude Score				Chi-Square Test	
	Inadequate (negative) (n=45)		Adequate (positive) (n=225)			
	N	%	N	%	X^2	P
Age (years)						
< 25	18	40.0	97	43.1		
25 – 30	11	24.4	82	36.4		
> 30	16	35.6	46	20.4	5.382	0.068
Residence						
Rural	26	57.8	141	62.7		
Urban	19	42.2	84	37.3	0.380	0.538
Educational Level						
Basic	20	44.4	76	33.8		
Secondary	19	42.2	67	29.8		
Higher	6	13.3	82	36.4	9.169	0.010*
Marital Status						
Married	36	80.0	192	85.3		
Divorced	7	15.6	19	8.4		
Widow	2	4.4	14	6.2	2.296	0.317
Occupational Status						
Not Working	35	77.8	131	58.2		
Working	10	22.2	94	41.8	6.056	0.014*

Table (5): Relation between total knowledge level and total attitude level of the pregnant women

	Total Knowledge Level					
	Unsatisfactory (n=208)		Satisfactory (n=62)		Chi-Square Test	
	N	%	N	%	X^2	p
Total Attitude Level						
Inadequate (negative) (<60%)	43	20.7	2	3.2		
Adequate (positive) (≥60%)	165	79.3	60	96.8	10.468	<0.001*

Discussion

The perception of proper nutrition and a balanced diet during pregnancy is considered important for the well-being of both mother and fetus and also supports maternal health during pregnancy, delivery, and breastfeeding. Nutrient requirements increase to support fetal and infant growth and development along with alterations in maternal tissues and metabolism (de Jersey, Nicholson, Callaway & Daniels, 2013). While most women understand the significance of eating well during pregnancy, they may be unaware of particular dietary recommendations or cannot modify their eating habits (Emara, 2019).

Regarding daily dietary habits for healthy nutrients during pregnancy, the present study demonstrated that more than half of the studied women didn't change their diet habits during pregnancy and stated the reason for not changed their habits because they already had healthy and balanced food. That's maybe explained by a lack of knowledge and awareness about healthy nutrients that must be taken during pregnancy and they considered that their diet is healthy not need to change. Similarly, Mahmoud and Ghaly (2019) at their study revealed that an almost equal high percent of the study subjects neither increased nor added meat and their alternatives and didn't change their dietary habits during pregnancy.

This finding is in disagreement with a study conducted by Forbes, Graham, Berglund& Bell (2018) entitled" Dietary change during pregnancy and women's reasons for change" who indicated that women understood and reported reducing intake of foods that could harm their pregnancy. This is due to increased awareness of nutrition in the media and its importance for maternal and child health.

The findings of the present study illustrated that a high percentage of the studied women were taking caffeinated products during pregnancy, including tea &caffeine during pregnancy. That may due to a lack of women's awareness regarding the negative effect of this stimulant on their health and fetal wellbeing.

This result is in line with Santiago, Park, and Huffman's (2013) who had investigated "Consumption habits of pregnant women and implications for developmental biology in California". They had reported that the majority of their subjects drank caffeinated beverages during pregnancy. The most common caffeinated beverage is Coke, which is followed by coffee and tea. This is due to their participants' notion that caffeinated beverages give them energy and make them attentive. They back up the statement from the American College of Obstetricians and Gynecologists (ACOG 2018) that "moderate quantities of caffeine less than 200 mg per day during pregnancy do not raise the risk of miscarriage or preterm birth."

This finding contradicts the findings of two prior studies by Mahmoud and Ghaly (2019) and Forbes et al., (2018), which found that all of the study subjects had avoided or reduced their intake of caffeinated beverages (tea, coffee, and cola) during pregnancy. His caution comes from his view that drinking beverages can induce gastrointestinal problems, anemia, and osteoporosis. Intake of caffeinated beverages during pregnancy has been connected to fetal death after the second trimester, according to relevant literature, and high levels of coffee consumption during pregnancy have been linked to fetal death after the second trimester. Some studies have linked heavy caffeine use during pregnancy to an increased risk of growth limitation, cardiovascular abnormalities, and skeletal abnormalities in children (Turnbull et al., 2017).

Regarding the consumption of salts and sweaty snacks, the current findings of the present studies showed that many of the studied

women consumed salts, sweaty snacks, and fats or oil for cooking. That's maybe attributed to that lack of awareness regarding the negative effect of consumption of that on their pregnancy outcome.

This result is in agreement with Junges, Ressel & Monticelli (2014) who conducted a study in Southern Brazil1countary. They indicated that only a low percentage had avoided spicy and fatty food during pregnancy compared to a high percentage of them. Also, this result agreed with the results of El-Qudah, Almajwal, Al-Momani, Alothman, Al-Udatt& Al-Qudah, (2015) who indicated that a low percentage of their respondents had avoided spicy food during pregnancy compared to a high percentage of them who consumed salty & spicy food during pregnancy.

Furthermore, the recent findings suggest that more than half of the women surveyed consumed adequate fruit, vegetables, water, and fresh juice daily. This agreement might be read as pregnant women realizing the importance of green leafy vegetables and fruits in terms of vitamins and minerals. It could be because nearly half of pregnant women believe that a balanced food diet is essential throughout pregnancy.

Similarly, Fasola, Abosede& Fasola (2018) reported that more than half of their respondents ate fruits and vegetables more than four times per day. In the same line, Catherin, Rock, Roger, Ankita, Ashish, Delwin, et al., (2017) in their study reported that more than half of their participants had increased fruits and vegetables during pregnancy.

As regards to, number of meals taken per week among the studied pregnant women. A high percentage of the studied women didn't have breakfast, more than one-third of them had launch four to six days/week, and a high percentage of them had dinner four to six days/week. That's maybe explained that most of them told the researcher that they woke up late and didn't able to have breakfast, then started to eat late time their dinner and launch. So, pregnant women should have educational sessions about the importance of breakfast. This is consistent with the results of Alkalash, Hegazy, ELnady& Khalil (2021)who stated that about two-thirty of the studied women ate three times per day. Also, near to half of them didn't delete the dinner meal.

Concerning intake of nutritional supplements for the studied pregnant women. More than half of the studied women weren't taking nutritional supplements during pregnancy, while near to half of them were taking nutritional supplements during pregnancy, out of them (116) were taking folic acid and omega3. Near to half from116 women were taking vitamin D, calcium, and iron. From the researcher's point of view, that's may because more than two-thirds of the studied women in this study maintained follow-up visits and follow physician instructions and orders to maintain nutritional supplements for a safe pregnancy.

The same finding is consistent with the results of Chotboon, Soontrapa, Buppasiri, Muktabhant, Kongwattanakul &Thinkhamrop (2018) who reported that as much as two-thirds of their participants had adequate intake of calcium, iron, and vitamin supplements. Unlikely, this result is in a disagreement with Dubois, Diasparra, Bédard, Colapinto, Fontaine-Bisson& Morisset et al., (2017) who indicated that more than one-half of their subjects had inadequate intake of some micronutrients supplements like iron, calcium, and zinc.

For evaluating the attitude of pregnant women regarding healthy nutrients during pregnancy, the current study revealed that most of the studied women had positive attitude level related to nutrition during pregnancy. Their attitude was positive regarding increasing their nutrition during pregnancy, eating a suitable diet is important during pregnancy, including protein, carbohydrates, fats, minerals, and vitamins in their diets, eating a variety of foods during pregnancy, animal protein is as good as plant protein, taking fruits and vegetables, vitamins and minerals regularly during pregnancy, eating foods rich in fiber improves health and fetus growth and avoid smoking during pregnancy. That's maybe explained by the fact that women had readiness or willingness to act and follow healthy nutrition to maintain a healthy pregnancy, and a healthy fetus, and avoid any complications from malnutrition. In addition, health care

professionals can play an important role in influencing women's habits including compliance with diet and supplementation.

These findings are in agreement with El-Dessouki, Kamal, Refaie& Hanna (2018) at an Egyptian study entitled "Knowledge, attitude and practice regarding nutrition among pregnant women, Minia City, Egypt". The study showed that most of the studied women had a positive attitude toward maternal nutrition during pregnancy and a high percent of the study subjects agreed with eating more food, eating carbohydrate during pregnancy than the non-pregnancy state. The majority of women had a positive attitude towards preparing omega 3-rich foods, eating more proteins, preparing iron-rich meals, and eating more milk products respectively. Also, the majority of women had a positive attitude towards preparing meals with iodized salt and eating more fresh fruits and vegetables.

Similary, Widiastuti, Mutyara & Siddiq (2015) who conducted a study entitled " Knowledge, attitude and nutritional status in pregnant women " mentioned that a majority of the respondents had a good attitude toward good nutrition during pregnancy. Also, they reported that their food should comprise starches, dairy products, meat, and beans, also the majority of the participants agreed that a woman requires more nutrients at the time of pregnancy.

In contrast, a study conducted by Iradukunda& Ngomi (2020) entitled" Knowledge, Attitude and habits towards Nutrition and Influencing Factors among Pregnant and Lactating Women in Kigeme Refugee Camp, Rwanda" stated that most of the studied women have been a negative attitude and poor nutrition intake during pregnancy. The poor nutrition attitude was influenced by the limited sources of food and limited knowledge level.

Regarding factors affecting women's perception of healthy nutrients, the findings of the present study represented that there is a statistically significant relationship between personal characteristics and the total attitude level of pregnant women in the areas of educational level and occupational status. That's may because the level of education is a factor that affects the attitude towards good nutrition. This agreed with a similar study done by Shrestha et al., (2021) which found personal characteristics to be significantly associated with attitude towards good nutrition among pregnant women.

The result of the cuurent study revealed that there is a statistically significant relation between the overall knowledge level of pregnant women's nutrition during pregnancy and the overall attitude level. This can be explained by the fact that raising awareness of healthy indigenous food culture and eating habits can help to change attitudes and habits, whilst nutrition knowledge can help to modify attitudes and lead to better eating habits.

This finding is in line with that of Iradukunda et al. (2020), who found a statistically significant link between strong nutritional knowledge and positive attitudes toward nutrition during pregnancy in pregnant women. Also, Fasola et al. (2018) most likely found a statistically significant link between respondents' knowledge and attitudes toward optimal nutrition in their study. In contrast, Alatawi, Faheem, and Alabdulaziz (2021) from Saudi Arabia found no statistically significant association between knowledge and attitudes in their study "Knowledge, attitudes, and practices of pregnancy in primitive women." relationship. Observed in the diets of pregnant women.

Conclusion:

Based on the findings of the present study, it can be concluded that:

Most of the studied women reported low level of knowledge regarding healthy nutrients during pregnancy. Moreover, more than half of the studied women didn't change their diet habits during pregnancy, because they were convinced that their nutrition is actually healthy. It was also noted in this study that most of pregnant women had positive and adequate level of attitude related to nutrition during pregnancy in Port-said city.

There is statistically significant relationship between total knowledge level and total attitude level of the pregnant women related to nutrition during pregnancy whereby p-value ≤ 0.05.

Recommendations:

Based on the results of the present study, the following recommendations were suggested:

- Establishing dietary guidelines and strategies to improve the eating habits of women through their pregnancy.
- Applying nutrition counseling at antenatal care clinics to all pregnant women about healthy nutrition to improve their habits.
- Further research: Designing and implementing in-service training programs for nurses working in antenatal units to enrich their knowledge regarding the importance of maternal nutrition during pregnancy.

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