FACTORS INFLUENCING DIETARY BEHAVIOR OF PREGNANT WOMEN IN A PRIVATE HOSPITAL IN BANGKOK

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ABSTRACT

The purpose of this predictive research was to study the level of dietary behavior of pregnant women, and to study the predictive factors of food consumption behavior of pregnant women. The sample consisted of 272 pregnant women who came for antenatal care at the antenatal care department in Navaminthra 1 Hospital, Bangkok. The tool used for collecting data was 7 questionnaires. The content validity of all tools was verified by 5 experts. The validity of the assessment tools 2-6 was checked using Cronbach's alpha coefficient, and the validity values were 0.83, 0.81, 0.93, 0.84, and 0.90 respectively. The seventh questionnaire was tested using the Kuder-Richardson method (KR-20) and the reliability was 0.87. The data were analyzed using frequency distribution, percentage, mean and standard deviation. Predictive factors were analyzed using multiple regression statistics. The results showed that the dietary behavior of pregnant women had a high mean score (M = 70.01, S.D. = 7.13). The predictive co-factor of food consumption behavior could be determined by ordering the variables that could be predicted highest to lowest in the following order: perceived dietary benefits, nutritional social support, self-efficacy in food consumption, beliefs about food intake, and dietary knowledge of pregnant women. The co-factor was 77 percent (R² = .77, p < .01). The results of this research could be used as a baseline to develop a model for promoting appropriate dietary behavior among pregnant women.

Keywords: food consumption behavior, factors, pregnant woman

I. INTRODUCTION

In 2017, the pregnancies of women of childbearing age in Thailand had a fertility rate per 1,000 female population or approximately 656,517 (19.80%) (Ministry of Public Health, 2018). Pregnancy is a normal condition for women of childbearing age. During pregnancy, women undergo physical changes such as anatomy, physiology and biochemistry. Changes begin with conception and continue throughout pregnancy, including psychological changes and changes in maternal roles. These changes may affect the behavior of pregnant women during pregnancy. Pregnant women may have inappropriate health behaviors during pregnancy, such as consuming food while pregnant; their body needs more energy and nutrients than normal. Good nutrition is important for the health of a pregnant woman and her unborn child. A woman's adequate nutrition before pregnancy is essential for the development of the baby's body, brain and nervous system from conception to postpartum. Pregnant women need an extra 300 kcal of energy per day, especially during the second and third trimesters of pregnancy. Energy nutrients include carbohydrates, proteins and fats. If women in the pre-pregnancy period and during pregnancy have unhealthy dietary habits or are not getting enough nutrients to meet the body's needs, it may result in less weight gain during pregnancy, and are more prone to complications than healthy pregnant women. Common complications such as anemia and infectious diseases in early pregnancy can lead to miscarriage, slow fetal growth and premature birth. It may also contribute to adverse reactions such as preclampsia and gestational diabetes, infertility at risk of using operative obstetrics for assisted delivery, late return to normal in the postpartum period, increased risk of postpartum hemorrhage, baby died at birth, slower than normal baby's physical and mental growth and development, baby is underweight, cardiovascular disabilities, and infant iron and iodine deficiency. A recent survey found that pregnant women have a lot of iron deficiency anemia. Pregnant women who are underfed may be at risk for malnutrition. The effects on the baby are slow fetal growth, preterm birth and low birth weight, and the effect on the mother is that the mother's milk is not enough to feed the baby after birth. The best natural food for raising babies is “mother's milk” and is...
considered to be the most beneficial for the growth and development of the baby both physically and mentally. Breast milk is a special and easily digestible form of baby food. Breastfed babies have an advantage over formula-fed babies in terms of better overall health (Kaiser P., 1995).

Nurses play an important role in promoting the health of pregnant women as a guideline for promoting good health during pregnancy, an increase in body weight in each trimester of pregnancy, and prevention of risks and reducing complications that may occur in pregnant women and fetus. This is to achieve the best possible outcomes for pregnancy. COVID-19 is an emerging disease in 2019 and there is no data on mothers who are infected during the first 3–6 months of pregnancy, but there are data on mothers who were infected during the last 3 months before giving birth. Therefore, experts initially concluded that the infection was most likely caused by exposure to droplets, but it's not caused by vertical transmission. Mothers can still breastfeed by wearing a mask, washing their hands properly with soapy water for 20 seconds or using 70% alcohol. More importantly, they need to focus on social distancing. Thailand and the Department of Health, Ministry of Public Health, recommend that suspected mothers and infected mothers can breastfeed their babies by strictly following the aerosol transmission prevention guidelines.

There are many factors related to food consumption behavior. The researchers used Pender9's health promotion theory as the basis for this study. Food consumption behavior is part of health promotion behavior. According to Pender's theory, perceived benefits of action influence the health-promoting behaviors. Individuals have anticipation of the benefits that will be gained after the behavior, thus motivating the individual to perform the behavior. Perceived self-efficacy directly and indirectly affects the behavior, which creates a commitment to the behavior. Interpersonal Influences are perceptions related to another person's behavior, beliefs, or attitudes that influence a person's thoughts. The main sources of interpersonal influence on health promotion behaviors are family (father, mother or relatives), friends and health care workers, which affect good health promotion.

According to a review of the literature on health promoting behaviors among pregnant women, there are also several factors that may affect consumption behavior in pregnant women such as consumption behavior. In addition, the study of nutrition self-care behavior among pregnant women found that the pregnant women had moderate nutritional self-care behaviors and those with gestational age greater than 28 weeks had significantly better nutritional self-care behaviors than the 14-28 weeks gestational age group. According to the study of predictive factors of nutrition health promotion behavior of adolescent pregnant women, it was found that adolescent pregnant women had high nutritional health promotion behaviors. All variables studied included perceived barriers to nutritional health promotion, self-efficacy in nutritional health promotion and social support. 38.80% of the variability in nutrition health promotion behavior of adolescent pregnant women could be explained. Perceived barriers to nutritional health promotion and self-efficacy in nutritional health promotion were statistically significantly predictive of the health promotion behaviors of adolescent pregnant women.

Consistent with research on consumption, habits and nutritional status of pregnant women: a case study of Nakhon Chum Sub-District Health Promoting Hospital, KamphaengPhet Province, it was found that pregnant women had good consumption (27.40%). When estimating the birth weight, the majority of newborns weighed more than 3,000 grams (72.7312 percent).

A 2016 study in western China found that rural pregnant women ate rice, vegetables and fruits as their staple food. Compared to national guidelines, they consumed less milk, nuts, fish products and nuts. Rural pregnant women had different dietary habits during their pre-pregnancy and during pregnancy. Compared to pre-pregnancy, women prioritized breakfast during pregnancy (P<0.05). Although the behavior of smoking, drinking alcohol, and eating fried food were infrequent (P<0.05), but some were still present. The dietary behavior of pregnant women depends on behavioral intentions (standard regression coefficient is 0.435). Behavioral attitudes and subjective norms influence dietary behavior and influence behavior and intentions (Standard regression coefficients are 0.268 and 0.524). It could be concluded that the dietary consumption of rural pregnant women in poor areas of western China is irrational in terms of consumption. Their dietary habits are the result of their own attitudes and personal norms. Measures should also be taken to adjust the dietary habits of pregnant women in rural western China.

In this study, the researchers examined factors that correlate or predict dietary behaviors or affect health-promoting behaviors in pregnant women in order to develop a dietary behavior promotion program in pregnant women. According to the Pender's health promotion theory study, the following factors could be summarized as:

1. Perceived benefits of food consumption
2. Social support in food consumption
3. Self-efficacy in food

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consumption (4) Belief in food consumption (5) Knowledge of food consumption. Such factors were explained as follows. The perceived benefit factor\textsuperscript{14}, perceived benefits would directly and indirectly motivated behavioral health through Pender's commitment to decision-making\textsuperscript{9}. The social support factor\textsuperscript{15} was the perception that one's own social network supports material, information, knowledge, exemplary and observational learning. This may affect the health behaviors\textsuperscript{9}. Self-efficacy\textsuperscript{9} was a consideration of one's abilities. When awareness of one's skills or abilities leads to motivation for individuals to be the good health behaviors\textsuperscript{9} and belief factor\textsuperscript{16}, pregnant women who have inherited dietary beliefs were more likely to dietary behaviors based on that belief, and dietary knowledge of pregnant women\textsuperscript{17}. When person gains knowledge, it would make pregnant women understand and affect good behavior. Therefore, knowledge was the predisposing factors important to behavior\textsuperscript{18}.

The researcher would like to study the factors influencing dietary behavior of pregnant women in a private hospital in Bangkok. Dietary intake is one of the factors that keep pregnant women and their unborn babies healthy, as well as preventing risks and complications. These factors can be used to prevent or further promote dietary behavior in pregnant women. The factors included in the study consisted of various factors such as perceived dietary benefits, social support in nutrition, self-efficacy in food consumption, belief in food consumption, and knowledge of food consumption. This is to be used as a guideline for developing and using as a basis for planning nursing care for health personnel, including the creation of a suitable pattern for pregnant women to prevent complications during pregnancy and after the birth of mothers and babies.

II. RESEARCH OBJECTIVES
The purpose of this predictive research was to study the level of dietary behavior of pregnant women, and to study the predictive factors of food consumption behavior of pregnant women.

III. LITERATURE REVIEW
In this study, the investigators selected some factors based on health promotion theory and additional literature reviews. The researcher selected factors related to food consumption behavior and factors related to health promotion behavior. Food consumption behaviors were part of health promotion behaviors as detailed below.

1. Perceived benefits of food consumption
Perceived benefits influence health promotion behavior. Individuals are expected to benefit after the motivated behaviors internally and externally until the individual is motivated to perform the behavior and continue to do so. Perceived benefit refers to the perception and conception of performing the behavior with regard to the expected consequences. The definition of perceived dietary benefits can be summarized as: recognizing the value of dietary behavior and understanding the benefits of food consumption can have a positive effect on one's health and fetus.

2. Nutrition Social Support
The co-factor of social support is an important factor in behavior because people's daily life must be social and interacts with many people or support, chat, receive information from close people, including healthcare professionals. Social influences influence behavioral practices, including dietary or health-promoting behaviors in pregnant women. Social support, whether from family or healthcare professionals, has an impact on health-promoting behaviors. Social support can affect the consumption behavior of pregnant women.

3. Self-efficacy in food consumption
Perceived self-efficacy has both direct and indirect behavioral effects that induce commitment to established behavioral practices, including dietary behavior and other health-promoting behaviors of pregnant women. Self-efficacy induces a person's self-confidence in performing actions or behaviors. It is about a person's confidence in their ability to manage and behave under the barriers or conditions that lead to healthy behavior.

3. Self-efficacy in food consumption
Perceived self-efficacy directly and indirectly affects behavioral performance, which induces commitment to performing intended behavior. It also includes dietary habits and other health-promoting behaviors of pregnant women. Self-efficacy leads to a person's self-confidence and is consistent with their personal beliefs about their ability to manage and behave under various obstacles or conditions for health promotion.

4. Beliefs in food consumption
Beliefs affect the behavior of Thai people in society, including beliefs about food consumption. Belief means passing on knowledge, ancestors’ telling, learning and observing, leading to practices passed down from generation to generation. Belief has been defined as accepting things, regardless of whether they are verifiable or not, but as adherence to the beliefs that have been passed down from generation to generation. However, dietary beliefs are accepted and believed to be true.

5. Knowledge of food consumption

Knowledge is the basis of thinking through the accumulation of experience. The learning is understood and can be used to make decisions for any action, including dietary habits. Dietary awareness has been defined as the perception and understanding of dietary information about the benefits and contraindications of practice during pregnancy. This makes it possible to have the correct dietary habits.

IV. RESEARCH METHODS

The population in this study was pregnant women.

Samples were pregnant women who are antenatal care at the antenatal care department in Navaminyhra 1 Hospital, Bangkok. Data was collected after being certified for human research ethics. The researcher applied the purposive sampling method based on the inclusion criteria as follows:

1. Over 20 years old, not over 35 years old
2. 4 months of gestation
3. No complications
4. Pregnancy, both the first and the latter
5. Able to read and understand Thai language
6. No psychotic symptoms and perception of person, time and place
7. Consent to participate in the research

The sample size determination procedure could be performed using Daniel's formula (2010) at 95% confidence level and an error of 0.05. The number of samples was 243 people. The researchers then adjusted the sample number by 12% to prevent sample loss during the research. Therefore, 272 pregnant women older than 20 years but not over 35 years old and more than 4 months of pregnancy are needed.

Data Collection Tools

Factors influencing dietary behavior of pregnant women in a private hospital in Bangkok were predictive research. Therefore, the research instruments consisted of seven questionnaires as detailed below.

Set 1: The personal data questionnaires included age, current gestational age, number of pregnancies, pre-pregnancy weight, current weight, height, body mass index, status, education level, occupation, income, religion, adverse reactions during pregnancy, and complications during pregnancy.

Set 2: The food consumption behavior questionnaire was a questionnaire derived from the food consumption behavior questionnaire.

Set 3: The perceived dietary benefit questionnaire was a questionnaire obtained from the perceived dietary benefit questionnaire.

Set 4: The Nutritional social support questionnaire was a questionnaire derived from the nutritional social support questionnaire.

Set 5: The food self-efficacy questionnaire was a questionnaire derived from the self-consumption perception questionnaire.

Set 6: The dietary beliefs questionnaire was a questionnaire derived from the dietary beliefs questionnaire.

Set 7: The dietary knowledge questionnaire was a questionnaire derived from the dietary belief questionnaire.

Statistics used in data analysis

The researcher analyzed the data by using a ready-made computer program as detailed below.

1. The personal data of pregnant women and their dietary habits were analyzed using frequency, percentage, mean and standard deviation distributions.
2. Multiple regressions was performed using one dependent variable and two or more independent variables by inserting all variables in the equation to analyze the predictive power of the dietary benefit variables, nutritional social support, self-efficacy in food consumption, dietary beliefs, and knowledge of food consumption on dietary behavior of pregnant women. All variables were tested for preliminary agreement before multiple regression analysis.

V. RESEARCH RESULTS

Table 1 shows the results of the minimum-maximum score, mean, standard deviation, number and percentage of pregnant women's dietary habits can be classified according to the dietary behavior score of pregnant women, it was found that most of the pregnant women had a high score or a score of 65-88 scores of 227 (83.50 percent), not less than 80%, and pregnant women had a moderate score or a score of 44-64, only 45 (16.50%). They also found that the highest score of pregnant women's dietary habits was 85, the lowest was 49, and the mean score was 70.01 (SD 7.13).

Table 1 shows the minimum-maximum values, mean, standard deviation, number and percentage in dietary habits of pregnant women.

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>Max</th>
<th>M</th>
<th>S</th>
<th>Level</th>
<th>Moderate</th>
<th>High</th>
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<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food consumption behavior</td>
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<td>85</td>
<td>70.1</td>
<td>13.0</td>
<td>Moderate</td>
<td>45</td>
<td>16.5</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>High</td>
<td>227</td>
<td>83.5</td>
</tr>
</tbody>
</table>

Spearman rank correlation coefficient analysis of factors influencing dietary habits of pregnant women, it was found that the perceived benefit in food consumption ($r=.72$, $p<.01$), nutrition social support ($r=.54$, $p<.01$), self-efficacy in food consumption ($r=.59$, $p<.01$), dietary beliefs ($r=.61$, $p<.01$), and knowledge of food consumption ($r=.35$, $p<.01$) were related. Table 2 shows the relationship between perceived dietary benefits, nutrition social support, self-efficacy in food consumption, dietary beliefs, knowledge of food consumption, and dietary habits of pregnant women.

Table 2 shows the relationship between perceived dietary benefits, nutrition social support, self-efficacy in food consumption, dietary beliefs, knowledge of food consumption, and dietary habits of pregnant women.

<table>
<thead>
<tr>
<th>Variable</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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</thead>
<tbody>
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<td></td>
<td></td>
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<td>Nutrition social support</td>
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<td>**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-efficacy in food consumption</td>
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<td>**</td>
<td>.625</td>
<td>**</td>
<td>1.00</td>
</tr>
<tr>
<td>Dietary beliefs</td>
<td>.644</td>
<td>**</td>
<td>.091</td>
<td>.126</td>
<td>1.00</td>
</tr>
<tr>
<td>Knowledge of food consumption</td>
<td>.215</td>
<td>**</td>
<td>.010</td>
<td>013</td>
<td>.408 **</td>
</tr>
<tr>
<td></td>
<td>.719</td>
<td>537</td>
<td>591</td>
<td>.613</td>
<td>.354</td>
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</tbody>
</table>
Dietary behavior of pregnant women

In a study on dietary habits of pregnant women, it was found that most of the pregnant women had a high score or a score of 65-88 scores of 227 (83.50 percent), not less than 80%, and pregnant women had a moderate score or a score of 44-64, only 45 (16.50%). They also found that the highest score of pregnant women's dietary habits was 85, the lowest was 49, and the mean score was 70.01 (SD 7.13). It could be seen that almost all pregnant women had a high average score for dietary habits and only some had a moderate average score. Moreover, pregnant women had the highest scores and the average scores were quite high. All these results may be due to the fact that the hospital's antenatal department (nurse and nutritionist team) provides health education knowledge about gestational nutrition for all pregnant women. The content covered the following issues: 1) Nutrients that should be taken during pregnancy 2) The amount of food that should be consumed during pregnancy 3) The benefits of consuming each type of food and 4) Foods or beverages that should not be consumed during pregnancy. It also combined methods and techniques to enhance knowledge: model, face-to-face, role playing and verbal processes. These methods inevitably resulted in the mean scores of the pregnant women's dietary habits.

Factors affecting dietary habits of pregnant women

In a study of factors affecting dietary habits of pregnant women, it was found that, the perceived benefit in food consumption (r=.72, p<.01), nutrition social support (r=.54, p=.01), self-efficacy in food consumption (r=.59, p<.01), dietary beliefs (r=.61, p<.01), and knowledge of food consumption (r=.35, p<.01) could be used to predict dietary behavior of pregnant women. It could be used to predict the 77 percent combined outcome (R2=.769, p<.01). In a sequence of predictive variables, factors affecting dietary behavior of pregnant women according to the highest-lowest values, it was found that all variables such as perceived dietary benefits (β=.46, p<.01), nutrition social support (β=.38, p<.01), self-efficacy in food consumption (β=.23, p<.01), dietary beliefs (β=.16, p<.01), and knowledge of pregnant women's dietary intake (β=.12, p<.01) could be used to predict dietary behavior of pregnant women based on the highest-lowest scores. Such results could be described as follows.

1. Perceived benefits in food consumption

In a study on perceived dietary benefits, it was found that perceived dietary benefits could explain variability in dietary behavior (β=.46, p<.01). Perceived benefit is a person's belief with the expectation of the benefit after an improved health-promoting behavior (Pender, 2006)9. Pregnant women who are aware of the benefits of health promotion have healthy behaviors, that is, they pay attention to appropriate activities such as intention to make food choices19. The results of this research study were consistent with the study by Suwannee (2010). It was found that perceived dietary benefit was not a predictive co-factor of dietary behavior among 35-year-old pregnant women. However, perceived dietary benefits were moderately correlated with dietary behavior among adolescent pregnant women, although dietary behavior was not predictive. In contrast, the results of the study were different from Wiraya's study (2010)14. It was found that perceived benefit was predictive of dietary behavior among higher education students (β=.13, p<.05). This is because the differences in the samples resulted in different results. This study used a sample of adolescent pregnant women who lacked knowledge and experience. A study by Chalermporn and Pannee(2012)20, it was found that after training in a health education program that educates about the benefits of proper diet, pregnant women had good eating practices. In the last study, most of the pregnant women were between the ages of 26-35 and their education was at a bachelor's degree. However, in this study, the sample was adolescent pregnant women who were aged between 17-19 years and had the highest level of education in lower secondary school. During this age, pregnant women have to adjust a lot in many matters including activities that may affect diet such as disregard of nutritional value or not eating on time (Hathaikan and Amporn, 2007)21. Moreover, the level of education indicated the development of knowledge and competence in life that results in knowledge, understanding and awareness of the value of food consumption (Sribang-On, 2012)22. Pregnant women with varying levels of education contributed to ignorance of the benefits of dietary intake. Consequently, perceived dietary benefits could not predict dietary behavior.
2. Nutrition Social Support

In a study on nutritional social support, it was found that nutritional social support could explain variability in dietary behavior ($\beta=0.38, p<0.01$). The results showed that pregnant women who received family or husband support were more likely to have good dietary habits. Pender (Pender, 2006)9 stated that social support had a greater impact on health-promoting behaviors, support from family members such as caring, kind words, or providing useful food (Anya, Anchalee and Sanya, 2011)23, providing support and encouragement, as well as giving advice, resulted in more positive behaviors for pregnant women (Nathanong, 2011)24.

According to this study, the majority of pregnant women were marital and lived with their husbands and helpers (96.70 percent), allowing them to be well cared for by their family members. Moreover, pregnant women were aware of the care and attention of the antenatal care nurses or related personnel for information, thus giving them the knowledge and guidance to take proper care of themselves in regards to dietary intake. It could be seen that social support had a significant effect on the dietary behavior of pregnant women. The results of this study were consistent with the study of Suwannee (2011)25 found that factors predicting the nutritional health promotion behavior of pregnant women over 35 years were perceived barriers, self-efficacy, and social support. 47.2 percent of nutritional health promotion behaviors were predicted. In addition, Sri Bang-on's study (2012)22 also found that after the elderly received a social support program, there was a statistically significant increase in mean cognition, social support, and health-promoting behaviors. Social support programs run by the Elder's Leadership for Health Promotion could be implemented in similar contexts for behavior modification for health promotion for the elderly.

3. Self-efficacy in food consumption

In a study of food self-efficacy, it was found that food self-efficacy could explain variability in dietary behavior ($\beta=0.23, p<0.001$). Bandura (1997)26 believed that human behavior required an analysis of conditions and stimuli resulting from the learning process of many components. As a combination of genetics, social environment, experiences and individual abilities, it was difficult to determine whether a behavior was caused by one particular thing. If individuals had self-efficacy and expectations of the outcome of the practice, they would exhibit that behavior to achieve the desired goal27. In addition, Pender's concept (Pender, 2006)9 stated that self-efficacy was a personal belief in the ability to manage or perform certain behaviors in order to achieve goals. Individuals with self-efficacy gain confidence and strive to demonstrate that behavior without compromising on obstacles.

The study found that the average age of pregnant women was 26.86 years (in early adulthood and the period of maturity), they inevitably have a perception of their own ability to consume food. Consistent with the study of PloypailinKhamkaew(2016)28 found that most of the participants were female, aged 26-30 years, single status, bachelor's degree, private company/work for wages, income about 20,001–30,000 baht, healthy eating expenses less than 100 baht per session and healthy eating frequency 2-3 times per week. They recognized that the best healthy food was clean food. The internet/social network was a way to get healthy food information. However, factors in terms of values, taste attitudes, expectations and perceptions about healthy food had a statistically significant positive influence on healthy food intent behavior in Bangkok (83.9%) at .01. Therefore, pregnant women with self-efficacy tend to have better dietary habits. This study was consistent with the study by Suwannee (2011)25 found that self-efficacy was able to predict nutritional health-promoting behaviors in pregnant women older than 35 years ($\beta=0.25, p<0.05$). Consistent with a study by Wilairat and Somporn(2012)29, found that self-efficacy affected better nutrition among adolescent pregnant women. In addition, self-efficacy was able to predict dietary behavior of higher education students ($\beta=0.39, p<0.05$) (Wiraya, 2010).

4. Beliefs of food consumption

In a study of dietary beliefs, dietary beliefs were found to explain variability in dietary behavior ($\beta=0.16, p<0.01$). In other words, pregnant women who had inherited dietary beliefs were more likely to act on that belief. However, each person's dietary beliefs were different. Importantly, each area had different beliefs in terms of food that should or should not be eaten. As a result, there were different consumption behaviors (Sutham, 2003). Green &Kreuter(Green &Kreuter, 1991)30 stated that belief refers to the certainty of something, either in the form of a phenomenon or as an object, in the sense that the factor was valid and true to one's beliefs. Therefore, when a pregnant woman was passed on her beliefs about food intake or saw an example from someone close to her, they believe it was a good thing to do. The results of this research were consistent with the study of TarinunLeelathiwanon(2014)30 found that co-factor could be used to predict food consumption behavior such as self-efficacy in food consumption, nutrition social support, and beliefs of food consumption. 37% of the results
could be combined to predict (R²= .37, p<.001). Contrary to the study by SasithornPhochai(2017)31, found that cultural beliefs in terms of pregnancy were negatively associated with health care behaviors of pregnant women among Cambodian migrant workers (r=−0.292, p<0.001).

5. Knowledge of food consumption

In dietary studies, it was found that variability in dietary behavior could be explained (β=12, p<.01). In Hosper's view (cited in ManochVejpan, 1989: 15-16)32, knowledge was the first stage of behavior related to the ability to remember, recall, see and hear. Knowledge was one of the stages of learning which included definitions or meanings, facts, theories, rules, structures, solutions, and standards. It could be said that knowledge was a matter of remembering and recalling without the need for complex thinking. For this reason, memorization was an important process in psychology and was the one that leads to the behavior of comprehension along with the application of knowledge in analysis, synthesis and evaluation.

The results of this research were consistent with the study of Anukul(2008)33 found that knowledge was related to food consumption behavior of high school students. Consistent with the study of Kritin and Cheepsamut(2014)17 found that knowledge was related to food consumption behavior of the elderly in Songkhla Province. Contrary to the results of Wariya(2010)14, it was found that knowledge of food and nutrition had no effect on food consumption behavior of higher education students. In line with the concept of Green and Kreuter(Green & Kreuter, 1999)18, knowledge was an important factor affecting behavioral expression, but knowledge alone was not sufficient to produce healthy behavioral changes, but other factors were needed. Contrary to the study of Wariya(2010)14, it was found that knowledge of food and nutrition had no effect on food consumption behavior of higher education students.

VII. CONCLUSION

The dietary behavior of pregnant women was high, and the co-factor was used to predict dietary behavior. Predictive variables could be sorted from highest to lowest as follows: perceived dietary benefits, nutrition social support, self-efficacy in food consumption, dietary beliefs, and dietary knowledge of pregnant women. The results of this research should be used as a baseline for further development of a model for promoting appropriate dietary behavior among pregnant women.

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REFERENCES

1. Natmaree Saengkhuet, and Suebpong Wachairapan (2017). Energy and nutrients obtained during pregnancy of Thai women in a case study at the Faculty of Medicine, Ramathibodi Hospital. Faculty of Nursing, Boromarajonani College, Ratchakon Ratlasitta.