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Original Research

Dietary habits and associated factors of pregnant women attending antenatal clinics at township hospitals in Naypyidaw Territory, Myanmar

Kebiasaan pola makan dan faktor terkait pada ibu hamil yang mengunjungi klinik antenatal di rumah sakit kota di wilayah Naypyidaw, Myanmar

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Abstract: *Pregnancy is a critical period during which good maternal nutrition is an important factor that affects the health of both the mother and the child. The study aims to assess the knowledge, attitudes and dietary habits of pregnant women. A cross-sectional descriptive study was conducted from October 2022 to February 2023 among 400 pregnant women attending antenatal clinics of four selected township hospitals in Naypyidaw Territory. Of 400 pregnant women, few (6%) of the pregnant women had high nutritional knowledge, yet most of the pregnant women (78.5%) had favorable attitudes towards nutrition. More than half of the pregnant women (64.8%) had good dietary habits. Educational level of the pregnant women, estimated average family income, number of antenatal visits, and nutritional knowledge of the pregnant women were significantly associated with the dietary habits of the respondents according to bivariate analysis. Multivariable logistic regression analysis revealed that the number of antenatal visits and nutritional knowledge of pregnant women were significantly influenced on dietary habits. The pregnant women who attended more frequent antenatal visits had better dietary habits than those with less frequent antenatal visits [AOR =2.00; 95% CI (1.14,3.5), p-value=0.016)]. Additionally, pregnant women with a high nutritional knowledge level were more likely to have better dietary habits [(AOR=6.96; 95% CI (1.57, 30.98), p-value = 0.011]. Nutrition education programs should be emphasized on frequent antenatal visits to improve the nutritional knowledge and dietary habits of pregnant women.*

Keywords: attitude, dietary habits, knowledge, Myanmar, pregnant women

1. INTRODUCTION

Nutrition during pregnancy is a significant public health concern because pregnancy is a critical period during which good maternal nutrition is an important factor that affects the health of both the mother and the child. Women have distinct nutritional requirements throughout their life, especially before and during pregnancy and while breastfeeding, when nutritional vulnerability is the greatest. Ensuring women have nutritious diets with adequate services and care is fundamental for the survival and well-being of women and their children.

Before pregnancy, women need nutritious and safe diets to establish sufficient reserves for pregnancy. During pregnancy and breastfeeding, energy and nutrient needs increase, and meeting them is critical for women's health and their child throughout

early childhood. However, in many parts of the world, the nutritional status of women is unacceptably poor. In addition, most women, especially adolescents and those who are nutritionally at-risk, are not receiving the nutrition services they need to be healthy and give their babies the best chance to survive, grow and develop.

Women's diets in many countries contain limited fruits, vegetables, dairy, fish and meat. During pregnancy, poor diets lacking the key nutrients iodine, iron, folate, calcium and zinc can cause anemia, preeclampsia, hemorrhage and death in women. They can also lead to stillbirth, low birthweight, wasting and developmental delays for children. UNICEF estimates that low birthweight affects more than 20 million newborns every year (1). Improving women's diets, access to nutrition services before and during pregnancy and while breastfeeding is critical to prevent malnutrition in all its forms.

In 2017, 295,000 women died during and following pregnancy and childbirth (2). Almost all these deaths occurred in low-resource settings, and almost all maternal deaths (99%) occurred in developing countries. A serious problem of maternal undernutrition is reported in most countries in sub-Saharan Africa, South-central and Southeastern Asia, and in Yemen, where more than 20% of women are malnourished (3). Several studies have shown that inadequate maternal nutrition could lead to poor pregnancy outcomes, such as fetal growth failure, low birth weight, preterm birth, prenatal and infant mortality and morbidity. Therefore, it is important to have proper nutrition during pregnancy not only for the health of the mother but also for the fetus and infant.

According to the Myanmar Micronutrient and Food Consumption Survey (2017-2018), 40% of pregnant women had anemia. Pregnant women younger than 20 years of age and older than 40 years of age had higher rates of anemia than those between 20 and 39 years of age. Additionally, women living in rural areas had a higher prevalence of anemia than those from urban areas. Naypyidaw Territory had the highest rate of anemia in pregnant women (54.1%), followed by Mandalay (51.8%) and Kachin State (45.4%), while the national prevalence was 40% (4).

Understanding antenatal women's nutrition knowledge is essential for planning further strategies for nutrition promotion activities to reduce malnutrition and encourage healthier dietary behaviors. However, there are very limited studies regarding the nutritional knowledge, attitudes and dietary habits of pregnant women in Myanmar. Therefore, this study aims to assess the nutritional knowledge, attitudes and dietary habits of the pregnant women attending antenatal clinics at township hospitals in the Naypyidaw territory.

2. METHODS

A cross-sectional descriptive study was conducted from October 2022 to February 2023 at antenatal clinics among four selected township hospitals (Takkone, ZayYarThiri, OttaraThiri, PobbaThiri) at Naypyidaw Territory among pregnant women attending antenatal clinics at these township hospitals. Pregnant women aged 18 years and above who could give consent to participate were recruited. However, pregnant women who suffered fever or other kinds of illness on the day of data collection were excluded. A total of 400 pregnant women were selected in this study using a consecutive sampling method, and they were interviewed using a face-to-face interview method. The

questionnaires were adapted from the FAO (5) and other different kinds of literature (3,6,7,8) and contextualized to local situations.

Questionnaires included five sections: sociodemographic characteristics, obstetric and gynecological questions, nutritional knowledge, attitudes and dietary habits. Nutritional knowledge was assessed using 11 questions which aim to assess pregnant women's nutrition knowledge on the aspects of nutrition required during pregnancy. The total knowledge score was '42', which was categorized into 2 levels based on Bloom's cutoff: high (≥ 25) and poor knowledge level (<25) (9). The attitude of pregnant women on nutrition during pregnancy was assessed by nine questions that had 3 response options (Agree, don't know, not agree). The total attitude score was '9', which was categorized into 2 levels based on Bloom's cutoff: favorable (≥ 5) and unfavorable (< 5) attitudes (9). Dietary habits were assessed by 22 questions, and the score was calculated by summing the responses to each question. The total dietary habit score was '36', which was categorized into 2 levels based on Bloom's cutoff: good (≥ 22) and poor dietary habits (< 22) (9).

To ensure the quality of the data and validate the questionnaire, a pretest was conducted on 5% of the study sample at one of the non-selected township hospitals in Naypyidaw before the actual data collection period. Necessary modification of the questionnaires was carried out based on the pretest feedback. Six enumerators were trained for two days for the data collection process by explaining the purpose of the study and data collection methods by the researcher to avoid interobserver variation. The collected data were checked for completeness, accuracy, and consistency throughout the data collection period. After checking for data completeness, the data were coded and entered into Statistical Package for Social Science (SPSS) version 20 software for further analysis. Bivariate analysis was conducted using the chi-squared test, and variables with p values greater than 0.2 were fitted into multivariable logistic regression analysis to determine the factors associated with dietary habits among pregnant women. The level of significance was set at a p value < 0.05.

Ethical clearance was obtained from the Institutional Review Board, University of Public Health, Ministry of Health, Myanmar (UPH-IRB, December 5/2022).

3. RESULTS

Table 1. Background characteristics of the respondents (n=400)

Variables	Frequency	Percentage
Age (in years)		
<35	323	80.8
≥ 35	77	19.3
Ethnicity		
Burmese	391	97.8
Others	9	2.3
Religion		
Buddhist	383	95.8
Others	17	4.2
Education level (Pregnant women)		
Illiterate	9	2.2
Read/write	35	8.7
Primary school level	105	26.2
Secondary school level	118	29.5

Variables	Frequency	Percentage
High school level	82	20.5
University/Graduate	51	12.7
Occupation (Pregnant women)		
Housewife	225	56.2
Government staff	37	9.2
Non-government staff	10	2.5
Own business	30	7.5
Manual laborer	98	24.5
Marital status		
Unmarried	5	1.3
Currently married	327	81.7
Separated/divorced/widow	78	17.0
Husband's Education level		
Illiterate	4	1
Read/write	36	9
Primary school level	107	26.8
Secondary school level	134	33.5
High school level	61	15.3
University/Graduate	58	14.5
Husband's Occupation		
Dependent	6	1.5
Government staff	46	11.5
Non-government staff	24	6
Own business	64	16
Manual laborer	260	65
Breadwinner of the household		
Husband	362	90.5
Others	38	9.5
Main cook for the whole family		
Myself	363	90.8
Husband	3	0.8
Others	34	8.5
Number of family members		
< 5	284	71
≥ 5	116	29
Estimated average household income per month (MMK)		
< 200,000	119	29.8
≥ 200,000	281	70.3
Smoking		
Yes	1	0.3
Alcohol drinking		
Yes	7	1.8

Table 2. Obstetric and gynecological factors of pregnant women (n= 400)

Variables	Frequency	percentage
Total number of pregnancies (Gravida)		
G1	165	41.3
G2 to G3	190	47.5
Above G3	45	11.2
Gestational week		
First trimester	74	18.5
Second trimester	187	46.8
Third trimester	139	34.8
Number of AN visits		
Less than 4 times	317	79.3
4 times and above	83	20.8
History of illness during pregnancy		
Yes	30	7.5
Receiving nutrition information		
Yes	350	87.5
Source of nutritional information		
Health care workers	307	76.8
Neighbors/friend	93	23.3
Family	137	34.3
Media (TV/radio/Facebook)	97	24.3

Table 3. Multivariable logistic regression analysis of dietary habits and its associated factors among pregnant women (n=400)

Variables	Good dietary habits	Poor dietary habits	COR (95% CI)	AOR (95% CI)
	Freq (%)	Freq (%)		
Age (years)				
< 35	212(65.6)	111(34.4)	1	
≥ 35	47(61.0)	30(39.0)	0.82(0.49,1.37)	
Religion				
Others	11(64.7)	6(35.3)	1	
Buddhist	248(64.8)	135(35.2)	1.00(0.36,2.77)	
Pregnant women Education level				
< Primary school level	85 (57.0)	64 (43.0)	1	1
≥ Primary school level	174 (69.3)	77 (30.7)	1.7(1.11,2.59)*	1.39(0.76, 2.54)
Pregnant women occupation				
Dependent	148(65.8)	77(34.2)	1	
Not dependent	111(63.4)	64(36.6)	0.90(0.59, 1.36)	
Husband's Education level				
< Primary school level	87 (59.2)	60 (40.8)	1.00	1.00
≥ Primary school level	172 (68.0)	81 (32.0)	1.46(0.96,2.23)	0.98(0.55,1.74)
Husband's Occupation				
Dependent	2 (33.3)	4 (66.7)	1.00	1.00
Not Dependent	257 (65.2)	137 (34.8)	3.75(0.68,20.7)	5.02(0.72,35.0)
Breadwinner of the household				
Others	29 (76.3)	9 (23.7)	1.00	1.00

Variables	Good dietary habits	Poor dietary habits	COR (95% CI)	AOR (95% CI)
	Freq (%)	Freq (%)		
Husband	230 (63.5)	132 (36.5)	0.54(0.25,1.17)	0.67 (0.29,1.51)
Number of family members				
< 5	177 (62.3)	107 (37.7)	1.00	1.00
≥ 5	82 (70.7)	34 (29.3)	1.46(0.92,2.32)	1.47(0.89,2.43)
Estimated average household income per month (in MMKs)				
< 200,000	67 (56.3)	52 (43.7)	1.00	1.00
≥ 200,000	192(68.3)	89 (31.7)	1.67(1.08,2.60)*	1.28(0.77,2.11)
First pregnancy				
No	143(61.6)	89(38.4)	1	1
Yes	116(69.0)	52(31.0)	1.38(0.91,2.11)	0.99(0.34,2.92)
Total number of pregnancies (Gravida)				
G1	116 (69.0)	52 (31.0)	1.00	1.00
Above G1	143 (61.6)	89 (38.4)	0.69(0.45,1.05)	0.79(0.27,2.3)
Number of AN visits				
< 4 times	197 (62.1)	120 (37.9)	1.00	1.00
≥ 4 times	62 (74.7)	21 (25.3)	1.80 (1.04, 3.1)*	2.00(1.14,3.5)*
Nutritional Knowledge level				
Low	237(63.0)	139(37.0)	1.00	1.00
High	22(91.7)	2(8.3)	6.45(1.49,27.85)*	6.96(1.57,30.98)*

*Statistically significant at p <0.05, COR = crude odds ratio, AOR = adjusted odds ratio

Figure 1. Nutritional knowledge level of the pregnant women

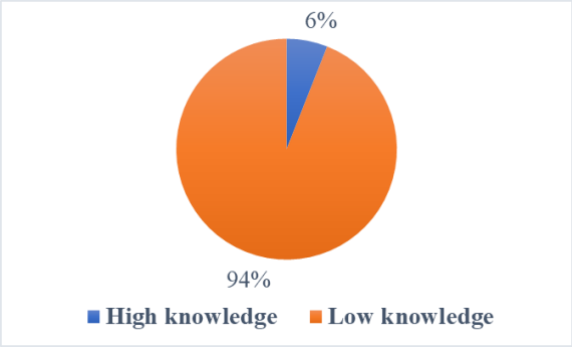


Figure 2. Nutrition related attitude of the pregnant women

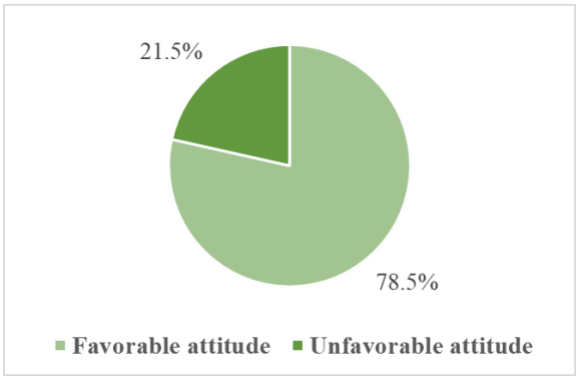
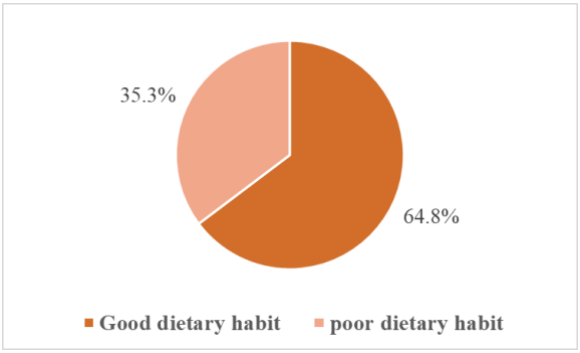


Figure 3. Dietary habits of the pregnant women



4. DISCUSSION

In the current study, majority of the pregnant women were under 35 years old (80.8%), which corresponds with what was reported in the secondary data analysis of the Myanmar demographic and health survey as more than half of the pregnant women were 25 to 34 years of age(10). Almost all were Burmese in Ethnicity (97.8%) and Buddhist in religion (95.8%) which was not surprising because the study took place in a Burmese-dominated area. Around one third of the pregnant women and their husbands had primary and secondary school level respectively. Only two percent of pregnant women and one percent of their husbands were illiterate. More than half of the participants were housewife (56.2%) and only 1.5% of their husbands were dependent. However, in Malaysia study, more than half of the pregnant women (58%) were employed which may be due to the differences in culture of the countries(11).

Most of the breadwinner of the household (90.5%) were their husbands and nominally head of the household whereas more than half of the respondents were housewife due to Myanmar traditional culture of woman stayed at home and doing domestic chores and it gave same finding with studies in Ethiopia(7,12,13). The main cook of the family were mostly the pregnant women herself (90.8%) and the rest were their husbands or others including grandmother or aunties. More than 70% of the households had estimated average income above 200,000 Myanmar kyats. Only one participant was a current smoker, and seven participants were current drinker of alcohol during pregnancy (Table 1).

Table 2 showed 41.3% of the participants were in their first pregnancy so they don't have any experiences for nutrition information during pregnancy. Therefore, in the current study, only 6% of the pregnant women had high nutritional knowledge level which is less than the study conducted among pregnant adolescents attending antenatal care clinics in Urban Community in Ghana (44.9%)(14). This could be due to the variation in age range because the current study involved 18 to 50 years old while Ghana study only involved adolescents.

Furthermore other studies with the same age range also revealed higher nutritional knowledge level than the current study. A study conducted among the 88 pregnant women in Malaysia also had higher percentage (63.6%) in good knowledge level than the current study(11). A study in pregnant women of Northwest Ethiopia had good nutritional knowledge level in 61.4% of the respondents(6). Although, few participants had good knowledge level, the current study revealed 78.5% of the pregnant mother had favorable attitude towards nutrition (Figure 2) which was higher than study in pregnant women of Ethiopia Public Hospitals (59.5%) and Southern Ethiopia (6,13). This pointed out that specific nutrition education for pregnant women are seriously needed. More than half (57%) of the pregnant women reported the eating habit of additional meals during pregnancy and 78.3% consumed snacks between meals. Majority of them (88%) used iodized salt for cooking. Only 17% of the pregnant women restricted food items during pregnancy. Almost all (97.8%) of the respondents consumed fresh vegetables within previous week and half of them consumed more than 3 days per week. Although 70% of the respondents eat milk and milk products within previous week, only 11.3 % consumed more than 3 days per week in frequency. Majority of the respondents (95.3%) consumed egg within previous week and 30% of them consumed 3 days per week. Generally, the dietary habits of the pregnant women were healthy as this study find that almost 90% of the participants received nutrition information and main sources of the information were from health care workers (76.8%).

Then, (Figure 3) showed more than half of the respondents had good dietary habits (64.8%) which was higher than the other previous studies among pregnant woman in Ethiopia; NorthWest Ethiopia (40%), SouthWest Ethiopia (25.1%), Southern Ethiopia (52.3%) and public hospitals of Ethiopia (34.5%)(7,12,13,15). Moreover a study conducted among pregnant adolescents in Ghana had good dietary habits in only of 19.3% of pregnant adolescent (14). The feasibility of accessing nutrition information might affect the variation in the results. Moreover, dietary habits in the current study was found to be higher than other studies which may be due to currently promoting nutriton related health education program through social media and increased interest of the pregnant women on nutrition.

Bivariate analysis showed that dietary habits of the pregnant women were associated with the educational level of the pregnant women, estimated average family income, number of antenatal visits and nutritional knowledge of the pregnant women yet attitude related to nutrition was not found significant. This finding was supported by a cross-sectional study among pregnant women in Southern Ethiopia which revealed that education status, monthly income, antenatal follow-up, knowledge and attitude were determinants of dietary practices(3). The variables with p-value less than 0.2 were employed multivariable logistic regression analysis which revealed that number of antenatal visits and nutritional knowledge of the pregnant women were significantly influenced on dietary habits of the pregnant women. The pregnant women with antenatal visits more than 4 times raised the odds 2 folds to have good dietary habits

than those with antenatal visits less than 4 times [AOR =2.00; 95% CI (1.14,3.5), p-value = 0.016]. Additionally, the pregnant women with high nutritional knowledge level had almost 7 times more likely to have good dietary habits [AOR=6.96; 95% CI (1.57, 30.98), p-value = 0.011] (Table 3).

A study in Southern Ethiopia showed maternal education level was significantly associated with good dietary habits of the pregnant women(13). But the current study did not find any significant results in multivariable analysis although bivariate analysis showed significant result. The former study discussed that the respondents who had educational level of above primary school level higher nutritional knowledge and good dietary habits. It will be more reliable to receive and understand the health information to apply for changing health behaviors if the education level was higher as well as having more chances to acquire nutrition-related information from different sources like leaflets, magazines, and other media. Moreover, husband income was the significant associated factor with dietary practice of the pregnant women in Northwestern Ethiopia(6) which showed the same finding with the current study in bivariate analysis yet not for the multivariable analysis. The more income family have, the more invest on the food and nutrition of the family.

The current study found that the pregnant women who attend more frequent antenatal visits had better dietary habits than those with less frequent antenatal visits because they received nutrition information from health education section of the antenatal visit. In the current study, only 21% of pregnant women visited more than 4 times to antenatal care although around 50% of them were already in the second trimester of pregnancy. This finding was not supported to Myanmar Demographic and Health Survey (2015-2016) which found 59% of pregnant women had four or more antenatal visit throughout their pregnancy(16). Nutritional knowledge of pregnant women has shown a significant association with the participant's dietary habits. Knowledgeable women had a 7 times higher chance of good dietary habits during pregnancy than not knowledgeable. This figure is similar to findings from research which was conducted in Southern Ethiopia which found pregnant women who have knowledge were 2.23 times increased chance of good dietary habits(3). It is also similar with findings from Bangladesh which shows pregnant women with medium and high level of knowledge have 18 times and 30 times higher consumption of Iron-Folic Acid as compared to low knowledge (17). The current study did not see any significant association with attitude related to nutrition and dietary habits of the pregnant women which was contradict to other studies which find significant association between attitude and dietary habits(3,18).

5. CONCLUSION

In this study, only 6% of the pregnant women had high nutritional knowledge indicating that overall nutritional knowledge of pregnant women in Naypyidaw is critically suboptimal and need to act immediately. Regarding attitude, 78.5% of the pregnant women had favourable attitude towards nutrition which is optimal. More than half of the pregnant women (64.8%) had good dietary habits. It was found that the pregnant women who had frequenct antenatal visits and higher nutritional knowledge had better dietary habits. Therefore, policymakers should strengthen specific nutrition education programs and promoting maternal health care services to improve nutritional knowledge of the pregnant women.

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