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THE KNOWLEDGE, ATTITUDES AND PRACTICES RELATED TO THE USE DIETARY SUPPLEMENTS: AMONG PREGNANT WOMEN IN MONGOLIA

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ABSTRACT

Background: Pregnant women's knowledge, attitude, and practice (KAP) are crucial for excellent pregnancy outcomes, optimal weight gain, reduced problems, and improved delivery outcomes, as well as general health. DSs deficiency before and during pregnancy can harm woman and child. According to the World Health Organization, 40% of pregnant women are anemic and need iron to prevent anemia (WHO 2021).

Objective: To examine the prevalence of DSs usage among pregnant Mongolian women, their knowledge, attitude, and practices, and their intake factors.

Materials and method: A convenience sample of Mongolian women from sum (rural villages), provinces, and Ulaanbaatar participated in a cross-sectional online survey. The survey collected sociodemographic data and assessed Mongolian pregnant women's knowledge, attitude, and practices on DSs and their intake factors. 436 Mongolian women aged 18–45 participated. As in each: Thus, the questionnaire was in English and Mongolian. Translation of English questionnaire into Mongolian. In this survey, the Mongolian questionnaire was distributed. The questionnaire lasted a week, from May 8-14, 2023. This study used SPSS 19 and other statistical methods to analyze the data. The questionnaire attempted to measure three key KAP factors in the sample population. Attitude, expertise, and daily DSs use are included.

Result: Half of the respondents knew about DSs consumption, but only 31% always use it during pregnancy and 64.9% use it on prescription. (2) A respondent was likely to have high knowledge of DSs intake if she was 26-40 years old (36%), married (93.3%), had a bachelor's degree (74%), lived in the capital (84.4%), and had 1-2 children (51%). (3) Health professionals provided 40.83% of DSs information, followed by total (33.49%) (internet, family, healthcare professionals, ads, and product instructions in leaflets).

Conclusion: DSs intake knowledge was good in over two thirds of trial subjects. Age, education, and prenatal care knowledge independently predicted DS knowledge. The Ministry of Health, Addis Ababa city health bureau, study facility administration, and city health NGOs should cooperate to enhance women's knowledge of preconception DSs intake health advantages.

CHAPTER 1. Introduction

This chapter will momentarily clarify the foundation and primary thought of the research questions and thesis. This chapter intends to give the readers a more in-depth grasp of the study's primary objectives and purposes.

1.1. Research background

Other substances with a nutritional or physiological effect that is marketed in “dose” form (e.g., pills, tablets, capsules, liquids in measured doses) or concentrated sources of nutrients (i.e., vitamins and minerals) are named dietary supplements (DSs) that are determined by The European Food Safety Authority (EFSA) (DSHEA, 1994). DSHEA determines DSs as products, not drugs, that contain an ingredient intended to supplement the diet. DSs contain either a single nutrient or a compound of multivitamins, botanicals, amino acids, and minerals, including vitamins C, E, B-6, B-12, A, magnesium, and zinc (M. Shahwan et al., 2018).

DSs play an essential role in health and human disease processes. DSs of individuals impacts growth and development, functional abilities and the risk of developing chronic diseases (Thowfeek, et al., 2023). In particular, maternal DSs illustrate a significant public health challenge, because it influences not only women's health, it also that of future generations. In physiological conditions like pregnancy, additional DSs are needed to meet the demand for fetal growth and maternal tissue expansion. Metabolic demands of the woman during pregnancy increased mainly due to changes in her physiology and the requirement of the growing fetus. In addition, developing organ systems respond directly with permanent adaptations to the availability of nutrients during critical periods of rapid development. Therefore, timing of adequate maternal nutrition is important in determining the outcomes both in the fetus and the child (Fekadu, et al., 2022).

Insufficient DSs intake before and during pregnancy can influence both woman and her infant. In particular, 40 percent of pregnant women are anemic, according to the World Health Organization, thus the women have the necessary to take iron due to prevent anemia (WHO 2021). Moreover, woman in low and middle-income countries are more likely to have an unvarying diet based on a few staple foods, and there are gaps between intakes and requirements for a range of micronutrients are thus at risk of micronutrient malnutrition (Tyagi, S. 2023). In addition, to provide enough nutrients for the growing fetus as well as ensuring the mother's well-being, the demand for energy, macro-nutrients, and micro-nutrients will be largely gone up. Women in developing countries are at risk of malnutrition and nutritional deficiencies during pregnancy, which will lead to adverse pregnancy outcomes, such as delayed fetal growth, premature birth, low birth weight, and maternal anemia (Wang, et al., 2023).

The "Knowledge, Attitude, and Practice" theory is the most commonly used model to explain how personal knowledge and beliefs affect health behavior change. This model starts with instructing health educators to publicize health knowledge and strengthen health attitudes so that patients are willing to take active preventive measures to prevent and cure diseases. For its effectiveness in the field of behavior change, this theory is also widely used in the areas of management and public health, such as the management of chronic diseases in the community (Kwol, et al., 2020). Knowledge and attitudes about DSs are vital factors in DSs intake habits and are potential interventions for developing appropriate healthy health plans for pregnant women. DSs education improves nutrition knowledge, influencing attitudes and practices toward good nutrition (Wang, et al., 2023).

1.2. Statement of the problem

Tyagi, S. 2023 mentioned above that women in developing countries are likelier to have a diet based on a few staple foods. There are gaps between intakes and requirements for a range of micronutrients, and they are thus at risk of micronutrient malnutrition. In Mongolia, due to climatic factors and a traditionally nomadic lifestyle, there is a smaller percentage of arable land devoted to permanent crops than in other countries (0.003%), and the national food supply is marked by a pattern of extremes. Normalized against the total per capita supply of caloric energy in each country, data from the Food and Agriculture Organization of the United Nations (FAO) from the most recent year available indicate that the daily per capita food supply of Mongolia ranked 9th and 12th out of 175 countries in terms of whole milk and meat supplied, respectively, and ranked in the bottom 10 percent of countries in the supply of fruit, fish and seafood, pulses, and oil crops (Bromage, et al., 2020). The research shows that in Mongolia, pregnant women can not take many types of nutrients. During pregnancy, a woman needs to DSs intake to get a variety of nutrients, especially Mongolian pregnant women. However, let's emphasize here that the research done in this field is insufficient. In particular, some DSs are recommended and prohibited from being taken during pregnancy. There is even less research on how a person chooses DSs based on their knowledge, attitudes, and practice to get the DSs.

1.3. Research objective

The attitude of knowing that you need to take food DSs during pregnancy is correct. However, using DSs during pregnancy without a doctor's advice, health knowledge, or official information can be dangerous for a woman and her unborn baby. Therefore, researching the knowledge and attitudes of pregnant women about DSs intake has become a vital research task for Mongolia.

The Knowledge, Attitudes and Practices (KAP) model is commonly applied in health education. This model emphasizes that the acquisition of knowledge is the foundation of beliefs and attitudes that reinforce the intention to adopt healthy behaviors. The World Health Organization (WHO) recommends the use of the model to help identify knowledge gaps, cultural beliefs, and behavior patterns in order to inform the design of effective interventions for behavior change (Liu, K. S., Chen et al., 2021).

1.4. Research question

The study aimed to investigate the prevalence of DSs use among pregnant women in Mongolia and determine their knowledge, attitude, and actual practices, as well as the determinants of intake. Along with these novelties the study provides answers to the following questions:

1. To determine Mongolian pregnant women's knowledge, attitude, and actual practices associated with DSs, as well as the determinants of intake.
2. To examine the practices, attitudes, and knowledge of DSs among pregnant women of each social status through a demographic survey.
3. To explore studying knowledge, attitudes, and experiences about vitamins, identify the factors that influence them most.

CHAPTER 2. Literature review

This chapter summarizes previous studies, such as papers from useful journals, e-books, and information data from trusted sources related to this current study. This chapter will discuss the general information about associated variables on the article.

2.1. Socio-demographic and lifestyle

Socio-demographic and lifestyle factors included self-reported age, living location (city, urban or rural), marital status, level of education, quality of life (poor/fair, good, very good/excellent), household income, and chronic disease history (Parmenter, et al., 2021). Alowais, et al., 2019 mentioned that despite variations in the composition of DSs products, reported characteristics of supplement users have been consistent. DSs use in pregnant women has been consistently reported to go up with age, income, and education. These demographic factors may be related to observed differences in health awareness and habits. Several studies have examined lifestyle associations with DSs intake. The evidence from numerous surveys showed that DSs users are more likely to adopt a number of positive health-related habits. These include better dietary patterns, regular exercise, maintaining a healthy body weight, and avoidance of smoking. Scientific reports have indicated reasons behind taking supplements as to maintain general good health, ensure adequate nutrition, enhance physical appearance, and promote weight loss (Alowais, et al., 2019). Thus, socio-demographic and lifestyle factors affect directly to determine Mongolian pregnant women's knowledge, attitude, and actual practices associated with DSs.

2.2. Knowledge, attitude and practice (KAP model)

The theory of "Knowledge, Attitude and Practice" is the most commonly used model to explain how personal knowledge and beliefs affect their life change. Moreover, knowledge, attitude, and practice play essential roles in the human evolutionary process. Changes in individuals' levels of knowledge lead to modifications in their attitudes, and practices within their environments (Nguyen, et al., 2019). DSs intake knowledge includes the understanding of concepts and processes related to DSs intake and health, such as diet and health, diet and disease that represent significant nutrient sources, and dietary guidelines and recommendations (El Bilbeisi, et al., 2022). DSs intake information on food labels may be an effective way to communicate nutritional information to consumers, as it is displayed in most packaged foods. However, because of pregnant women's level of knowledge, shopping habits, and their own financial ability, nutritional information on food labels is not well utilized. The attitudes about nutrition are important factors in dietary intake and are therefore potential interventions for developing appropriate nutritional health plans for pregnant women. Nutrition education improves nutrition knowledge, thereby influencing attitudes and practices towards good nutrition. However, sociodemographic factors have also been reported to influence the adoption of appropriate nutritional practices (Wang, et al., 2023).

Pregnant women use a variety of sources to gain knowledge about DSs intake and to make their decisions to use these products, mostly without knowing the credibility and reliability of the information. These sources include family, friends, media (traditional and social media), doctors, pharmacists, nurses, and nutritionists. However, many DSs contain active ingredients that have strong biological effects in the body. This could make them unsafe in some situations and hurt or complicate health (Alowais, et al., 2019). Thus, DSs intake knowledge, including official information source, related education, dietary guidelines and health benefits/harm, is essential role for pregnant women.

This type of education is unclear to the women since what is available at home is not specific and varies across households. Moreover, taking one additional meal may not be enough for all pregnant women as nutrient requirements vary for different women and the trimester of pregnancy. Furthermore, dietary habits are also different from woman to woman. Therefore, modifying the method of nutrition education seems to have a paramount benefits to improve maternal nutrition (Demilew, et al., 2020).

2.3. Industry background

From 1969 to 1980, when Mongolia's birth rate was high and age structure was young, an average of 21 percent of the population were women of child-bearing age, but this has increased since the 1990s to an average of 30 percent. In 2020, the population was 3.3 million, of which 1.7 million (50.9%) were women, and 50.7 percent of them, 0.9 million were women of reproductive age, aged 15-49. Otherwise, one in four women is a woman of reproductive age, 25.8 percent (National statistics office, 2018).

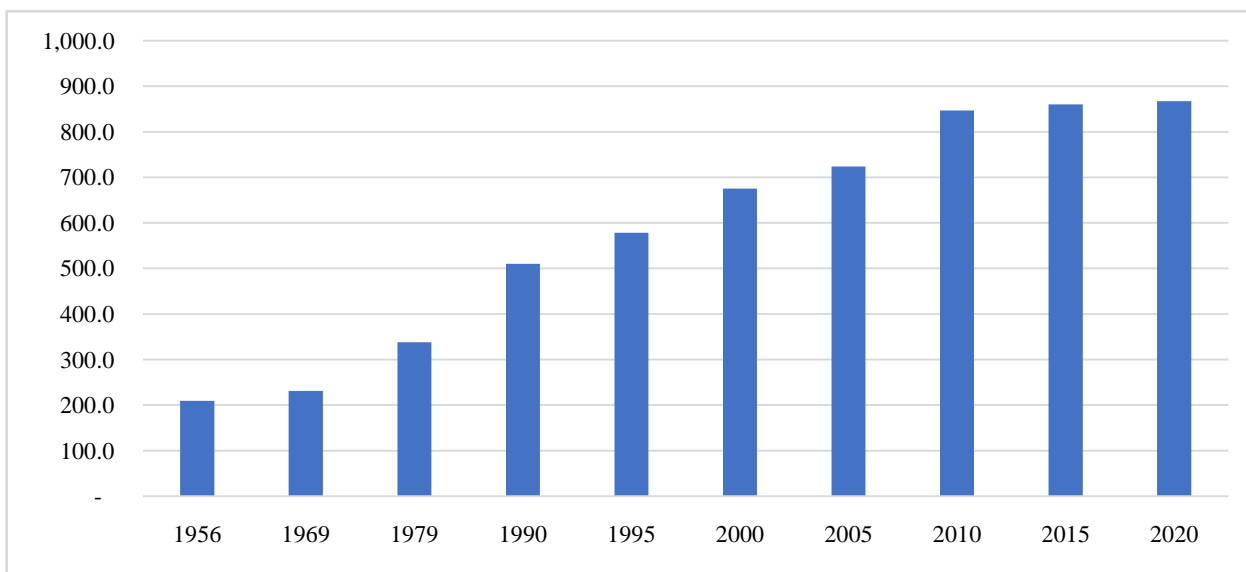


Figure 1. 15-49 aged female

Although, the proportion of women of childbearing age in the total population has increased, the decline in the number of children to be born is due to a number of factors, including social, economic, lifestyle changes and the level of education of women.

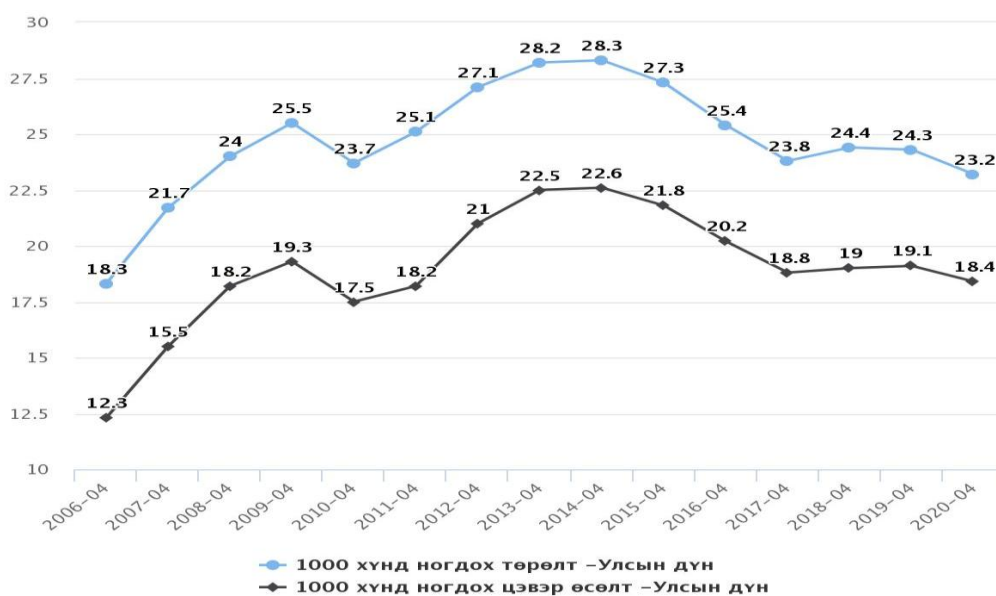


Figure 2. Birth rate in Mongolia

Since 2014, the Minister of Health has recommended that pregnant women take vitamins, minerals, iron supplements, and folic acid during antenatal care to prevent anemia and vitamin deficiency during pregnancy (Minister of Health of Mongolia, 2014). The below table shows the number of vitamins and iron supplements taken by women aged 15-49 who gave birth in the two years prior to the study, the administrative units, the income level, and the frequency of inspections.

	Folic acid /%/	Multivitamin /%/	Prenatal vitamins /%/	Iron	Total /million/
Total	67.1	39	67.4	84.2	2195
City	73.4	43.6	78.9	83.6	1091
Countryside	57.6	31.3	51.1	84	681
Age group					
Below 20	61.1	25.5	58.9	88.3	84
20-34	67.9	39	68.7	84.5	1707
35-49	65.1	41.4	63.2	81.8	404
Antenatal care					
None	19.3	13.8	32.6	51.9	19
1-3 times	53.2	23.9	50.1	73.2	159
4-5 times	69.1	40.4	69.5	85.3	1944
6-7 times	70.1	40.1	69.9	86.6	1590
More than 8	72.7	42.1	73.1	87	1032
Does not know	58.1	40.5	57.3	87.5	74
Income level					
Low	55.5	31	42.2	83.4	404
Lower-middle	53.5	29.7	55.5	78	423
Average	68.3	32.4	70.8	84	511
Upper-middle	70.8	43.6	80.3	86.5	405
High-income	85.7	58	85.4	88.7	452

Table 1. Vitamin intake in pregnant women

DSs intake for pregnant women, such as Elevit, which are purchased and used by women, do not contain iodine or vitamin A, which are essential during pregnancy. Due to the high demand for vitamins and minerals for pregnant women, women buy them from pharmacies (Ministry of Health, 2017). Enkhmaa, et.al., 2019 mentioned that vitamin D deficiency is widespread in Mongolia, including in the capitol of Ulaanbaatar, the northern steppe, and the southern Gobi Desert. Despite Mongolia's renowned blue skies, the country sits at a high latitude at which ultraviolet B rays are heavily filtered by the atmosphere; UVB exposure is inadequate to induce cutaneous vitamin D production from October through April. Furthermore, Mongolians consume little of the few food sources, such as fish, that naturally contain significant quantities of vitamin D, and there is not yet a national vitamin D food fortification program (Enkhmaa, et.al., 2019).

2.4. Proposed method

This study applied the KAP model to examine pregnant women's knowledge, attitudes, and practices of DSs intake, as suggested by Nguyen et al. (2019). Knowledge, attitudes, and practices are critical components of behavioral change models. Knowledge is the understanding of the information, which is the conscious and non-symbolic perception of meaning. Attitude refers to a positive or negative evaluation of an objective (Ajzen and Fishbein, 2000). Practice refers to regular activities that are influenced by widely shared social norms and beliefs (Bourdieu, 1990).

The KAP model process is originated from learning theory (Bandura, 1976) and diffusion of innovation theory (Roger, 1995). According to Roger (1995), members of a social system accept innovation through four stages over time. The stages include knowledge acquisition, persuasion, decision, and confirmation. In addition, Bandura (1976) suggested that individual behaviors are learned through social context. Another perspective used to consider behavior changes is the theory of planned behavior by Ajzen (1991), which provides a framework for understanding the relationship between behavioral intention and behavioral attitudes.

CHAPTER 3. METHOD

This study's purpose is to better understanding Mongolian pregnant women's knowledge, attitude, and actual practices associated with DSs, as well as the determinants of intake. The method was employed in this investigation are described in this chapter. This chapter also discusses to measured, the questionnaire design, data collecting, and the analytical procedures employed in this study.

3.1. Study design

There are four sections to the questionnaire. The first section will describe the respondents' demographic and basic information. In addition, the first section included ten questions regarding demographic characteristics: age, marital status, education, highest degree, location, household income, smoking, pregnant or not, trimester and number of children. Second section is related to knowledge about DSs' information of pregnant women, their belief of DSs information sources, DSs intake purpose, and so on.

Third part is related to attitude and fourth part is related to their practice to use DSs during pregnancy. Moreover, the last three sections were composed oftenty two questions about types of DSs, reasons for using DSs, and sources of information (or recommendation). Responses range from strongly disagree to strongly agree on a 5-point Likert Scale in this area, which is used to collect information. According to prior studies, Table 2 contains a summary of the questionnaire, which includes references and information about the questionnaire's reliability.

Table 2. *Summary table of the questionnaire*

Dimensions	Items	References
Demographic Profile	Age Marital status Education Highest Degree Location	
Household income		
Smoking		
Pregnant or not		
Trimester		
Number of children		
Knowledge	Self-perceived knowledge of DSs Attended any health campaign/workshop on DSs Which sources consider the most trustworthy In the long term, which one is more effective to get nutrients (vitamins, minerals, etc.) Purpose in pregnancy usage nutritional DSs Knowledge about must be taken DSs during pregnancy	
Attitude	Heard sources about pregnancy DSs How serious is DSs deficiency Importance of DSs needed during pregnancy for the fetus Use DSs during pregnancy Do/Don't use DSs at will during pregnancy. A popular is better than an unknown brand's DSs.	

Practice	Regular exercise
Eat healthy foods	
Getting enough sleep	
Regular use of DSs	
Frequently take DSs during pregnancy	
Experience of side effects during use	
The use of nutritional supplements is always safe	
Follow the directions on the DSs label	
From where buy/prefer to buy DSs	

3.2. Variables

Dependent Variable was knowledge, attitude and practice while the independent variables included socio demographic features (age, education, marital status, location, household income and so on).

3.3. Data Collection

The survey, distributed via online questionnaires, is this study's primary data collection strategy (Google forms). A cross-sectional online survey was administered to a convenience sample of females residing in Mongolia such as sum (rural villages), provinces and Ulaanbaatar capital city. The survey collected sociodemographic data as well as determine Mongolian pregnant women's knowledge, attitude, and actual practices associated with DSs, as well as the determinants of intake. A total of 436 participants are Mongolian women who are from 18 to 45 above years old. In each of them as follows: As a result, the questionnaire was created in two languages: English and Mongolian. The English questionnaire was translated into Mongolian. In this study, the Mongolian questionnaire was then distributed. Furthermore, the questionnaire lasted a week, from 8th to 14th of May, 2023.

3.4. Procedure for Data Analysis

Several statistical processes were employed to examine the data in this study, including SPSS (Statistical Package for the Social Science) 19. The questionnaire was designed to capture three important aspects of KAP among the population in the sample area. This includes respondents' attitude, knowledge about DSs intake and practices in daily life. To measure the levels of various aspects of Knowledge, Attitude and Practice (KAP), the questionnaire was divided into three distinct modules. In each module, relevant questions were asked from the respondents such as in Knowledge module the emphasis was given to assess the level of knowledge of respondents for DSs intake. To assess knowledge, attitude and practices, six, six and nine questions were asked respectively.

Overall, there were 43 questions in the questionnaire. If a person answered all questions correctly, 56 scoring points were awarded. The total 56 points were divided into three sections in which 23 points (41%) attributed to knowledge section, 10 points (18%) to attitude and 23 points (41%) to practices. Those respondents who obtained KAP score above 50 were considered as high level, while the scores between 25 and 50 were considered as medium level. The score below 25 was considered as low level.

All the categorical variables were presented as frequencies and percentages and all the continuous variables were shown as Mean \pm Standard Deviation. To compare KAP scores, One Sample Independent T-test and One Way ANOVA was used to know the level of significance of variables. P -value $<$ 0.05 considered statistically significant.

3.5. Operational definition

Good knowledge: A woman was considered as having good knowledge if she answered mean and above the mean score on 26 individual closed ended questions.

Poor knowledge: A women was considered as having poor knowledge if she answered below the mean score on 26 individual closed ended questions.

CHAPTER 4. RESULT

This chapter discusses the key findings of the following data analysis procedures: descriptive analysis, exploratory factor analysis, reliability, convergent and discriminate validity, structural equation modeling, and bootstrapping to show the effect of mediating variables on the results.

4.1. Demographic Characteristics

Data from 436 samples were administered in total from Mongolian females who had used social media users' online questionnaires. The questionnaire is also distributed to Mongolian females who use social media platforms. Table 3 summarizes the sample's age, education, and occupation characteristics.

Table 3 detailed that, out of a total of 436 questionnaires collected, the majority of respondents (40.4 percent) are pregnant, while the remainders (59.6 percent) are already given birth. Pregnant women participated in the questionnaire about their current experience; while mothers who were not pregnant, however they had one (28.2 percent) or more children also participated in the questionnaire about their accumulated experience.

Family income was less than 1.000.000tugrug of Mongolian currency (1usd=3460tugrug), 49.3 percent, and income with 1.100.000-2.500.000tugrug is 43.6 percent of participants. In addition, more than two-thirds of participants were married (93.3 percent) and non-smokers (82.6 percent).The highest percentages of respondents, 64.9 percent, are between the ages from 26 to 40. Meanwhile, most responders held a bachelor's degree or higher (60.3 percent), and mostly participants gained academic education.

Table 3.*Demographic of Respondents*

Profile	Categories	Frequency	Percentage%
Age	>18	4	9
	19-25	104	23.9
	25-40	282	64.7
	40<	46	10.6
	Total	436	100
Marital status	Single	20	4.6
	Married	407	93.3
	Divorced	9	2.1
	Total	436	100
Education	Yes	422	96.8
	No	14	3.2
	Total	436	100
Highest degree	High school	112	25.7
	Bachelor	262	60.1
	Post graduate	62	14.2
	Total	436	100
Location	City	368	84.4
	Province	51	11.7
	Village (Sum)	17	3.9
	Total	436	100
Income	>1.000.000	215	49.3
	1.100.000-2.500.000	190	43.6
	2.600.000-4.000.000	25	5.7

Total	4.100.000< 436	6 100	1.4
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Smoking	Always	20	4.6
	Sometimes	25	5.7
	Rarely	31	7.1
Never	360	82.6	
Total	436	100	
<hr/>			
Pregnant or not	No	260	59.6
Yes	176	40.4	
Total	436	100	
<hr/>			
Trimester	1 st trimester	14	57.6
2 nd trimester	47	3.2	
3 rd trimester	122	10.8	
Total	436	100	
<hr/>			
Children's number	1	123	28.2
2	101	23.2	
3	87	20	
4<	40	9.2	
Total	436	100	

4.2. Knowledge of DSs intake

Out of 436 respondents 50.7 percent were aware of DSs, while almost the same percentage of respondents, 39.9 percent, answered that respondents do not know enough knowledge what need DSs intake for health. Most of the respondents, 65.1 percent, answered that they had never attended any health campaign to gain knowledge about the importance and proper DSs intake. Besides, women who are aware that it is necessary to take DSs during pregnancy are women aged 26-40 (64.7 percent) who live in capital city (84.4 percent), are married (93.3 percent), and have a bachelor's degree (60.1 percent). Table 2 shows more detailed information.

Figure 3 shows the highest percentages of respondents, 43.12 percent, believe the information of health care professionals.

Figure 3. Answers of the respondents consider the information sources the trustworthy (n=436)

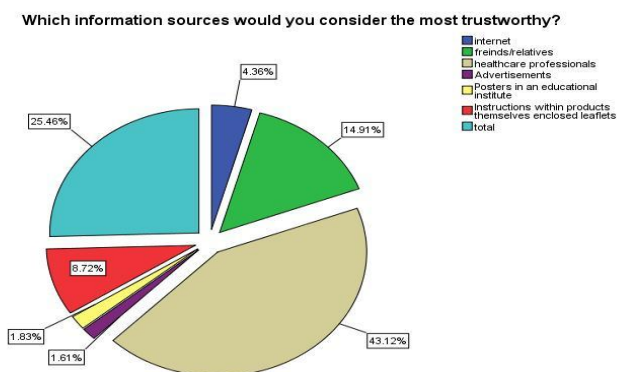


Table 5 shows out of 436 respondents 174 (39.9 percent) use DSs for filling the nutrition gap, treating minor illnesses, increasing energy and maintaining good health during pregnancy. While almost the same percentage of respondents, 151 (34.6 percent), use only it for maintain good health during pregnancy.

Table 5. Answers of the respondents’ DSs intake purpose during pregnancy (n=436)

What do you think about what purpose pregnancy use dietary supplements?		
	Frequency	Percent
To ensure adequate nutrition and fill nutrition gap	75	17.2
To treat minor illnesses	2	0.5
To meet increased energy demands of the body	34	7.8
To maintain good health	151	34.6
All of the above	174	39.9
Total	436	100

4.3. Attitude of DSs intake

Out of 436 respondents 40.82 percent heard about pregnancy DSs from healthcare professionals. Figure 4 shows second highest percentage, 33.49 percent, participants received information about DSs from total (internet, relatives, healthcare professionals, advertisements and instructions within products themselves enclosed leaflets).

Figure 4. Answers of the respondents’ heard sources about DSs(n=436)

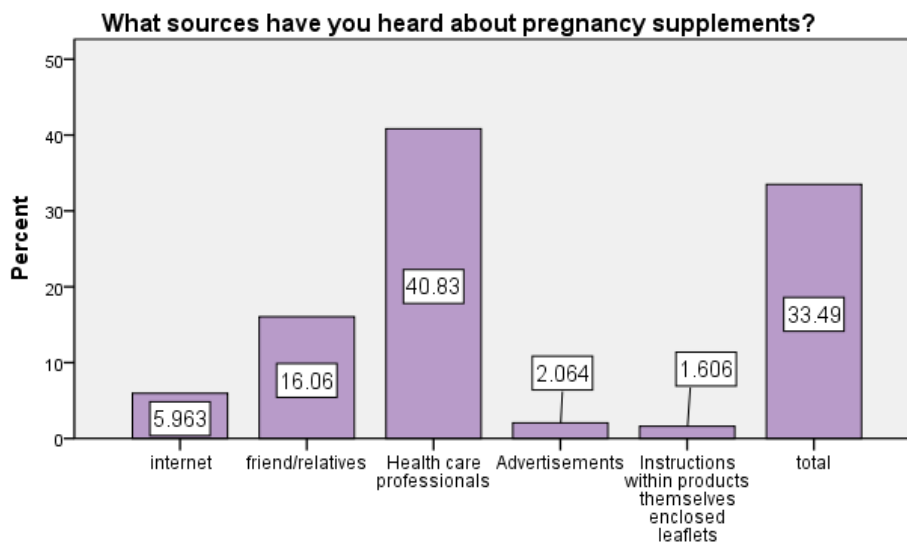


Table 6 shows illustrated that a half of respondents, 51.1 percent, were aware of DSs deficiency. Besides, 42.2 percent of respondents answered that did not know about DSs deficiency how is serious. DSs are kind of medicine, because the highest percentage of respondents, 43.3 percent, answered that do not take them at will during pregnancy. However, 28.4 percent of samples answered that the women do not know how to use DSs during pregnancy.

Table 6.

Questions regarding attitude of DSs intake	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
How serious is the DSs deficiency?	223 (51.1)	0	184 (42.2)	29 (6.7)	0
The importance of each of the supplements needed during pregnancy for the fetus? (25.2)	52 (11.9)	265 (60.8)	9 (2.1)	0	110
I think it is necessary to use DSs during pregnancy.	129 (29.6)	244 (56.0)	58 (13.3)	5 (1.1)	0
DSs are a kind of medicine, don't take them at will in pregnancy.	60 (13.8)	189 (43.3)	124 (28.4)	63 (14.4)	0
The popular brand is better than the unknown brand's DSs. (4.8)	134 (30.7)	22 (5.0)	0	259 (59.4)	21

4.4. Association of demographic variables with knowledge, attitude and practice (KAP)

It is known that sociodemographic factors can help us identify people with low nutrition practice, while knowledge and attitudes also have an impact on practice. Socio-demographic information will be easier to be obtained knowledge, attitude and practice will require more information entries to be filled out. The multivariable logistic regression analysis indicated that participants' age, educational status, location and income had significantly associated with DSs intake's knowledge, attitude and practice (Table 6).

Mostly of the respondents (64.7 percent) were between 25-40 years of age, and more than half of them had never received any information about DSs from any source. In other words, table 6 shows that more than half have lack of knowledge about DSs. It also appears that there is that the participants of under 18 years of age have insufficient knowledge about DSs. Although participants was insufficient knowledge about DSs, table 6 shows that participants answered to taking DSs intake during pregnancy is important for the fetus and pregnant health. According to the study, the answer was that when taking DSs intake during pregnancy, it is necessary to use them according to the doctor's recommend.

Table 6. Analysis of factors associated with DSs knowledge, attitude and practice

Demographics	Dietary supplements are good for pregnancy (Knowledge)		X ² square	p value
	Good	Poor		
Age group			5.608	.113
>18	0	4 (0.9)		
19-25	25 (5.7)	79 (18.1)		
25-40	94 (21.6)	188 (43.1)		
40<	17 (3.9)	29 (6.7)		
Education			11.514	.163
High school	14 (3.2)	54 (12.4)		
Collage	7 (1.6)	37 (8.5)		
Bachelor	91 (20.9)	171 (39.2)		
Post graduate	24 (5.5)	38 (8.7)		
Location			4.948	.107
City	107 (24.5)	261 (59.9)		
Province	22 (5.0)	29 (6.7)		
Village (Sum)	7 (1.6)	10 (2.3)		
Income			4.777	.105

>1.000.000	56 (12.8)	153 (35.1)
1.100.000-2.500.000	67 (15.4)	124 (28.4)
2.600.000-4.000.000	9 (2.1)	16 (3.7)
4.100.000<	3 (0.7)	3 (0.7)

The importance of DSs during pregnancy for the fetus (Attitude)

	Good	Poor		
Age group			1.344	.056
>18	2 (0.5)	2 (0.5)		
19-25	76 (17.4)	28 (6.4)		
25-40	207 (47.5)	75 (17.2)		
40<	32 (7.3)	14 (3.2)		
Education			6.963	.126
High school	43 (9.9)	25 (5.7)		
Collage	28 (6.4)	16 (3.7)		
Bachelor	197 (45.2)	65 (14.9)		
Post graduate	49 (11.2)	13 (3.0)		
Location			.239	.023
City	268 (61.5)	100 (22.9)		
Province	36 (8.3)		15 (3.4)	
Village (Sum)	13 (3.0)	4 (0.9)		
Income			8.636	.141
>1.000.000	144 (33.0)	65 (14.9)		
1.100.000-2.500.000	140 (32.1)	51 (11.7)		
2.600.000-4.000.000	23 (5.3)	2 (0.5)		
4.100.000<	6 (1.4)	0		

Do you use DSs only as a doctor recommend? (Practice)

	No	Yes	Not at all		
Age group				3.453	.089
>18	1 (0.2)	3 (0.7)	0		
19-25	38 (8.7)	65 (14.9)	1 (0.2)		
25-40	98 (22.5)	177 (40.6)	7 (1.6)		
40<	11 (2.5)	32 (7.3)	3 (0.7)		
Education				4.547	.102
High school	16 (3.7)	47 (10.8)	5 (1.1)		
Collage	11 (2.5)	33 (7.6)	0		
Bachelor	95 (21.8)	161 (36.9)	6 (1.4)		
Post graduate	26 (6.0)	36 (8.3)	0		
Location				1.443	.058
City	126 (28.9)	233 (53.4)	9 (2.1)		
Province	19 (4.4)	30 (6.9)	2 (0.5)		
Village (Sum)	3 (0.7)	14 (3.2)	0		
Income				2.542	.076
>1.000.000	58 (13.3)	144 (33.0)	7 (1.6)		
1.100.000-2.500.000	77 (17.7)	112 (25.7)	2 (0.5)		
2.600.000-4.000.000	10 (2.3)	13 (3.0)	2 (0.5)		
4.100.000<	2 (0.5)	4 (0.9)	0		

CHAPTER 5. DISCUSSION AND CONCLUSION

DSs are a significant for pregnant to compensate nutritional and physical deficiencies and give birth to a healthy baby. Some vitamins and minerals have been issued by the World Health Organization that must be taken during pregnancy. As for Mongolia, due to its tough and harsh climate, there is not much variety in terms of food. Otherwise, pregnant is lack to get enough nutrients from their daily diet. Thus, it is necessary to get nutrients from DSs. However, there is a lack of research materials on DSs intake among pregnant women in Mongolia. This study evaluated the knowledge, attitude, and practice of DSs intake during pregnancy among Mongolian women. The main findings of this study are: (1) Half of the respondents had knowledge with DSs intake even though less than half (31%) of them always use DSs intake during pregnancy and more than half (64.9%) of them use DSs according to doctor's prescription during pregnancy. (2) A respondent was likely to have high knowledge on DSs intake if she was aged 26-40 years old (36%), and more than half (93.3%) of them was married, more than half (74%) of the respondents had a bachelor and above degree, 84.4% of them lived the capital and 51% of the respondents had between 1-2 children. (3) The main source of DSs information (40.83%) was health professionals and second source of the highest percentage (33.49%) was total (internet, relatives, healthcare professionals, advertisements and instructions within products themselves enclosed leaflets).

Out of 436 respondents 50.7 percent were aware of DSs, while almost the same percentage of respondents, 39.9 percent, answered that respondents do not know enough knowledge what need DSs intake for health. Moreover, most of the respondents, 65.1 percent, answered that they had never attended any health campaign to gain knowledge about the importance and proper DSs intake. However, the respondents of 40.83 percent found knowledge about DSs from health care professionals such as pharmacists, health advisors and so on. In addition, 33.49 percent of the respondents gained the knowledge from internet, relatives, healthcare professionals, advertisements and instructions within products themselves enclosed leaflets.

Even when considering the age group of the participants in the study, the knowledge about DSs for all age groups is insufficient (poor: >18(0.9%), 19-25(18.1%), 25-40(43.1%), 40<(6.7%)). In other words, participants the answer to the research is that the knowledge is not enough because the detailed information about why vitamins should be used during pregnancy, how it affects the fetus, and what vitamins do for the human body has not been considered.

Conclusion

Pregnant women need mostly concerned with general nutritional deficiencies and well-being. Therefore, they need to take a supplement that offers a variety of nutrients. The most noteworthy finding of the study was the cautious approach of participants, as the majority of respondents reported using DSs only upon doctor's recommendation. The study also found gender-wise variation in prevalence and attitudes concerning DSs intake. More detailed studies are recommended with a larger sample size, and further investigation is recommended to view the impact of participants' demographics such as economic status, ethnicity, and other factors such as dietary patterns and lifestyle on dietary supplement consumption.

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