



RESEARCH ARTICLE

The Relation Between Jamu (Traditional Herbs) Consumption and Food Restriction (Taboo) Against Hemoglobin Level of Preconception Woman In Banggai Regency, Central Sulawesi Province

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Abstract

Background: Nutritional status during preconception period is an important determinant of pregnancy outcome. Cultural norms, taboo, and beliefs lie within the contextual factors that could potentially affect nutritional status and health in preconception women.

Methodology: The research was conducted in threesub-districts of Banggai district, namely, Luwuk, North Luwuk, and South Luwuk. This study aims to identify relation between Jamu consumption (traditional herbs) and food restriction (taboo) against hemoglobin (Hb) value in preconception women in Banggai Regency in the year 2017. This study used cross sectional design with saturated sampling technique. The population in this study were 53 preconception women that meet the inclusion and exclusion criteria to judge the several factors that affect the value of Hb. Bivariate analysis using unpaired t test.

Results: The result show that stated hemoglobin levels average is 12.76 g / dL and the mean value 13.0 g / dL with the lowest hemoglobin value of 7.3 g / dL and hemoglobin highest value 15.9 g / dL. The test results of bivariate showed no significant difference in mean hemoglobin values among women whose consume herbs and women who did not ($p = 0.751$), there was no significant difference in mean hemoglobin values between groups of women with certain food restriction (taboo) and those who do not have restriction on certain foods ($p = 0.231$), there are no significant differences in mean hemoglobin values among women who do not consume herbs and those who consume herbs ($p = 0.753$).

Conclusion: It is important to be aware of the pharmacological content of the medication particularly when it is systemically administered. Food taboos influence the amount, frequency and quality of nutrients as contributing factor against hemoglobin level and nutritional status of women before pregnancy. Hence, we need integrated and comprehensive approaches, with interventions to improve the overall health of the preconception women in this specific cultural context.

Keywords: Preconception, traditional herbs, taboo, hemoglobin

Introduction

The Maternal Mortality Rate (MMR) in Banggai district (2014) is relatively high, (279/100.000) compare to the national target 2015 (102/100.000), stunting 36,8 % based on Basic Health Research (2013), as well as low birth weight baby (LBW) that reach 164 cases in 2015. There are four factors that affect the success of pregnancy namely genetic, maternal environment, immunobiology, and nutritional status. Pregnant woman is one of some groups at risk of malnutrition. Nutritional disorders in pregnancy can lead to premature infants, low birth weight (LBW) and intrauterine growth retardation (IUGR). Maternal nutritional status is a modifiable factor. Inadequacy of nutrition as the cause of anemia due to food problem, food availability, and food consumption vulnerability which affected by poverty,

low quality of education, and tradition/belief related to food taboo [1].

The taboo on food is still a common thing in communities with strong ethnic cultures. There are many taboos, rumors, myths, and misconceptions which are the main ingredients of human behavior, including food consumption practices. Some studies in the world found that pregnant women are a high-risk group of nutritional deficiency due to food taboos. Food taboo is a

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ban on eating certain foods because there are some threats or punishments for people who eat them or because of the belief in local myths that link those foods with certain consequences. All food taboos for pregnant women aim to protect pregnant women and fetuses from harm that can be generated from certain foods either for reasons of a magical or health nature. The abstinence is done because of the influence of past parents and local culture.

In addition to myth, food taboo is also influenced by the social environment and lifestyle of the society. Food taboo is a hereditary heritage of ancestors believed to be true by the later generations. In this threat, there are supernatural and mystical powers that will punish those who violate this rule [2]. Food taboos are usually intended for some groups such as toddlers and pregnant women. Not only in Indonesia, the belief on food taboo also occur in many countries in the world. Indonesia is a large archipelago with not less than 17.000 islands and different traditions and cultures. So that Indonesia has many different tradition and taboos.

Pregnant women are one of the groups at risk of malnutrition because of the taboo on certain foods. Preconception Women's Service (bridal and newlywed) is a comprehensive service to preconception women to improve women's health and nutritional status, to prevent and to treat anaemia and to monitor pregnancy complications and preeclampsia, with the ultimate goal to reduce MMR and IMR. In some areas of Indonesia, pregnant women must abstain from consuming shrimp, stingrays, squid, and crabs because those are thought to cause the baby's foot to grip the mother's womb and difficult to be born. One of the food taboos for pregnant women in Makassar city of South Sulawesi is the consumption of pineapple. Consumption of pineapple is believed to cause miscarriage since it will cause heat to the fetus in the womb.

Pregnant women should not consume banana heart which will make the mother's body sick and the newborn baby will be sick too, besides they also fear if the child will be burned, the placenta will form like banana heart, and difficult child bearing will happen. Whereas the heart of bananas contains many good substances for health such as protein, phosphorus, minerals, calcium, vitamin B1, vitamin C, the fiber content is quite high and low fat content.

Myth that pregnant women should not eat bananas and pineapples very believed by some people in Java, because it can lead to whiteness. Most of pregnant women said they started to limit their consumption of certain foods after their seven month of pregnancy, except pineapple and durian which they avoid at their early pregnancy because they are afraid of abortion, and was recommended to consume more pineapples after their old pregnancy so their babies will come clear. Consumption of bananas and pineapple is recommended because it is rich in vitamin C and fiber which are very important for maintaining healthy body and launched the process of disposal of digestive tracts.

Pregnant woman is also prohibited from eating eggs, which actually rich in protein needed by pregnant women. The myth said that the breast milk smelled fishy. Another example of taboo by people of Java is moringa leaves. According to Javanese belief, moringa leaves can be used to repel, ward off black magic and used at the time of death ceremony; so that people of Java have the confidence to not eat moringa or kelor.

Based on studies of moringa leaf is a food that has a high nutrient content, the content of vitamin A in moringa leaves is more than doubled than in spinach, thirty times more than beans. Moringa leaves also contain very high calcium.

Food taboos can increase the risk of both macronutrient and micronutrient deficiencies in pregnant women, including anemia defined as a condition of reduced red blood cell count followed by a decrease in its capacity as an oxygen transporter, resulting in an inadequate physiological demand. Iron deficiency anemia is anemia that occurs due to iron deficiency (Fe) needed for the formation of red blood cells. Iron deficiency is the most common cause of anemia worldwide. It is estimated that 30% of the world population is anemic due to iron deficiency. Iron other than required for the formation of hemoglobin (Hb) which play a role in the storage and transport of oxygen, is also found in several enzymes that play a role in oxidative metabolism, DNA synthesis, neurotransmitters and catabolism processes that work requires iron ions. The amount of Fe absorbed from food is approximately 10% every day so for optimal nutrition it is necessary to have a diet containing Fe as much as 8-10 mg Fe per day [3].

Method

The study was undertaken in three sub-districts of Banggai district, those were Luwuk, North Luwuk, and South Luwuk. This study aimed to identify relation between Jamu consumption (traditional herbs) and food restriction (taboo) in correlation with hemoglobin (Hb) value in preconception women in Banggai District in the year 2017. This study used cross sectional design with saturated sampling technique. The population in this study were 53 preconception women that meet the inclusion and exclusion criteria to judge the several factors that affect the value of Hb. Bivariate analysis using unpaired test.

Food taboo in Banggai District

Foods restriction of preconception women in Banggai district are the majority source of animal protein that has higher protein quality than vegetable protein sources and it is a source of iron too. These foods are meat, fish deho, crab, instant noodles, chicken eggs, shrimp, squid and crab.

Result

The result show that the hemoglobin level average is 12.76 g / dL and the mean value of 13.0 g / dL with the lowest hemoglobin value of 7.3 g / dL and hemoglobin highest value 15.9 g / dL. The test results of bivariate showed no significant difference in mean hemoglobin values among women who

consume herbs and women who did not ($p=0.751$), there was no significant difference in mean hemoglobin values between groups of women with certain food restrictions (taboo) and those who do not have restriction on certain foods ($p=0.231$), there are no significant differences in mean hemoglobin values among women who do not consume herbs and those who consume herbs ($p=0.753$).

Discussion

Beef and lamb (red meat) are good source of protein and iron. In addition, both types of meat also contain zinc (zinc), vitamin B12, omega-3, niacin, riboflavin, vitamin B6, pantothenic acid, and phosphor. Deho fish is a kind of small tuna fish. In 100 grams of tuna consists of several nutrients, namely protein 26 g, energy 180 calories, water 68 g%, fat 6 g, cholesterol 43 mg, potassium 9 mg, iron 1,15 mg, manganese 57 mg, sodium 44 mg, zing 0.68 mg, vitamin A 740 RE, thiamine 0.27 mg, vitamin E 1.13 Fe, riboflavin 0.28 mg, and niacin 9.28.

Shrimp contains the highest amounts of vitamins and fats. The highest shrimp content in accordance with daily percentage is vitamin D (38%), vitamin B12 (19%), Niacin (13%), vitamin E (5%), vitamin B6 (5%), vitamin A (4%), vitamin C (3%) Shrimp also contains various minerals that are important for the body. Mineral selenium in 100 gram of fresh shrimp is enough to meet 54% daily requirement, followed by phosphorus (20%), iron and copper (13% each), magnesium (9%), zinc (7%), sodium (6%), potassium and calcium (5% each), as well as other important minerals the body needs. Minerals from seafood are more easily absorbed than those from nuts and cereals.

Squid is the seafood ingredients commonly consumed by the people of Indonesia. The squid contains energy of 75 kilocalories, 16.1 grams of protein, 0.1 gram of carbohydrates, 0.7 grams of fat, 32 milligrams of calcium, 200 milligrams of phosphorus, and 1.8 milligrams of iron. The Squid also contained vitamin B1 0.08 milligram and vitamin C 0 milligrams. Eggs contain various vitamins and minerals, including vitamin A, riboflavin, folic acid, vitamin B6, vitamin B12, choline, iron, calcium, phosphorus and potassium. Chicken eggs are also the most complete and cheapest source of protein (Daftar Komposisi Bahan Makanan Indonesia).

Animal protein plays an important role in hemoglobin formation. According to [4], proteins in foodstuffs derived from animals such as meat and fish protein are also sources of heme-forming hemoglobin. Protein iron in the human body acts as a former of blood grains (hemopoiesis), the formation of erythrocyte with hemoglobin inside it. In the human body, iron is not free but associated with protein molecules to form ferritin. Ferritin is an iron-protein complex. In transport conditions, iron is associated with proteins to form transferrin, which serves to transport iron in the blood [5].

Lifestyle, food consumption, supplements, medicines, herbs, and medicinal plants play a role in determining one's health status. Food taboo in Indonesia is still a problem because there

are many foods that should be consumed but in fact they are taboo. As a result of food taboos in vulnerable groups including pregnant women, nursing mothers, babies and children dare not eat certain foods that can reduce food intake that will eventually decrease the nutritional status.

Foods taboos on preconception women in Banggai district are animal protein, which contains higher protein quality values than vegetable proteins. Proteins play an important role in the transport of iron in the body. Therefore, the lack of protein intake will result in inhibited iron transport so that iron deficiency will occur. Animal proteins help the absorption of iron in the body. Several factors can increase the absorption of iron such as meat, fish, and vitamin C. Animal proteins from meat can increase and accelerate the absorption of heme iron which is the formation of hemoglobin. Food taboos are seen to have an adverse effect on the body's system, especially if the foods are taboo foods that are nutritious and badly needed by the body.

Nutritional anemia is a condition in which hemoglobin, hematocrit, and red blood cell levels are lower than normal values, as a result of the deficiency of one or more important food elements. The occurrence of nutritional anemia is often associated with low dietary intake of iron substances and factors that inhibit iron absorption. Some conditions can affect hemoglobin levels, including parasitic infections and infectious diseases causing low hemoglobin levels that arise in chronic infections and inflammation. A person, who lives in a high sea level place (altitude), has a high response to generate and to adjust to lower the partial blood pressure of oxygen and reduce oxygen saturation in blood. The hematocrit and hemoglobin levels of a person increase gradually as the height increases.

Iron deficiency anemia is anemia that caused by lacking of iron (Fe) which is important for red blood cell formation. Anemia has mostly caused by iron deficiency all around the world. It has been predicted that 30% of world population suffered from anemia as a iron deficiency effect. Other than needed for hemoglobin formation which take a roll in oxygen storing and delivery, iron also found in some enzymes which is important in oxidative metabolism, DNA synthesis, neurotransmitter, and catabolism process who need iron to do their work. Fe amount that was absorbed from a food is around 10% every day, so to fulfill optimal nutrition required a diet that contains 8-10 mg iron per day [3].

Herbs have become an important cultural heritage from Indonesia. In some parts of the world herbal plant was used as a prevention and medication has been part of Indonesia culture and natural resources related to its usage in health and beauty.

Jamu is a medicinal herb derived from plants, animals, minerals, both mixed either homemade or produced as traditional Indonesian medicine. Herbs can be a concoction of herbs, herbs in the packaging of traditional health services or from practitioners, whether in the form of herbs or other

ingredients with or without being processed first, such as boiled or brewed. Herbs was made by natural ingredients such as leafs, bark of the plants, and also was made by certain fruits. Herbal medicine often made by some parts of animals, such as egg yolk, goat bile, snake bile, and bats. Based on basic health research in 2010 shows that herbs consumption by the Indonesian locals is more than 50%. Herbs usage as an alternative medication other than modern medicine on local community is part of their indigenous knowledge.

There are several factors which affect consumers on buying herbs such as personal factors, marketing factors, social factors, cultural factors, and psychology [6]. Personal factors is the main factor in consuming herbs based on personal desire of individual concerns to consume herbs. Marketing factors are the implication of the advertisement that was made by the company or herbs producer. Social factors are herbs consumption based on other people's advice. Cultural aspects are locals concern as an effort to maintain their health and to heal diseases. Psychological factor is the consumption of herbal medicine done by individual because of a dead end (not cured) at the time of taking pharmaceutical drugs (modern medicine) so switch or consume herbal medicine along with modern medicine. Between those factors that were mentioned, cultural aspects take the biggest role on herbs consumption.

The herbal therapy was given different herbal components mixture. In one herbal therapy contain of one single component or combination of some herbal component. Jamu can also be a homemade potion, made by using a family medicine park or buying ingredients in the market based on empirical experience or information tracking results from various media.

The use of herbal medicine in formal health services requires sufficient scientific evidence, especially data on herbal medicine. Safety of herbs to be used in formal medical services should be supported by valid data. In some types of herbs claim to be able to prevent anemia, such as spinach leaves, fragrant lempuyang, bean leaves and tread liman. Hb enhancement can be explained scientifically, because inside the herbal formula to get over iron deficiency anemia contains red spinach (*Amaranthus, tricolor L*), who has ability as an antioxidant. Based on Ali et al, 2009, shows red spinach antioxidant activity is in the first place compared with other vegetables by 14.3%. Herbal consumption in formal health services need adequate scientific evidence especially herbal safety data. One of herbal formula safety indicator that was very important is kidney function through ureum, creatinin, and liver function measurement. Conversely, some types of herbal medicine contain substance inhibitors that can inhibit the absorption of iron, and if consumed regularly it can cause anemia symptoms.

The herbs have been made based on the ancestor's recipe, not yet scientifically proven. No scientific research has led to the limitations of the invalidation of the goods occupations

allowed to consume and make a lot of people end up having the wrong habit of drinking excessive juice. Whenever it comes to traditional medicine, it is likely that it contains toxin that will harden the labor. In addition to the wasted expansion of the environment, which contained bacteria, the mold can produce toxins.

Herbal medicine if processed traditionally, most likely still contain toxins which will aggravate the work of the liver. In addition, hygiene is important because herbs that contain bacteria or fungi can produce toxins. A sticky herb sponge can cause sedimentation that can trigger kidney stones. What a harmful condition if irresponsible herbalist deliberately mixed herbs with medicinal chemicals that should be prescribed by a doctor (drug list G). These chemical drugs are highly potent to be drunk in dangerous doses which will cause unexpected and harmful effects on the body. Therefore pregnant women are advised to be careful in consuming herbs because the safety level and the exact dose are unclear.

Conclusion

Jamu are traditional medicine which is made by natural ingredience which has medicational effect combining with several ingrediences. The successful of traditional medicine as self-medication in health care still need to prove for its efectiveness and the side effect especially if it used by preconception or pregnant women. It is important to be aware of the pharmacological content of the medication especially when it is systemically administered.

Food taboos influence the amount, frequency and quality of nutrients as contributing factor against hemoglobin level and nutritional status of women before pregnancy. Maternal dietary habits, food taboos, and cultural beliefs can affect nutrition before and during pregnancy. Hence, we need integrated and comprehensive approaches, with interventions to improve the overall health of the preconception women in this specific cultural context.

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