

Knowledge About Nutritional Intake in Pregnant Women with Anemia

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ABSTRACT

Anemia or a lack of blood cells during pregnancy and childbirth is very dangerous. It may cause pregnant women to be at risk for bleeding during childbirth and hinder infant growth and development. This study aims to determine the knowledge of pregnant women with anemia about nutrition during pregnancy. The research design used in this study was quantitative descriptive, with 137 pregnant women with anemia as the population and a total sample of 58 respondents taken with a random sampling technique. The variable in this study is the knowledge of pregnant women with anemia about nutritional intake. This study shows that the majority of pregnant women had poor knowledge (84.48%) of nutritional intake, and only a small number had good knowledge (15.52%). With almost all pregnant women with anemia in the study having a lack of knowledge about nutritional intake, there is a concern that the baby will be negatively affected. The implication of the results highlights the important role of health workers to provide information about good nutrition during pregnancy, particularly the impact of tea-drinking habit.

Keywords: Anemia, Pregnant Women Knowledge of Nutrition, Tea-Drinking Habits,

ABSTRAK

Anemia merupakan kekurangan darah, sehingga hal ini berbahaya pada masa kehamilan dan persalinan, dan beresiko untuk mengalami perdarahan saat bersalin dan tumbuh kembang bayi tidak optimal. Penelitian ini bertujuan untuk mengetahui gambaran pengetahuan ibu hamil yang mengalami anemia mengenai nutrisi selama kehamilan. Desain penelitian yang digunakan pada penelitian ini adalah deskriptif kuantitatif, populasi pada penelitian ini adalah semua ibu hamil yang mengalami anemia sebanyak 137 responden, jumlah sampel sebanyak 58 responden, teknik pengambilan sampel Random sampling. Variabel pada penelitian ini adalah pengetahuan ibu hamil anemia mengenai asupan nutrisinya. Penelitian ini menunjukkan bahwa sebagian besar pengetahuan ibu (84,48%) berada pada kategori kurang dan hanya sebagian kecil yang memiliki pengetahuan yang baik (15,52%). Hampir seluruh ibu hamil yang mengalami anemia memiliki pengetahuan yang kurang, sehingga hal ini dikhawatirkan dapat mempengaruhi kondisi bayi yang ada didalam kadungannya, sehingga kondisi ini menunjukkan bahwa pentingnya peran petugas kesehatan untuk memberikan informasi mengenai nutrisi yang baik selama kehamilan dan dampak dari kebiasaan mengkonsumsi teh.

Kata kunci: Anemia, Kebiasaan Minum Teh, Pengetahuan Nutrisi Ibu Hamil

INTRODUCTION

Anemia can endanger the lives of pregnant women. According to the World Health Organization (WHO), anemia affects half a billion women worldwide. Its prevalence was around 38% among pregnant women or around 32.4 million at the age of 15-49 years (World Health Organization, 2014). Anemia in pregnant women can increase the rate of maternal mortality (MMR). In Indonesia, the MMR is estimated to reach 359/100,000 live births. This incident far exceeds the target set by the Millennium Development Goals (MDG's) of around 102/100,000 live births (Ministry of Health Republic of Indonesia, 2012).

The incidence of anemia in pregnant women in Indonesia ranked 5th in the world. According to the report of the Basic Health Research (Indonesian, Riskesdas) in 2018, the incidence of anemia in Indonesia was still high at 48.9%, particularly when compared to that in 2013 at 37.1%. This report means in five years, the incidence of anemia had increased significantly by 11.8% (Indonesian Ministry of Health, 2018). In 2015, anemia in West Java was at a rate of 37.1% (Indonesian Ministry of Health, 2016). The occurrence of anemia can be influenced by, among others, the nutritional status of the mother during pregnancy.

A mother needs to have a good nutritional status during pregnancy for the growth and development of the fetus. Several factors that can affect the nutritional status of pregnant women include the economic condition of the family and their health (Rosmalina & Luciasari, 2016). It can also be caused by a low intake of nutrients or food sources consumed, not getting absorbed by the body. A study found that most pregnant women with malnutrition (63%) were in the category of insufficient energy intake, 51.9% insufficient protein intake, 55.6% inadequate folic acid intake, 59.3% inadequate iron intake, 96.3% inadequate zinc intake, 59.3% inadequate vitamin A intake, and 85.2% inadequate vitamin

C intake (Retni, Margawati, & Widjanarko, 2016).

Malnutrition in the mother will cause problems with the fetus and even mental health consequences for the mother and child, such as low birth weight (LBW), premature birth, and disruption of infant growth and increase complications in maternal health. Globally, 3.5 million mothers and toddlers died due to malnutrition (Mariana, Wulandari, & Padila, 2018). Therefore, it is very important to improve nutritional intake to improve the health of pregnant women.

Several studies have identified that pregnant women's knowledge about it influences the fulfillment of good nutrition. The research of Dr. Renu Gupta in India in 2015 shows that the knowledge of pregnant women about nutritional intake during pregnancy was very poor, with only 36% of 788 pregnant women had sufficient knowledge (Gupta et al., 2016). This finding is supported by Yuniasih Purwaningrum's research indicating that out of the 32 pregnant women under study, most of them had sufficient knowledge (13 or 40%), and 11 had poor knowledge (35%). Her study further mentioned a relationship between pregnant women's knowledge and nutritional intake during pregnancy (Purwaningrum, 2017).

In the same vein, the research by Daba et al. (2013) in Ethiopia reported that of the 422 pregnant women who checked themselves in health services, 74.0% had poor knowledge of good nutrition during pregnancy, and only 26.0% knew about good nutrition (Daba et al., 2013). Bookari, Yetman, & Williamson (2016) found that the knowledge of pregnant women about nutrition in Australia is positively related to age, household income, and level of education. Low household income and education level will result in poor knowledge (Bookari, Yeatman, & Williamson 2016).

Similarly, a study conducted in Bangladesh by Hossain et al. (2013) reveals that 200

pregnant women in villages experienced malnutrition more frequently than women living in the city. One of the causes of malnutrition is the lack of knowledge of pregnant women in Bangladesh regarding the importance of nutritional intake during pregnancy. According to this study, several factors can cause this lack of knowledge among rural pregnant women. One of them is their low level of education, in which 13% experienced very poor nutrition, 49% undernourished, 23% good nutrition, and 15% excessive nutrition. Besides, 78% of the pregnant women had mild anemia, 16% severe anemia, and 6% non-anemic. The anemia was caused by a failure to meet the necessary nutritional intake (Hossain et al., 2013).

In Indonesia, a study in Central Java shows that the knowledge of pregnant women is very influential on the intake of healthy and balanced nutrition during pregnancy. When the mother has good knowledge about nutrition, she will have no problem in decision making and behavior. Pregnant women who have good knowledge about nutrition will have the awareness to meet their needs well. But, if their knowledge is lacking, their nutritional intake will be poor (Baity, 2017).

The concern of this study is pregnant women's consumption of tea in Garut. Supported by cold weather, Garut is one of the largest producers of tea. The tea can be harvested at least two times a week, in which young leaves are picked. Before being marketed, the tea undergoes a fairly long drying process. Many pregnant women in Garut think that it is good to consume tea. They have a lack of knowledge about the components of tea. Tea is not good for consumption during pregnancy. The tannin compound contained in tea can inhibit iron intake in the body.

Processed products from tea can also be found anywhere. This prevalence is another cause many pregnant women in the area of Puskesmas (Community Health Center) Sukamulya get used to consuming tea. If they have good knowledge about the effects of excessively consuming tea during pregnancy, they will at least avoid anemia. Anemia can occur when pregnant mothers consume too much tea

because the tannin compounds in tea can inhibit iron absorption in the body. Once pregnant mothers have good knowledge about it, they will be able to avoid the dangers that can threaten their pregnancy.

METHODS

The research employed the quantitative descriptive method. The variable in this study is knowledge of nutrition intake in pregnant women with anemia. It is a single variable without any comparisons made to other variables.

The total population in this study was 137 pregnant women with anemia. Using the Slovin formula for the random sampling technique, 58 respondents were obtained. The research instrument was developed based on a literature review on good nutrition during pregnancy. There were 30 questions in the questionnaire, including the impact of nutritional deficiencies, good nutrition, how to process food, personal hygiene, the benefits of Fe tablets, and the habit of drinking tea. The questions were in the form of multiple-choice using the Guttman scale, with the lowest validity score of 0.478 and the highest score of 0.970. The item was said to be valid if the calculated r -value is greater than the value of r in the table. In this study, using an error rate of 5% (0.361), the reliability test results obtained a Cronbach alpha value of 0.979.

In the initial stages of the study, the researchers distributed informed consent to all pregnant women who came to Puskesmas (Community Health Center) Sukamulya Garut, to check their Hemoglobin (Hb). Once the pregnant women gave their consent, the researchers did a Hb check, and after accumulating pregnant women who had a Hb below 11 mg/dl, the researchers randomly selected the reshuffling their queue number. Once the sample was determined, the researchers introduced themselves to the respondents. The researchers then gathered the respondents and explained to them the intent of the research and the rights of respondents.

After the pregnant women respondents understood the aim of the research and expressed their willingness to become a respondent, the researchers distributed an informed consent

letter to be signed by the respondents. Subsequently, the researchers examined the respondents' Hb at Puskesmas Sukmulya Garut. Once respondents with low Hb were identified, the researchers asked for permission to distribute a questionnaire to be filled out by the respondents. After that, the researchers conducted examinations of data before processing them.

Univariate data analysis was used to find out the knowledge of nutritional intake in pregnant women with anemia by using frequency distribution values. The scoring criterion determines that scores of $> 60\%$ and $\leq 60\%$ mean good and poor knowledge, respectively (Pratiknya, 2011).

RESULTS

Out of a total of 128 (100%), pregnant women examined for their Hb, nearly half or 58 had anemia. The results of the study are presented in a tabular form which illustrates the distribution of knowledge of nutrition intake of pregnant women with anemia. The table includes respondents' demographic data and knowledge about nutrition intake during pregnancy.

As displayed in Table 1, almost half (48.28%) of the respondents were in the range of age of 20-35 years. Based on their education level, most (84.48%) had a high school education and below, with the majority being housewives (84.48%). Based on the gestational age group, half (50%) were in the first trimester, and two-fifths (41.38%) had no birth experience. Based on the results of hemoglobin examination, all respondents had anemia, with more than half (58.62%) mild anemia, one fourth (24.14%) moderate anemia, and one person (1.7%) severe anemia. Finally, almost all (84.48%) of the pregnant women had the habit of drinking more than 2 cups of tea a day.

Table 2 illustrates that almost all the pregnant women had poor knowledge (49 respondents or 84.48%), and a small proportion of them had good knowledge (9 respondents or 8.48%). Based on data in Table 3, the women's knowledge about nutrition intake based on its components was mostly in the "poor" category. Their knowledge was especially poor for the components of

personal hygiene (96.55%), the benefits of Fe tablets during pregnancy (89.65%), and the impact of tea-drinking habits (82.75%). On the other hand, the knowledge of two-thirds of the respondents on the components of the impact of lack of nutrition, good nutrition, and how to process food was quite good.

DISCUSSION

Pregnant Mothers' Knowledge-based on Demographic Characteristics

The demographic characteristics in Table 1 indicate that almost all respondents at the age of 20-35 years had poor knowledge (28 respondents or 48.28%), completed junior high school education (31 respondents or 53.44%), and worked as a housewife (49 respondents or 84.48%). The majority of the pregnant women were in their first trimester (29 respondents or 50%) and were in the primipara group (24 respondents or 41.38%). Their MUAC (mid-upper arm circumference) was < 23.5 cm (37 respondents or 63.79%), and most of the pregnant women were in the category of mild anemia (34 respondents or 58.62%). Finally, there were 42 respondents (72.42%) with a habit of drinking tea for more than 2 cups/day.

Age-wise, most of the respondents who had poor knowledge of nutrition intake were at the age of 20-35 years (28 respondents or 48.28%). The result of this study is in line with that of Sulistiyanti (2016), who found that 64.70% of her respondents with poor knowledge of nutrition intake during pregnancy were at the age of 20-35 years, which is a fairly mature reproductive age. On the other hand, pregnant women should have good knowledge about nutritional intake during pregnancy because, at that age range, women are expected to be more mature physically and also in terms of their way of thinking (Wawan & Dewi, 2010).

The present study further discovered that most respondents with poor knowledge of nutrition intake had an academic background of junior high school education (31 respondents or 53.44%). This finding corresponds to that of Hartati (2019), who found that 50% of her respondents with basic education level had poor

Table 1 Distribution Frequency of the Demographic Characteristics of Pregnant Mothers with Anemia and Their Knowledge about Nutrition Intake (n= 58).

Knowledge Characteristics	Category			
	Good		Poor	
	F	%	f	%
Age				
<20 years	2	3.45	20	34.48
20-35 years	7	12.06	28	48.28
>35 years			1	1.7
Education				
Primary School	1	1.7	11	18.97
Junior High School	3	5.17	31	53.45
Senior High School	4	6.90	7	12.06
Bachelor's Degree	1	1.7	0	0
Occupation				
Housewife	4	6.90	49	84.48
Self-employed	4	6.90	0	0
Civil servant	1	1.7	0	0
Gestational Age by Group				
Trimester I (0-3 months)	5	8.62	29	50
Trimester II (4-6 months)	3	5.17	18	31.03
Trimester III (7-9 months)	1	1.7	2	3.45
Parity				
Primipara			24	41,38
Multipara	7	12,06	22	37,93
Grand Multipara	2	3,45	3	5,17
MUAC				
<23.5 cm	0	0	37	63.79
>23.5 cm	9	15.52	12	20.69
Hemoglobin				
Mild Anemia	9	15.52	34	58.62
Moderate Anemia	0	0	14	24.14
Severe Anemia	0	0	1	1.7
Tea-Drinking Habit				
<2 cups/day	0	0	7	12.06
>2 cups/day	9	15.52	42	72.42

Table 2 Frequency Distribution of the Knowledge of Pregnant Mothers with Anemia about Nutritional Intake during Pregnancy at Puskesmas Sukamulya Garut (n=58).

Nutrition Knowledge	Frequency (f)	Percentage (%)
Good	9	15.52
Poor	49	84.48
Total	58	100

Table 3 Frequency Distribution of the Components of Knowledge of Pregnant Mothers with Anemia about Nutritional Intake during Pregnancy at Puskesmas Sukamulya Garut (n=58).

Components of Knowledge about Nutritional Intake	Category			
	Good		Poor	
	F	%	F	%
Impact of nutritional deficiencies	18	31	40	68.96
Good nutrition	21	36.20	37	63.79

knowledge. Education is needed by individuals to obtain information such as one related to health so that they can improve their health and quality of life. The level of education influences an individual's decision to take action. The higher the education level, the more insight and information received by the individuals (Meilani, 2009).

Similarly, the higher the education level of mothers, the better their knowledge of nutrition intake. Conversely, the lower the education level, the poorer the mother's knowledge about good nutrition during pregnancy. Most pregnant women in this study were housewives (49 respondents or 84.48 %). Pregnant women who work outside the home tend to get more information than those who work as housewives. However, work is an activity that takes up a lot of time, so work activities in pregnant women can affect the lives of their families and the information they get (Henry & Dewi, 2010).

Based on the gestational age group, most of the pregnant women who had poor knowledge about nutrition intake were in their first trimester I (29 respondents or 50%). In the first trimester, there is an organogenesis phase or organ formation in the fetus. This phase is marked by an increase in the hormones of estrogen, progesterone, relaxin, and somatomammotropin. An increase in these hormones has the effect of vascularization on every organ, such as the uterus, breast, and vagina that is useful for fetal growth and development. Moreover, in this phase, there is a physiological change in pregnant women, namely an increase in oxygen demand for the fetus so that the body will have to compensate to meet this increasing need for oxygen supply to the fetus (Kozier, Berman & Snyder, 2011). As a result of this phase, the blood in the pregnant women's body will transport more oxygen to the fetus, causing pregnant women to be at risk of anemia.

In the second trimester, pregnant women begin to evaluate everything in themselves, such as relationships with family or the community around their home. Usually, in this trimester, pregnant women will find out more information about the role of a mother and how to face labor

(Kozier et al., 2011).

In the third trimester, pregnant women usually begin to be aware of the presence of their baby and are at risk of experiencing various problems, such as physiological problems in the form of shortness of breath due to the enlargement of the uterus pressing diaphragms. Hypertension may also occur, which can cause preeclampsia and eclampsia that can adversely affect the baby in the womb. Besides, psychological problems can occur if a pregnant woman experiences anxiety such as fear during childbirth and is afraid that her baby is born with an abnormal condition. Finally, social problems may occur as well, such as the pregnant woman is afraid of being ostracized by her family because there is a change in her that can cause psychological problems. These problems can cause the woman to experience depression (Kusuma, 2018).

The result of this study differs from that of Purwanti (2012), who found that most pregnant women who had a lack of knowledge of nutrition intake were in their third trimester (54%). The majority of pregnant women in this study were in the primipara group, with 24 respondents (41.38%).

Pregnant Women's Knowledge-based on Components of Nutrition Intake

Based on the results of research conducted at the Puskesmas (Community Health Center) Sukamulya Garut, the pregnant women were included in the category of having poor knowledge (49 respondents or 83.48%). The majority of the pregnant women under study had a lack of knowledge about the effects of nutritional deficiencies, good nutrition, how to process food, personal hygiene, the benefits of Fe tablets, and the effects of tea-drinking habits.

Furthermore, this study found that 21 respondents had good knowledge, specifically about good nutrition and how to process food (36.20%). Among these respondents, 9 (15.52%) had a MUAC of >23.5cm. Pathophysiologically, one of the causes for a baby to experience low birth weight, is the size of the MUAC of less than 23.5 cm. This condition will pose a mother

with a risk of experiencing chronic energy deficiency (CED) and will increase the risk of infant death (Haryanti, 2019). This result is different from that of Baity (2017) revealing 65.4% of the pregnant women in the study knew which food to avoid during pregnancy, such as foods that are high in sugar and fat, vegetables that are not washed properly, foods that are undercooked or raw, and foods with high levels of salt and alcohol.

A small proportion of pregnant women in this study had good knowledge about the benefits of consuming Fe tablets during pregnancy (10.34%), but most had poor knowledge about it (89.65%). One of the reasons is the effect of Fe tablets, which can trigger nausea when consumed, thereby causing the women to be unwilling to consume the tablets. This finding does not correspond to that of Sulistyaningsih (2015), who found that most pregnant women in her study had good knowledge about the benefits of drinking Fe tablets (53%), but they consumed these Fe tablets coupled with drinking tea. This habit could be causing triggers to pregnant women experiencing anemia during pregnancy.

Pregnant women will not suffer from anemia if they know which foods are good for consumption and how to process them. The women in this study had a habit of consuming more than 2 cups of tea per day. Moreover, they consumed Fe tablets together with tea. One of the cited reasons for not drinking the tablets with mineral water is because nausea can be reduced by drinking tea. Hence, there is a possibility that pregnant women experience anemia because of their habit of consuming tea. When consumed continuously together with Fe tablets, the tea will have negative effects on pregnant women.

The negative effect of tea comes from the caffeine it contains. If tea is consumed together with Fe tablets, the absorption of iron sources in the body will be inhibited by about 79-94%. Tea also contains tannin compounds that can become parasites that bind some metals such as iron, calcium, and aluminum in the body. Tannins will form chemical compounds that cause the iron and calcium compounds in food to be unabsorbed by the body, making the body experience

iron deficiency (Septiawan, 2016). This finding highlights the importance of knowledge about the effects of tea-drinking habits during pregnancy, together with Fe tablets among pregnant women.

This finding is in contrast to Baity's study (2017), in which only a few pregnant women had poor knowledge about the intake of good nutrition consumed during pregnancy (9.1%). Sulistiyanti's study (2013) in Pacitan, Indonesia, corresponds to Baity's (2017) research result, showing that only 2.94% of the women had a lack of knowledge about nutritional intake. Finally, in Purwanti's (2012) study, the number of women who had a lack of knowledge about nutrition was 24.0%.

The present study also shows that most pregnant women were in the mild anemia category, with 34 respondents (58.62%). The government has made efforts to prevent pregnant women from experiencing nutritional anemia by giving Fe tablets. The high iron contained in the tablet, as well as folic acid, can prevent the occurrence of anemia and folic acid deficiency in the body. Hence, pregnant women are given around 90 Fe tablets, consumed one tablet a day during pregnancy. However, the habit of pregnant women understudy to consume tea during pregnancy can reduce the absorption of iron in the body because tea contains caffeine (Parulian, 2016).

In this study, many of the pregnant women were used to consuming tea for more than 2 cups/day (49 respondents or 84.49%). Pregnant women should be able to reduce the habit of consuming tea during pregnancy, especially simultaneously with Fe tablets. Doing so will negatively impact the mother and her fetus. All respondents with this lack of knowledge about nutritional intake during pregnancy fall into the category of being anemic, even though there were nine women with good knowledge who had mild anemia.

Anemia may happen because, during pregnancy, the body has an increased need for fluids. For instance, in the first trimester, there is organogenesis or a phase of organ formation in the fetus. In this trimester, there is an increase in

the hormones of estrogen, progesterone, relaxin, and somatomammotropin. An increase in these hormones causes vascularization on every organ, such as the uterus, breast, and vagina that is useful for fetal growth and development. In this phase, physiological changes also occur in pregnant women, namely an increase in oxygen demand for the fetus. Consequently, the body will compensate for the increased need for the supply of oxygen to the fetus. As a result of this phase, the blood in the mother's body will transfer more oxygen to the fetus, causing pregnant women to be at risk of anemia (Kozier et al., 2011).

These conditions cause even pregnant women who have good nutrition to have mild anemia. The conditions can put the women under study more at risk of having problems during pregnancy due to the habit of consuming more than two cups of tea a day and ignoring the effects of tea on the absorption of Fe during pregnancy. The research of Yazdy, Tinker, Mitchell, Demmer, and Werler (2012) evinces that tea contains caffeine, and if consumed together with Fe tablets will interfere with the absorption of iron sources in the body by 79-94%. Tea also has tannin compounds that can become parasites for the body because the compounds can bind several metals such as iron, calcium, and aluminum, negatively impacting the optimal absorption of the nutrition in food by the body. Consequently, the body will experience iron deficiency and other compound deficiencies. The finding is also confirmed by the research of Van Der Hoeven, Browne, Uiterwaal, Van Der Ent, Grobbee, and Dalmeijer (2017).

Results on the particular investigation of pregnant women's tea-drinking habit show that out of the 35 mothers with this habit, as many as 16 respondents (45.7%) had anemia, and out of 56 pregnant women who did not have a tea-drinking habit, 13 of them (23.2%) had anemia. Hence, it can be concluded that pregnant women who have the habit of drinking tea will more easily experience anemia (Septiawan & Sugerta, 2016). Most respondents had the habit of consuming Fe tablets with tea (16 respondents or 53%), with mineral water (12 respondents or 40%), and with orange juice (2 respondents or

7%). It can be thus generalized that more pregnant women consumed Fe tablets with tea (Sulistyaningsih, Sulastrri, & Suryandari, 2015).

Research conducted at the Puskesmas (Community Health Center) Kartasura on the habits of pregnant women in consuming Fe tablets reveals that 27 (56.4%) of the pregnant women had the habit of consuming Fe tablets, and 21 (43.6%) did not. Pregnant women should consume Fe tablets appropriately with mineral water. It is inappropriate to consume the tablets with tea because the absorption in the body may get disrupted (Razfi, Sulastrri, & Suryandari, 2014).

Furthermore, research conducted in Aceh shows that of the 77 pregnant women under study, 31 respondents (31.3%) were accustomed to drinking tea, and 46 respondents (59.7%) were not. Hence, 49 pregnant women in the study (63.6%) did not have anemia, and 28 (26.4%) had anemia. According to the research results of Hartati (2019), one of the causes of anemia is the habit of drinking tea that will inhibit the absorption of the nutrients contained in Fe tablets. Finally, research conducted in Sudiarjo found that out of 36 respondents, 20 who used to drink tea (65.0%) had mild anemia, while respondents who only consumed tea sometimes (9 or 66.7%) had moderate anemia, and seven respondents who did not drink tea (100%) did not experience anemia (Meilani, 2009).

CONCLUSIONS

Based on the results of research on the knowledge of pregnant women with anemia about nutritional intake at Puskesmas (Community Health Center) Sukamulya Garut, it can be concluded that almost all pregnant women with anemia had a lack of such knowledge (84.48%). Therefore, the important role of health workers becomes prominent in increasing the knowledge of the community, especially pregnant women, about the importance of nutritional intake during pregnancy and the dangers of consuming tea excessively during pregnancy.

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