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Relationship between food consumption pattern and goitre among farmers

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ABSTRAK

Latar Belakang: *Gangguan Akibat Kekurangan Iodium (GAKI) dapat menghambat peningkatan mutu sumber daya manusia. Penyebab kekurangan iodium yaitu rendahnya asupan iodium yang dapat menyebabkan ekskresi hormon tiroid tidak maksimal, paparan polusi lingkungan dan zat goitrogenik alami dalam bahan makanan. Keadaan alam di Kecamatan Kismantoro didominasi dengan tanah tegalan sebagai lahan bercocok tanam, sehingga sebagian besar penduduknya bermata pencaharian sebagai petani dan singkong menjadi tanaman yang paling banyak ditanam.*
Tujuan: *Penelitian ini bertujuan untuk mengetahui hubungan pola konsumsi makanan sumber iodium dan sumber goitrogenik dengan kejadian gondok pada petani di Kecamatan Kismantoro.*
Metode: *Penelitian ini merupakan penelitian observasional analitik dengan desain case control. Jumlah sampel 82 orang dengan perbandingan 1:1, 41 orang kelompok kasus (positif gondok) dan 41 orang kelompok kontrol (negatif gondok). Pengumpulan data menggunakan wawancara dengan kuisioner dan Food Frequency Questionnaire (FFQ). Bahan makanan yang tercantum dalam FFQ ditentukan dengan cara Focus Group Discussion (FGD) dengan kader kesehatan di Balai Desa Kecamatan Kismantoro. Data sekunder diambil dari data rekam medis Puskesmas Kecamatan Kismantoro. Teknik sampling yang digunakan yaitu purposive sampling. Analisis data menggunakan uji statistik chi-square, fisher exact.*
Hasil: *Pola konsumsi sumber goitrogenik yang berhubungan dengan kejadian gondok pada petani di Kecamatan Kismantoro adalah singkong (OR= 15,261; CI 95%= 3,242-71,835; p= 0,000) p < 0.05 , sawi (OR= 4,608; CI 95%= 1,494-14,213; p= 0,005), gatot (OR= 5,556; CI 95%= 1,923-16,046; p= 0,001), dan tape singkong (OR= 5,205; CI 95%= 2,031-13,337; p= 0,000). Sementara pola konsumsi makanan sumber iodium yang berhubugan dengan kejadian gondok pada petani yaitu ikan laut (OR= 0,078; CI 95%= 0,009-0,638; p= 0,004).*
Kesimpulan: *Terdapat hubungan pola konsumsi makanan dengan kejadian gondok pada petani di Kecamatan Kismantoro. Makanan yang paling sering dikonsumsi oleh responden adalah singkong. Makanan sumber goitrogenik yang berhubungan dengan kejadian gondok adalah singkong, sawi, gatot dan tape singkong.*

KATA KUNCI: *goitrogenik; gondok; Iodium, Kecamatan Kismantoro; pola makanan*

ABSTRACT

Background: *Iodine Deficiency Disorders (IDD) are one of the public health problems that can hinder the quality of human resources. The causes of iodine deficiency are low intake of iodine, which can cause the excretion of thyroid hormones not maximal, exposure to environmental pollution, and natural goitrogenic substances in foodstuffs. The natural conditions in Kismantoro subdistrict are dominated moorland as farmland, so that most of the population livelihoods as farmers and cassava become the most widely planted crops.*
Objectives: *This study aims to determine the relationship between iodine sources and goitrogenic sources*

with the incidence of goiter in farmers in the Kismantoro Subdistrict.
Methods: *This research is analytical observational research with a case-control design. The sample number of 82 people with a ratio of 1:1, 41 people case group (positive goiter) and 41 person control group (negative goiter). Data collection uses interviews with questionnaires and the Food Frequency Questionnaire (FFQ). The foodstuffs listed in the FFQ are determined by means of Focus Group Discussion (FGD) with health cadres at Kismantoro Subdistrict Village Hall. Secondary data are taken from the medical record data of Kismantoro Subdistrict Health Center. The sampling technique used is purposive sampling. Data analysis using chi-square statistical test, fisher exact.*
Result: *The consumption pattern of goitrogenic sources related to the incidence of goiter in farmers in Kismantoro Subdistrict is cassava (OR= 15.261; CI 95%= 3.242-71.835; p= 0.000) p < 0.05 , mustard (OR= 4.608; CI 95%= 1.494-14.213; p= 0.005), gatot (OR= 5.556; CI 95%= 1.923-16.046; p= 0.001), and cassava tape (OR= 5.205; CI 95%= 2.031-13.337; p= 0.000). While the consumption pattern of iodine source food that is related to the incidence of goiter in farmers namely sea fish (OR= 0.078; CI 95%= 0.009-0.638; p= 0.004).*
Conclusions: *There is a relationship of food consumption patterns with the incidence of goiter in farmers in Kismantoro Subdistrict. The food most often consumed by respondents was cassava. Food sources of goitrogenic sources associated with the occurrence of goiter are cassava, mustard, gatot and cassava tape.*
KEYWORD: *dietary patterns; goiter; goitrogenic; Iodium; Kismantoro Subdistrict*

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INTRODUCTION

Iodine Deficiency Disorders (IDD) is one of the public health problems that can hinder the quality of human resources (1). The most significant impact of iodine deficiency for humans is the developmental disorder of the central nervous system, including intelligence (2). Factors that affect iodium deficiency can be from physical characteristics such as topography, soil type, deforestation, high rainfall, and erosion. Biologic factors include escherichia coli, intestinal worms, goitrogenic compounds, nitrogen fertilizers, and iron nutrient anemia. Cultural elements include community indifference, agricultural culture, monotonous diet, and how to cook food, social factors such as low education and poverty (3).

The causes of iodium deficiency are low intake of iodine, which can cause the excretion of thyroid hormones, not maximal, exposure to environmental pollution (Pb, Hg, Cd, and pesticides). Natural goitrogenic substances in foodstuffs can inhibit the taking of iodium from inorganic to organic (4). The influence of goitrogen factors is classified into two parts, namely natural goitrogen and synthetic goitrogen. Natural goitrogens such as cassava and cabbage plants. At the same time, synthetic goitrogens are insecticides, organochlorines (DDT, DDD, and Dieldrin), fungicides, and antibiotics (tetracycline) (5).

History of pesticide exposure can be considered a risk factor for thyroid dysfunction in elementary school-age children in Brebes agricultural area, Central Java (6). In line with research conducted by Kongtip P et al., the study examined the comparison of pesticide effects on thyroid hormone levels (TSH, T_3, T_4, FT_3, and FT_4) on conventional farmers and organic farmers from the results of his research showed that TSH, FT_3, T_3, and T_4 from conventional farmers are higher than in organic farmers. Exposure to pesticides can impact the development of metabolic diseases by altering the endocrine system (thyroid hormone levels through the Hypothalamic Thyroid Pituitary (HPT). Marwanto A et al. examined that the history of pesticide exposure was significantly related to the incidence of goiter in horticultural areas, Brebes, Central Java.

Kismantoro is one of the sub-districts in Wonogiri regency with a natural state that is

mostly mountains and tropical climates. The hills cover almost all villages, the dominance of state forests and moorland as farmland, with rice fields of 931.9520 ha, moorland of 1,256.2484 ha, buildings and yards 2,263,7661 ha, state forests of 2,316,1055 ha, and others covering 218,0405 ha (8). The natural situation that supports the population to cultivate so that most of the residents in the Kismantoro subdistrict have a livelihood as farmers, and cassava becomes the most widely planted crop (8). According to Saidin S., cassava is one of the foods containing goitrogenic substances that can interfere with the absorption of iodium into the body. Local soybeans, cassava, and cabbage are goitrogenic to rats. Their anti thyroidal additive effects can be harmful to locals who eat them (9).

Based on UPT Puskesmas Kismantoro until 2017, goiter sufferers in Kismantoro subdistrict as many as 147 people. In 2018 as many as 138 sufferers, and in 2020 as many as 128 sufferers. In 2018, as many as 706 goiter sufferers targeted implementing activities Wonogiri free goiter with the most significant number of sufferers, namely from Kismantoro District as many as 132 people (10).

The exposure illustrates that most of the Kismantoro population works as farmers closely related to pesticide use. Some residents make cassava the leading food ingredient they consume. Given many farmers, the use of pesticides, and the incidence of goiter in Kismantoro Subdistrict Wonogiri, in this case, farmers in Kismantoro Subdistrict have a significant risk factor to experience the occurrence of goiter. So it is essential to get additional information about the relationship between food consumption patterns in farmers and the incidence of goiter in Kismantoro Subdistrict, Wonogiri Regency.

MATERIALS AND METHODS

This research is analytical observational research with a case-control design with a sample number of 82 people. The sampling technique used is purposive sampling, using a 1:1 comparison between the case and control groups (11). In this study, the population of cases this study is all people who were declared positively affected by goiter and recorded at the Kismantoro Subdistrict Health Center in 2020 as many as 128 people. The study was conducted in September-November 2020. The control population is all said negative goiter and does not live in a house with a group of cases and has the same risk factors as the case group. The selection of samples using inclusion criteria is that samples willing to be respondents live in Kismantoro Subdistrict and work as farmers or engage in agricultural activities. Farmers have high risk factors for getting goiter obtained from pesticide exposure. Pesticides can interfere with the process of thyroid hormone synthesis and metabolism through several mechanisms, one of which is, disrupting the TSH receptor (TSH-r) in the thyroid gland, so that TSH that will spur the synthesis of thyroid hormones cannot enter the gland, and has an impact on inhibition of thyroid hormone synthesis and causes goiter (12).

The data collection uses interviews with questionnaires and Food Frequency Questionnaire (FFQ) to determine the consumption patterns of iodine and goitrogenic sources. The foodstuffs listed in Food Frequency Questionnaire *(*FFQ) are determined by Focus Group Discussion *(*FGD), which is done to some farmers who are also Integrated Health Post Cadres in Kismantoro Sub-District Village Hall. Food ingredients listed in Food Frequency Questionnaire (FFQ) iodium sources include sea fish, freshwater fish, salted fish, anchovies, meat, milk, rice, bread, and eggs. While the food ingredients listed in Food Frequency Questionnaire (FFQ) goitrogenic sources include cassava, gadung chips, bamboo shoots, cassava leaves, cabbage, papaya leaf, tempeh, tofu, broccoli, lettuce, cassava chips, mustard green, water spinach, peanuts, long beans, gambas, purple eggplant, green beans, *gatot,* and cassava tape.

Then scoring is done and grouped into frequent when the total score is above the average score and grouped into rarely when the total score is below the average score. Processing techniques and data analysis using statistical tests chi-square, fisher exact to know factors related to the incidence of goiter in farmers. All action has approved all

activities of the ethics committee, faculty of medicine of Universitas Sebelas Maret Surakarta Indonesia, No.01/UN27.06.1/KEPK/EC/2021.

RESULTS AND DISCUSSIONS

The characteristics of respondents, namely goiter farmers and not goiter can be seen in **Table 1**. There is a relationship between age and gender with the incidence of goiter in farmers, while there is no relationship between education and the incidence of goiter in farmers in Kismantoro Subdistrict, Wonogiri Regency.

Table 1. Characteristics of goiter and not goiter farmers in Kismantoro Subdistrict Wonogiri Regency

Characteristics	Goiter Incidence						P-*Value*	OR	95% CI
	Non Goiter		Goiter		Total				
	n	%	n	%	N	%			
Age									
>40 years old	38	57.6	28	42.4	66	80.5	0.005	5.88	1.53-22.62
<40 years old	3	18.8	13	81.3	16	19.5			
Gender									
Male	3	17.6	14	82.4	17	20.7	0.003	6.15	0.04 – 0.58
Female	38	58.5	27	41.5	65	79.3			
Education Level									
Low	40	51.3	38	48.7	78	95.1	0.308	3.16	0.32 – 31.70
High	1	25.0	3	75.0	4	4.9			

Characteristics of respondents are farmers who are goiter and not goiter can be seen in **Table 1**. Based on **Table 1** it can be seen that the age (OR= 5.88; CI 95%= 1.53-22.62; p= 0.005) p < 0.05 and gender (OR= 0.15; CI 95%= 0.04-0.58; p= 0.003) p < 0.05 have a significant association with the incidence of goiter in farmers. while the level of education (OR= 3.16; CI95%= 0.32-31.70 p= 0.308) has no significant relationship with the incidence of goiter in farmers in Kismantoro Subdistrict. Wonogiri Regency.

Based on the statistical test chi-square fisher exact obtained results that the consumption pattern of goitrogenic sources related to the incidence of goiter in farmers in Kismantoro subdistrict is the pattern of cassava consumption (OR= 15.261; CI 95%= 3.242-71.835; p= 0.000) p < 0.05 . green mustard (OR= 4.608; CI 95%= 1.494-14.213; p= 0.005). *gatot* (OR= 5.556; CI 95%= 1.923-16.046; p= 0.001). and cassava tape (OR= 5.205; CI 95%= 2.031-13.337; p= 0.000). While the consumption pattern of iodine source food that is related to the incidence of goiter in farmers namely sea fish (OR= 0.078; CI 95%= 0.009-0.638; p= 0.004). More information can be found in **Table 2**.

Table 2. Consumption Patterns of Iodium Sources and Consumption Patterns of Goitrogenic Sources of Goiter farmers and not Goiter in Kismantoro Subdistrict Wonogiri.

Variabel	Goiter Incidence				Total		P-*Value*	OR	95% CI	
	Goiter		No Goiter							
	n	%	N	%	N	%			Lower	Upper
Goitrogenic Consumption Pattern										
Cassava										
Infrequently	2	2.4	18	22.0	20	24.4	<0.001*	15.261	3.242	71.835
Often	39	47.6	23	28.0	62	75.6				
Gadung chips										
Infrequently	28	34.1	36	43.9	64	78.0	0.033	3.343	1.065	10.489
Often	13	15.9	5	6.1	18	22.0				
Bamboo shoot										
Infrequently	26	31.7	31	37.8	57	69.5	0.230	1.788	0.688	4.647
Often	15	18.3	10	12.2	25	30.5				
Cassava leaves										
Infrequently	2	2.4	9	11.0	11	13.4	0.023	5.484	1.105	27.216
Often	39	47.6	32	39.0	71	86.6				
Cabbage										
Infrequently	10	12.2	12	14.6	22	26.8	0.618	1.283	0.481	3.418
Often	31	37.8	29	35.4	60	73.2				
Papaya leaf										
Infrequently	16	19.5	18	22.0	34	41.5	0.654	1.223	.507	2.948
Often	25	30.5	23	28.0	48	58.5				
Tempeh										
Infrequently	3	3.7	5	6.1	8	9.8	0.457	1.759	0.392	7.902
Often	38	46.3	36	43.9	74	90.2				
Tofu										
Infrequently	5	6.1	10	12.2	15	18.3	0.153	2.323	0.717	7.529
Often	36	43.9	31	37.8	67	81.7				
Broccoli										
Infrequently	32	39.0	32	39.0	64	78.0	1.000	1.000	0.351	2.846
Often	9	11.0	9	11.0	18	22.0				
Lettuce										
Infrequently	39	47.6	40	48.8	79	96.3	0.556	2.051	0.179	23.550
Often	2	2.4	1	1.2	3	3.7				
Cassava chips										
Infrequently	28	34.1	33	40.2	61	74.4	0.206	1.915	0.694	5.282
Often	13	15.9	8	9.8	21	25.6				
Mustard green										
Infrequently	5	6.1	16	19.5	21	25.6	0.005*	4.608	1.494	14.213
Often	36	43.9	25	30.5	61	74.4				
Water spinach										
Infrequently	3	3.7	7	8.5	10	12.2	0.177	2.608	0.624	10.891
Often	38	46.3	34	41.5	72	87.8				
Peanuts										
Infrequently	30	36.6	34	41.5	64	78.0	0.286	1.781	0.613	5.178
Often	11	13.4	7	8.5	18	22.0				

Long beans										
Infrequently	24	29.3	23	28.0	47	57.3	0.823	0.905	0.377	2.172
Often	17	20.7	18	22.0	35	42.7				
Gambas										
Infrequently	29	35.4	32	39.0	61	74.4	0.448	1.471	0.541	3.998
Often	12	14.6	9	11.0	21	25.6				
Purple eggplant										
Infrequently	26	31.7	22	26.8	48	58.5	0.370	0.668	0.276	1.616
Often	15	18.3	19	23.2	34	41.5				
Green beans										
Infrequently	26	31.7	23	28.0	49	59.8	0.499	0.737	0.304	1.787
Often	15	18.3	18	22.0	33	40.2				
Gatot										
Infrequently	6	7.3	20	24.4	26	31.7	0.001*	5.556	1.923	16.046
Often	35	42.7	21	25.6	56	68.3				
Cassava tape										
Infrequently	12	14.6	28	34.1	40	48.8	0.000*	5.205	2.031	13.337
Often	29	35.4	13	15.9	42	51.2				
Sources of Iodium										
Sea Fish										
Infrequently	40	48.8	31	37.8	71	86.6	0.004*	0.078	0.009	0.638
Often	1	1.2	10	12.2	11	13.4				
Freshwater Fish										
Infrequently	40	48.8	32	39.0	72	87.8	0.007	0.089	0.011	0.739
Often	1	1.2	9	11.0	10	12.2				
Salted Fish										
Infrequently	40	48.8	35	42.7	75	91.5	0.048	0.146	0.017	1.271
Often	1	1.2	6	7.3	7	8.5				
Anchovies										
Infrequently	38	46.3	34	41.5	72	87.8	0.177	0.383	0.092	1.601
Often	3	3.7	7	8.5	10	12.2				
Meat										
Infrequently	37	45.1	32	39.0	69	84.1	0.131	0.384	0.108	1.368
Often	4	4.9	9	11.0	13	15.9				
Milk										
Infrequently	39	47.6	30	36.6	69	84.1	0.007	0.140	0.029	0.679
Often	2	2.4	11	13.4	13	15.9				
Rice										
Infrequently	11	13.4	1	1.2	12	14.6	0.002*	0.068	0.008	0.557
Often	30	36.6	40	48.8	70	85.4				
Bread										
Infrequently	26	31.7	24	29.3	50	61.0	0.651	0.814	0.335	1.981
Often	15	18.3	17	20.7	32	39.0				
Egg										
Infrequently	24	29.3	24	29.3	48	58.5	1.000	1.000	0.415	2.408
Often	17	20.7	17	20.7	34	41.5				

Based on the statistical test chi-square. fisher exact shows that the characteristics of farmers. namely age and gender. have a significant relationship with the incidence of goiter in farmers in Kismantoro Subdistrict Wonogiri. Gender and age play a role in determining the occurrence of thyroid disease (13).

Thyroid hormones are under the control of TSH levels making the latter a sensitive marker of thyroid function. The aging process leads to reduced absorption and organization of iodine with an altered thyroid response to TSH. This is what causes old age to be more susceptible to goiter disease than at a young age (14). Research conducted by Barbesino at Massachusetts General Hospital. Harvard Medical School shows that the pattern that arises is a decrease in thyroid function in the elderly. leading to slightly higher levels of thyroid-stimulating hormone (TSH) compared to young age. The incidence of mild hyperthyroidism also increases in adulthood. especially in populations with a history of iodium deficiency.

In endemic goiter areas such as Kismantoro Subdistrict with low iodium content. the thyroid usually begins to grow at a young age and develops into multinodular when adulthood (16). However. patients recorded in Public health Centers average only age >40years and above. This is because most sufferers do not complain of symptoms such as hypothyroidism or hyperthyroidism. They only treat or check with a doctor and midwife if they feel pain or extreme changes in their neck (a lump or enlargement). which are usually not felt at a young age.

Based on research conducted by Calcaterra et al. on Gender Differences at the Onset of Autoimmune Thyroid Diseases in Children and Adolescents in Pavia. Italy found that women are more susceptible to Autoimmune Thyroid Diseases (ATD) during puberty. This is due to the influence of the hormone estrogen can increase levels of Thyroid-Binding Globulin (TBG) that works as transport of T_4 and T_3 in the blood. So that there is a decrease in levels of free T_4 and free T_3 (18). In line with research conducted by Meng et al. in China. women with high TSH and FT_3 high have a higher risk of metabolic syndrome than men.

Based on data obtained from FFQ can be known that the most consumed food by farmers in the Kismantoro subdistrict is cassava. At the same time. based on the test chi-square. exact fisher known that goitrogenic food sources related to the incidence of goiter in farmers in the Kismantoro subdistrict are cassava. mustard green. *gatot.* and cassava tape.

This is because the most widely planted plants for consumption in the Kismantoro subdistrict are cassava. So often. people there make cassava and various processed cassava such as *gatot*. cassava tape. and *tiwul* as the main ingredients of their food or staple food.

Cassava is one of the foods containing goitrogenic substances that can interfere with the absorption of iodium into the body. Cassava is a natural source of goitrogen group thiocyanate or thiocyanate-like compounds that primarily inhibit the mechanism of active transport of iodium into the thyroid gland. Other foods high in thiocyanate are corn. bamboo shoots. sweet potatoes. green beans (5). Bamboo shoots. sweet potatoes. and green beans are also foods that people in Kismantoro often consume.

Research conducted by Dewi YLR et al. that is testing local soybeans. cassava. and cabbage grown in iodine-deficient areas in Ngargoyoso Central Java against rats mentions local soybeans. cassava. and cabbage are goitrogenic to rats. The anti thyroidal additive effects of soy. cassava. and local cabbage can harm the locals who eat them. This is in line with Izati and Mahmudiono. which found that *tiwul* is the most commonly consumed goitrogenic food by school-age children in Ponorogo and has a significant relationship with the incidence goiter in Ponorogo.

Another study by Crosby et al. on thyroid disorder patients at RSUP. Prof. Dr. R. D. Kandau Manado. found that the average thyroid patient resides in a mountainous area of 66.7. The things that cause people in the mountains who suffer from IDD are due to soil erosion. Water and plants that grow poor iodium. coupled with the consumption of goitrogenic source foods. cassava. corn. bamboo

shoots. sweet potatoes. and green beans.

Research conducted by Hariyanti and Indrawati in elementary school-age children in Kendal Subdistrict Ngawi district. Found that IDD has a strong relationship with knowledge about food processing. food consumption patterns. and goitrogenic substances. namely cabbage. mustard green. cauliflower. sweet potatoes. and chayote.

Another study by Pebriana et al. in the children of Pringapus Primary School and Kataan Primary School. Ngadirejo Subdistrict. Temanggung District. found a relationship between goitrogenic food consumption patterns and IDD incidence in elementary school-age children. The most commonly consumed foodstuffs such as cabbage. mustard green. green beans. papaya leaves. cassava leaves. respondents consumed these foodstuffs 6-7 times per week.

The most infrequently source of iodium food consumed by respondents in the Kismantoro subdistrict is sea fish. This is because of the location of Kismantoro Subdistrict. which is located in the mountains. far from the sea. The distance of some homes very far from the market causes the community to be limited to the food available. They usually only grow vegetables such as mustard green. cabbage. green beans. and cassava in their yard. While the iodine content in sea fish is very high.

Research conducted by Alfitri et al. on factors that influence the incidence of IDD in pregnant women in Tabunganen Barito Kuala. South Kalimantan. found a significant relationship between the consumption of sea fish iodium based on FFQ with IDD status of goiter. Respondents with infrequently sea fish consumption were 8.0 times more likely to suffer from IDD. This is in line with research conducted by Patuti et al.. which found that low consumption of protein sources causes a person to suffer from IDD 30.6 times greater than someone who often consumes protein sources.

Low iodium intake and accompanied by a high intake of goitrogenic substances cause a greater chance of developing goiter disease. Kismantoro Subdistrict is an area with a low water content of iodine. so growing plants also have a low iodine content. This causes Kismantoro Subdistrict to become an endemic goiter area from time to time. People should get iodium supplementation from consuming foods containing high iodine. such as sea fish. salted fish. milk. eggs. and iodium salt.

CONCLUSIONS AND RECOMMENDATIONS

Based on the study results. there is a relationship between food consumption patterns of iodine sources and consumption patterns of goitrogenic sources with the incidence of goiter in farmers in Kismantoro Subdistrict Wonogiri. The food most commonly consumed by respondents is cassava. Food sources of goitrogenic associated with goiter incidence in farmers are cassava. mustard green. *gatot*. and cassava tape. At the same time. the food source of iodine related to the incidence of goiter in farmers is sea fish. Farmers who rarely consume sea fish are at greater risk of getting goiter than farmers who often consume sea fish.

Recommendations for the community should also be more aware of the importance of food sources of iodine sources; education and socialization for the community about the consumption of iodine source food should also continuously monitoring by local authorities. Program efforts from the provincial government to ensure the adequacy of iodium intake in endemic areas of goiter need to be maintained. The next researcher was expecting to add variables such as intake of iodine salt to get a complete picture of the cause of goiter in farmers in the Kismantoro Subdistrict.

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