

## THE KNOWLEDGE OF THE TODDLER'S MOTHER AND ITS ASSOCIATION WITH IODINE INTAKE IN DARUL IMARAH, THE DISTRICT OF ACEH BESAR

Intan Sari<sup>1</sup>, Nurbaiti<sup>2</sup>, Asriah<sup>3</sup>

<sup>1,2,3</sup> *Departmen of Midwifery, Poltekkes Kemenkes Aceh, Aceh Besar, Indonesia*

\* *Corresponding Author: intansari@gmail.com*

### Abstract

**Introduction:** The disorders due to iodine deficiency (GAKY) in Indonesia are one of the major public health problems given its enormous impact on the survival and quality of human resources. In addition, Iodine deficiency that occurs in infants will result in impaired nerve, mental, and physical development called cretinism and also enlargement of the thyroid and hypothyroidism. All of these disorders result in low learning achievement in school-age children, low work productivity for adults, and the emergence of various socio-economic problems in the community that can hinder economic growth. This study aim to analyzed the knowledge of the toddler's mother regarding the iodine intake in the sub-district of Darul Imarah , Aceh Besar in 2019

**Method:** This study was a descriptive-analytical survey with a cross sectional in the subdistrict of Darul Imarah, Aceh Besar from 15-25 March 2019. The population in this study were all mothers who had toddlers aged 24-59 months in the subdistrict of Darul Imarah. The sample in this study were mothers of toddlers in the Darul Imarah region, the total sample was 95 people who met the inclusion and exclusion criteria. Two-stage sampling technique was used, which consisted of purposive sampling and stratified random sampling. The instrument in this study was a questionnaire.

**Result:** There were 52 respondents (54,7%) of mothers who have high knowledge and 70 respondents (73,7%) of mothers who do not have iodine intake. In the bivariate analysis shows that there were 43 respondents (82,7%) of mothers who had high knowledge but did not have iodine intake, and 27 respondents (62,8%) of mothers who had low knowledge and not having iodine intake. There was an association between the mother's knowledge and iodine intake

**Conclusion:** There was an association between the mother's knowledge and iodine intake of their child in the Sub-district of Darul Imarah.

**Keywords:** knowledge, Toddler mother, iodine intake

### Introduction

Health is a human right and at the same time an investment in human resources and has a major contribution to improving the human development index. The state of good nutrition is the main prerequisite to realizing healthy and quality human resources. Nutritional problems occur in every life cycle starting in the womb (fetus), infants, children, adults, and the elderly.

<sup>1</sup> Nutritional problem in toddlers and preschool children in Indonesia is still a major problem with malnutrition problems still being found, including iron deficiency, protein energy deficiency, iodine deficiency disorders, and vitamin A Deficiency, as the national prevalence reaches 18.4%.<sup>2</sup> Accordingly, the data from Riskesdas 2013 showed that the prevalence of iodine deficiency was 11.1%.<sup>2</sup>

**Correspondence\*:** Intan Sari, Midwifery Department, Poltekkes Kemenkes Aceh, Soekarno-Hatta Street, Darul Imarah, Aceh Besar, Aceh, Indonesia. Email: [jmchpoltekkesaceh.ac.id](mailto:jmchpoltekkesaceh.ac.id)

The national medium-term development plan for the health sector 2015-2019 stipulates that one of the targets to be achieved is to reduce the prevalence of undernutrition to a maximum of 17%, reduce the prevalence of stunting to a maximum of 28%, and the percentage of infants with low birth weight Infants of 8%.<sup>2</sup> Toddlers (children under five years) are one of the age groups in society that are most susceptible to nutritional disorders (susceptible to malnutrition). The period of the first two years of life is a critical period because very rapid growth and development occur at this period. Nutritional disorders that occur in this period are permanent and incurable, though the nutritional needs in the next period are met.<sup>2</sup> One of the factors that are associated with

GAKY is insufficient iodine intake in the household. Additionally, the iodine intake, education level, knowledge, occupation, treatment method of iodized salt such as storage and processing as well as environmental factors. <sup>3</sup> In accordance, Basic Health Research (Riskesdas) 2013 revealed that about 77.1% of housewives in Indonesia had adequate iodine intake, 14.8% had insufficient iodine intake, and 8.1% had severe (non-iodized) iodine intake. This indicates that Indonesia has not reached the WHO target on universal salt iodization (USI) of at least 90%.<sup>4</sup>

Knowledge is a very important factor in the formation of a person's actions. Knowledge of nutrition determines the choice of food, someone with low knowledge will lead to errors in food selection.<sup>4</sup> According to the data on the iodine intake in Aceh Province in 2018, Aceh was one of the provinces with the lowest coverage of 47.7% compared to other provinces. In addition, the coverage of households with iodine intake in 2018 in the district of Aceh Besar was 25.5%. Darul Imarah sub-district was one of the sub-districts with low coverage of 27% for iodine intake.<sup>4</sup>

The disorders due to iodine deficiency (GAKY) in Indonesia are one of the major public health problems given its enormous impact on the survival and quality of human resources. In addition, Iodine deficiency that occurs in infants will result in impaired nerve, mental, and physical development called cretinism and also enlargement of the thyroid and hypothyroidism.

## Results

### a. Mother's Knowledge and Iodine Intake

**Tabel. 1** Frequency distribution of mother's knowledge and Iodine Intake in Darul Imarah District, Aceh Besar

Variable	n	%
<b>Mother's Knowledge</b>		
High	52	54,7
Low	43	45,3
<b>Iodine Intake</b>		
Yes	25	26,3
No	70	73,7

The result shows that there are 52 respondents (54,7%) of mothers who have high knowledge

All of these disorders result in low learning achievement in school-age children, low work productivity for adults, and the emergence of various socio-economic problems in the community that can hinder economic growth. Therefore, it is necessary to study the knowledge of the toddler's mother regarding the iodine intake in the sub-district of Darul Imarah, Aceh Besar in 2019.

## Method

This study was conducted using a descriptive-analytical survey with a cross sectional in the subdistrict of Darul Imarah, Aceh Besar from 15-25 March 2019. The population in this study were all mothers who had toddlers aged 24-59 months in subdistrict of Darul Imarah. The sample in this study were mothers of toddlers in the Darul Imarah region, total sample was 95 people who met the inclusion and exclusion criteria. The inclusion criteria included being willing to be a respondent, domiciled in the subdistrict of Darul Imarah, and mothers who had toddlers aged 24-59 months. As the exclusion criteria were mothers of toddlers who had goiter and mothers who had stunted toddlers. Two-stage sampling technique was used which consisted of purposive sampling and stratified random sampling. The instrument in this study was a questionnaire about mothers' knowledge of iodized salt. Data analysis used a chi-square test with SPSS 24 for the windows program.

and 70 respondents (73,7%) of mothers who do not have iodine intake (table 1).

## b. The Association of Mother's Knowledge and Iodine Intake

Knowledge	Iodine Intake				Total	p-value	
	Yes		No				
	n	%	n	%			
High	9	17,3	43	82,7	52	54,7	0,028
Low	16	37,2	27	62,8	43	45,3	

The result shows that there are 43 respondents (82,7%) of mothers who have high knowledge but not the iodine intake, and 27 respondents (62,8%) of mothers who have low knowledge and not having iodine intake.

### Discussion

According to the data analysis, out of 95 respondents, there were 43 respondents (82.7%) who had good knowledge but did not have iodine intake, whereas, 27 respondents (62.8%) had low knowledge but did not have iodine intake. The results of the statistical test with the *Chi-Square test* obtained a value of  $p = 0.028$  ( $p < 0.05$ ), which meant that there was a significant association between the knowledge of the toddler's mother with iodine intake in sub-district of Darul Imarah, Aceh Besar.

This study is coherent with a previous study in (2015) regarding the association between family knowledge and food intake patterns on the prevalence of goiter in school children at SDN Pandansari 02 Poncokusumo sub district, Malang. The results of this study showed that in the goiter category, there were 16 mothers (88.9%) with low knowledge, 16 (88.9%) mothers with insufficient iodine intake, 13 children (72.2%) had excessive goitrogens intake, 10 children (55.6%) had adequate iodine intake. In the non-goiter category, there were 6 mothers (33.3%) with low knowledge, there were 5 children (27.8%) with insufficient iodine intake, 4 children (22.2%) had excessive goitrogens intake, and 13 children (72.2%) had adequate iodine intake. The results of the *logistic regression* test identified that 3 variables were associated with goiter which included knowledge ( $p = 0.045$ ), food sources of iodine ( $p = 0.009$ ), and goitrogenic ingredients ( $p = 0.029$ ), in the other hand, the salt variable ( $p = 0.244$ ) was not associated with goiter with *R square* = 0.716.

Furthermore, the study revealed that there was a significant association between family knowledge, patterns of iodine, and goitrogenic intake on the prevalence of goiter in school children at SDN Pandansari.

Knowledge is the fact or condition of knowing something with familiarity gained both formally and informally. The knowledge possessed is very important for the formation of one's attitudes and actions. This also applies to the fulfillment of micronutrients for everyone. Someone with a high level of knowledge will pay attention to the requirements of food intake. Knowledge is required in the efforts of food selection, with the aim that the food provides the appropriate needs for a balanced body.<sup>28</sup> The fulfillment of iodine in our body is met through the food consumed. Someone with adequate knowledge on the iodine source material will have more optimal iodine fulfillment than those who have insufficient knowledge. Owing to the fact that an adequate knowledge about iodine, goitrogenic, and goiter will be a change in behavior and will lead to an attitude and manifest into a real action. When a family does not know the importance of iodine, the effect of goitrogenic substances on the body, hence there will be an imbalance of iodine in the body. If this is frequently repeated, eating will become a habit and will eventually form a lifestyle.<sup>29</sup>

Based on the results of the study, there was a significant association between the knowledge of the toddler's mother and the iodine intake due to the high level of mother's knowledge, the less likely toddlers had goiter because the mother with a high level of knowledge could optimally meet the needs of iodine intake.

The results of this study indicated that there was a low level of knowledge in the

toddler's mother at 45.3%, which is caused by the mother's education. Education is a result of achievement obtained by human development and the efforts of institutions in achieving a goal. Education is also used to increase self-potential both physically and spiritually. The education of a woman plays a very important role in building education in the household. The role of a mother is very important in maintaining and educating the children well. Hence, the higher the education, the higher the level of knowledge of the mother. Furthermore, mothers with adequate knowledge will provide good nutrition for children and their families.

This study indicated that there were 73.7% of mothers did not consume iodized salt. This is closely related to a person's behavior. A person's behavior is influenced by several factors: knowledge, attitudes, belief values, beliefs (culture) and the environment. The probability factors that affect a person are health facilities, whereas, the reinforcing factors that affect a person are religious leaders, community leaders, attitudes, and behavior of health workers. Knowledge is closely associated with iodine intake. Knowledge plays an important role in shaping a person's behavior, thus health knowledge is an important benchmark for its role in developing health awareness and behavior. However, it should be emphasized that people with low education do not necessarily mean low knowledge. Because this study also found respondents who had low education but showed a positive attitude toward using iodized salt.

### **Conclusion**

Mother's knowledge is significantly associated with the iodine intake, the better the mother's knowledge about iodine, the higher the percentage of iodine intake in housewives.

### **Conflict of Interest**

There is no conflict of interest between the author and the institution

### **Funding**

This research uses independent funds

### **Acknowledgments**

We would like to thank all parties who have assisted in this research, including Aceh Besar District Health Office, Darul Imarah Public Health Center (Puskesmas) and all respondents who have participated.

### **Authors' Contribution**

- a. Concept & research Question: Intan sari
- b. Conducting Research: Intan Sari
- c. Statistical Analysis: Intan sari, Nurbaity
- d. Report Writing: Intan sari, Nurbaity, Asriah

### **References**

1. Departemen Kesehatan RI (2007) *Pedoman Pendamping Keluarga Menuju KADARZI*. Jakarta : Depkes
2. Dapertemen Kesehatan RI (2007) Keputusan Manteri Kesehatan Republik Indonesia Nomor 747/Menkes/Sk/VI/2007 *Tentang Pedoman Operasional Keluarga Sadar Gizi Di Desa Siaga*. Jakarta :Depkes
3. Kemenkes RI. 2015 . *Infodatin Situasi Dan Analisa Gizi*.
4. Kemenkes RI. 2013. Riset kesehatan Dasar, RISKESDAS. Jakarta: Balitbang kemenkes RI
5. Michael James. *Pembangunan Ekonomi di Dunia Ketiga*. Jakarta: Ghalia. 2009.
6. Zimmermann, M. *Pocket Guide to Micronutrients in health and disease*. Thieme Stuttgart. New York. p. 47,48.2010
7. Sherwood Lauralee. *Fisiologi Manusia dari Sel ke Sistem (Human Physiology: From cells to systems)*; Edisi II. Jakarta:EGC. 2010
8. Sunardi.2006. *Unsur Kimia, Deskripsi dan Pemanfaatannya*. Bandung:Yrama Widya..
9. Sherwood Lauralee. *Fisiologi Manusia dari Sel ke Sistem (Human Physiology: From cells to systems)*; Edisi II. Jakarta:EGC. 2010.
10. ICCIDD U. *Assessment of the Iodine Deficiency Disorders and monitoring their elimination h.28- 43 Geneva:World Health Organization.2007*
11. Achmad Djaeni Sediaoetama. Ilmu Gizi untuk mahasiswa dan profesi.edisi kelima. Jakarta:Dian Rakyat. hal. 1-244.2010.

12. Sherwood Lauralee. *Fisiologi Manusia dari Sel ke Sistem (Human Physiology: From cells to systems)*; Edisi II. Jakarta: EGC. 2010.
13. Zimmermann MB, Jooste PL, Pandav CS. Iodine-deficiency disorders. *Lancet*; 372:1251- 1262. 2008.
14. Andersson M, Takkouche B, Egli I, Allen HE, De Benoist B. *Current global iodine status and progress over the last decade towards the elimination of iodine deficiency*. *Bull World Health Organ.*; 83(04):518-525. 2005.
15. Departemen Kesehatan RI. *Laporan Akuntabilitas Kinerja Kementerian Kesehatan Tahun 2014*. Jakarta: Depkes. 2014.
16. Juli Soemirat Slamet. *Kesehatan Lingkungan*, Yogyakarta: Gadjah Mada University Press. 2012.
17. Notoatmodjo, Soekidjo. *Pendidikan dan Perilaku Kesehatan*. Jakarta: Rineka Cipta. 2012
18. Eko Suryani dan Hesty Widayasih. *Psikologi Ibu dan Anak*. Yogyakarta: Fitramaya. 2008.
28. BPS. *Laporan Hasil Survei Konsumsi Garam Beriodium Rumah Tangga*. Indonesia Badan Pusat Statistik. 2011.
19. Budioro, B. *Pengantar Pendidikan (Penyuluhan) Kesehatan Masyarakat*. Semarang: FKM UNDIP. 2010.
20. Oktaviandry, Navel. 2012. *Pengetahuan Ilmiah, Penelitian Ilmiah, dan Jenis Pengetahuan*. <http://navelmangelep.wordpress.com/2012/02/21/pengetahuan-pengetahuan-ilmiah-penelitian-ilmiah-dan-jenis-penelitian/> [diakses pada 16 September 2012]
21. Notoatmodjo. 2012. *Promosi Kesehatan Dan Ilmu Perilaku*. Rineka cipta. Jakarta \_\_\_\_\_, 2011. *Promosi kesehatan dan Ilmu Perilaku*. Jakarta : Rineka cipta.