



# Behavior of Toddler Mothers Against Disorders Due to Iodine Deficiency

Sulistyo Andarmoyo<sup>1\*</sup>, Lumastari Ajeng Wijayanti<sup>2</sup>, Ony Wibriyono Angkejaya<sup>3</sup>, Hasnia Ahmad<sup>4</sup>, Nelly Mariati<sup>5</sup>

<sup>1</sup> Muhammadiyah University of Ponorogo, East Java, Indonesia.

<sup>2</sup> Politeknik Kesehatan Kemenkes Malang, East Java, Indonesia.

<sup>3</sup> Faculty of Medicine, Pattimura University, Maluku, Indonesia.

<sup>4</sup> Politeknik Kesehatan Kemenkes Makassar, South Sulawesi, Indonesia

<sup>5</sup> Muhammadiyah University of Banjarmasin. South Kalimantan, Indonesia

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Corresponding Author:

Sulistyo Andarmoyo

[sulistyoandarmoyo@gmail.com](mailto:sulistyoandarmoyo@gmail.com)

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**Abstract:** One of the four nutritional problems in Indonesia is Iodine Deficiency. Iodine deficiency is a set of symptoms that occur due to continuous lack of element Iodine and long period of time. Iodine is needed by everyone, especially during the growth period. Iodine deficiency will cause impaired physical growth and low intelligence the quality of human resources is getting worse. This study aims to analyze the behavior of mothers under five towards Iodine Deficiency Disorders. This Research There are three data collection methods that are often used in qualitative research, namely: 1) participatory observation 2) in-depth interviews and 3) focus group discussions. That The population is a survey of 30 housewives who were interviewed, 25 of whom did not understand GAKI and did not understand the benefits of iodized salt. They taken by propositional stratified random sampling. Data collection is done in the form interview, observation and salt test. Based on the research results, it can be concluded that of the 30 housewives who were respondents, 30 of them had insufficient knowledge of IDD.

**Keywords:** Disorder; Iodine Deficiency; Toddler Mothers

## Introduction

In toddlerhood, children experience a process of rapid growth and development both physically, mentally and socially (Malti, 2020). Development is related to the process of differentiation of body cells, body tissues, organs and organ systems in improving their functions, including emotions, intellectuals and behavior as a result of the process of interaction with the environment (Diana, 2010). In order to grow optimally, children must be supported by providing good nutrition. Children need nutrients from daily food in the right amount and good quality. Good nutrition is essential for child survival, growth and development processes, maintenance and restoration of health, and immunity (Lozoff et al., 2006; Victora et al., 2008). If toddler nutrition is not properly paid attention to, it will not only hamper growth but will also have several

impacts in the future, such as toddlers lacking energy for activities and hampered brain development (Anggraeni et al., 2021).

In fulfilling toddler nutrition, the role of the mother is very important. The mother is the person closest to the child, the first person in contact with the child, and the person who allocates more time in childcare (Byrd-Bredbenner et al., 2008).

One's knowledge and attitudes are predisposing factors that influence behavior. If the mother has good knowledge about under-five nutrition, it is expected that the mother will also have good attitude and behavior in fulfilling under-five nutrition. Mother's knowledge about nutrition will affect the cooking and quality of food served to family members, including toddlers (Arora et al., 2021; Simanjuntak et al., 2019). This is because toddlers do not yet have the ability to choose and determine their food intake independently. The

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mother's attitude in meeting the nutritional needs of toddlers is also very important. Attitude is a factor that influences a person's health behavior. Changes in attitudes continuously can affect a person's behavior, where good nutritional fulfillment behavior can improve children's nutritional status (Apoo & Krekling, 2005). Maternal nutritional knowledge is greatly influenced by age, education, knowledge, employment and income (Puspasari & Andriani, 2017). The food intake given by mothers to toddlers is also greatly influenced by native culture or traditions. Based on this, mothers must be clever at sorting and determining good food intake for toddlers through good nutritional knowledge.

One of the health problems that has become the government's priority is the problem of food and nutrition, considering that the problem of food and nutrition is a complex problem and touches on basic needs as well as concerns human rights, so it requires serious attention handled. One of the health problems that is a priority for the government is the issue of food and nutrition, considering that the issue of food and nutrition is a complex problem and touches basic needs and concerns human rights, so it requires serious attention. Reporting from databooks.id, based on the report *The State of Food Security and Nutrition in the World* released by Food and Agriculture (FAO), it shows that Indonesia is ranked first as the population with the highest malnutrition in Southeast Asia (Ahdiat, 2022). In Indonesia and other developing countries, the main nutritional problems are dominated by Protein Energy Deficiency (KEP), Iron Nutrition Anemia (AGB), Iodine Deficiency Disorders (GAKY), and Vitamin A Deficiency (KVA). Community nutritional status can be seen from the prevalence of these four important problems (Supariasa et al., 2016).

Based on data from the World Health Organization, 1.9 billion people from 192 countries in the world experience iodine deficiency. As many as 36.5% of the world's population of school-aged children (6-12 years) experience iodine deficiency. In the Indonesian region, the results of Basic Health Research (RISKESDAS, 2013) show an increase of 77.1% compared to 2007 of 62.3%. However, this has not yet achieved the Universal Salt Iodization (USI) target, namely at least 90% of households consuming salt with sufficient iodine content and the target coverage of households consuming iodized salt in 2022 as stated in the Performance Indicator Achievements for Community Nutrition Development Activities for 2020-2025 is 86 % (Jayadi et al., 2023).

Iodine is a mineral found in nature both in soil and in water which is one of the nutrients that plays a role in the synthesis of thyroid hormone, and also plays an

important role in the function of the body's organs, as well as the process of growth and development, especially in brain development during infancy. (Köhrle, 2023; Sorrenti et al., 2021). Iodine deficiency during pregnancy, infancy and childhood can result in a number of stunted growth and development and functional abnormalities (Kemenkes, 2014). Iodine is needed to form the hormone thyroxine which is needed by the body to regulate growth and development from fetus to adult (Anggraeni et al., 2021). Iodine obtained from consuming food and drinks is in the form of Iodine ions, and the amount depends on the iodine levels in the soil (Mediarti, 2012). The use of iodized salt in society is not difficult because it can be used in almost every food, by adding iodized salt. In addition, the need for iodine can be obtained from various sources of seafood such as fish, shellfish, seaweed, as well as agricultural products in the mountainous areas where these foods are produced.

Based on this phenomenon, it can be seen that Indonesia is experiencing IDD problems. IDD is a serious problem considering that the direct and indirect impacts greatly affect the survival and quality of human resources which include aspects of intelligence development, aspects of social development, and aspects of economic development. In subsequent developments, the term iodine deficiency, which was previously identified with endemic goiter and cretin, was replaced with the term IDD (Djokomoeljanto & T, 1996). The impact of GAKY will hinder national development goals because it is related to a decrease in the quality of human resources which hinders intellectual, social and economic development (Sulistiyawati et al., 2022).

According to the 2003 National Survey of IDD Mapping throughout Indonesia (except in Nanggroe Aceh Darussalam and Papua), 8.8% of districts/cities are severely endemic, 12.2% of districts/cities are moderately endemic, 35.7% are mildly endemic, and 43.3% are % including non-endemic. And several surveys also show that from the results of these surveys, many people experience enlargement of the thyroid gland or suffer from goiter. In addition to enlargement of the thyroid gland and hypothyroidism, deficiency of the element iodine in the body can cause mental disorders, hearing loss, developmental disorders in children and adults, even for pregnant women this will have a serious impact along with low hormone levels so that this can affect the number Birth and fetal death rates are increasing (Zimmermann, 2009).

Wonosobo is an area located in Central Java Province with a population of 451 881.00 people. A total of five sub-districts have been designated as priority targets for extreme poverty alleviation. The five are the

Districts of Mojotengah, Kertek, Kalikajar, Sapuran and Kepil. Slukatan Village, which is located in Mojotengah District, Wonosobo Regency, is one of the villages with extreme poverty. In 2023 a survey was conducted of 30 housewives who were interviewed, 25 of whom did not understand GAKI and did not understand the benefits of iodized salt. From these data, researchers are interested in examining the behavior of mothers under five towards Iodine Deficiency Disorders.

## Method

The research location is in Slukatan Village which is located in Mojotengah District, Wonosobo Regency. This research is a qualitative research. Qualitative data were obtained using the observation method, Focus Group Discussion (FGD) and in-depth interviews so that research can obtain a broader picture of the behavior of mothers under five to disorders due to iodine deficiency. Based on (Laksono, 2015) There are three data collection methods that are often used in qualitative research, namely: 1) participatory observation 2) in-depth interviews and 3) focus group discussions.

### *Participatory Observation*

According to Mack et al. (2005) participatory observation is at the root of traditional ethnographic research, which aims to help researchers study the perspectives held by the research population. It is assumed that there will be several perspectives in a given society. This method is interesting to know the various perspectives that exist and helps in understanding the interactions between them.

Murphy & Robert (2003) caution that the actual balance between participation and observation is never completely within the control of the field researcher. The field researcher's skill lies in being careful to know when to lean in one direction and when to lean in another, and to be clear whether this direction is a matter of choice or just a matter of contingency (a momentary phenomenon).

### *In-Depth Interview*

One of the most basic data collection methods in qualitative research is in-depth interviews. Without realizing it, we actually have seen and even done it too often, without having to become researchers. Popular talk show model television shows such as Mata Najwa are one concrete example, or when we are interviewing for a job, or when we are sick and seek treatment at a health care facility, we will be interviewed by a doctor before he determines the disease or makes a correct diagnosis of the disease. that we experience as a response to our answers during the interview. In-depth

interviews are based on the idea that digging deeper into the subject or informant produces more authentic data (Marvasti, 2004).

In-depth interviewing is a technique designed to get a clear picture of the subject's perspective on the research topic. During the conduct of in-depth interviews, the interviewee is considered an expert and the interviewer is considered a student (Mack et al., 2005). Traditionally, in-depth interviews are a face-to-face technique between a single interviewer and a single informant, although currently the single interviewer and group informant model is popular, which is more commonly referred to as a focus group. The method of collecting data through in-depth interviews is very useful when the object of research is on topics that are outside the norms and assumptions that are often not discussed explicitly in the daily practice of a group/community (Murphy and Dingwall, 2003).

In-depth interview data usually consists of audio recordings, transcripts from audio recordings, and from the interviewer's notebook. Notes can be in the form of research documentation about the contents of the interview, participants, and the context when the interview was taking place. According to Mack et al. (2005), transcript data from recordings is the most utilized form of in-depth interviews. During the research data analysis phase, after data collection, transcripts were coded according to participants' responses to each question and/or theme that emerged most prominently in the interview moment.

### *Focus Groups Discussion*

Focus groups or focus groups are another version or development of in-depth interviews with more targeted versions simultaneously, in groups, to discuss a particular topic. In simple terms, Marvasti (2004) states that in focus groups, the researcher asks a number of respondents questions at the same time to "stimulate discussion and thus understand (through further analysis) the meaning and norms underlying the group's answers.". Although the principles are the same, Byrd-Bredbenner et al. (2008) defines focus groups as an interview style designed for small groups. Using this approach, the researcher seeks to study through discussion about the conscious, semi-conscious, and unconscious psychological and sociocultural characteristics and processes between various groups.

According to Mack et al. (2005) in a study, focus groups are usually one of many methods used to create a complete picture of how a problem affects the community. Focus groups contribute to this broad understanding by providing data that are based on social and cultural norms, norms that permeate society, and what people think of their own values.

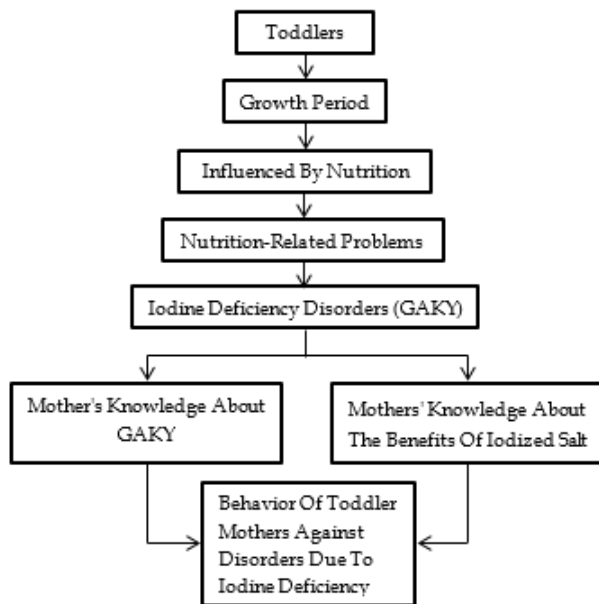


Figure 1. Conceptual Framework

**Result and Discussion**

*Result*

Behavior of Toddler Mothers Against Disorders Due to Iodine Deficiency. Some of the steps that have been carried out in knowing the Behavior of Toddler Mothers Against Iodine Deficiency Disorders are:

*Participatory Observation*

Mack et al. (2005) explained that qualitative research conducts participatory observation either through self-observation or by both, observing and participating. Participatory observation can always be applied in the community, in locations that are believed to have relevance to the research question. This method is distinctive in that the study approaches participants in their own environment. In general, research that engages in participatory observation attempts to learn what it is like to live as an "insider" while also remaining in the role of an "outsider". In this study, observations were made in Slukatan Village, which is located in Mojotengah District, Wonosobo Regency.

*In-depth interviews*

The in-depth interview technique encourages researchers who wish to learn everything from the participants, so they can share about the research topic. The researcher engaged with the participants by asking neutral questions, listening attentively to participants' responses, and asking follow-up questions and exploring based on the responses. They did not lead participants according to preconceived notions, nor did they encourage participants to give specific answers by

expressing agreement or disagreement with what they stated. Some things in-depth interviews can only occur in private places so that it is sometimes impossible for researchers to get the further access needed for observational methods, as a combination of data collection methods simultaneously (Murphy & Robert, 2003).

In-depth interviews were conducted with residents in Slukatan Village, which is located in Mojotengah District, Regency. This stage is carried out to determine the behavior of mothers under five to iodine disorders. The Cilacap Regency Government has made various efforts to tackle IDD. This stage is carried out to determine the behavior of mothers under five towards IDD. The Wonosobo District Government has made various efforts to tackle IDD. Short-term efforts are in the form of giving lipiodol injections which are then replaced by giving iodiol capsules. In addition, a long-term program is also carried out in the form of distribution of iodized salt.

**Table 1.** IDD Response Program in Wonosobo District

Program	Intervention	Target	year
Short term	Lipiodol injection	WUS, pregnant women, mothers breastfeeding, schoolchildren	1974-1991
Short term	Iodine capsule	WUS, pregnant women, mothers breastfeeding, schoolchildren	1992-2009
Long term	Iodized salt	All households	1975-now

Source: Surveillance to Overcome IDD Problems and Data from the Wonosobo Health Office

GAKI team meeting activities have also been carried out by inviting resource persons, one of which is from BP2GAKI. The frequency of meetings depends on the existing budget, namely from the district or provincial budget. One of the topics discussed at the meeting was information about brands of salt with sufficient or insufficient iodine content, so that it could be conveyed by the puskesmas and disseminated in the working areas of the respective puskesmas.

"The meeting was held once yesterday at the beginning of April. If I'm not mistaken, the source was also from GAKI. Yes, there are two people. This year there have been two meetings, one has been held but one more is still lacking. That's at the district level..." (Informant 1) Another activity is salt testing in the village which is carried out by cadres. Qualitative salt testing is by using a quick salt test.

**Table 2.** Salt Monitoring in Pulosaren Village, Kepil District, Wonosobo Regency

Salt monitoring type	Executor	Time
Household salt	Cadre	February month August
Market salt	Disperindag and Department of Health	Once a year

Source: Data from the Wonosobo District Health Office

Tests are carried out twice a year, namely in February and August. The salt tested came from household samples and salt selling stalls. Monitoring of market level salt is carried out once a year. Each brand is tested and the results are reported to the province and followed up by the salt factory. Salt testing is still being carried out today. Early detection of IDD cases has also been carried out by every health center, which is done on babies born using the Neonatal Hypothyroid Index (NHI) checklist. The activity of referring GAKI cases to BP2GAKI has also been carried out by the Wonosobo District Health Office. The nutrition officer at the puskesmas who is responsible if a suspected GAKI case is found. The following is data on babies referred to the GAKI Research and Development Clinic.

The obstacle faced in the IDD prevention program is that non-iodized salt is still found on the market. Krosok salt is still found on the market and is generally given to livestock. This type of krosok salt usually does not contain iodine. The solution is to socialize market traders and the public not to buy non-iodized salt, and increase public knowledge about the benefits of iodized salt through lectures.

*Discussion Group Forums*

FGD with community leaders The results of the FGD with community leaders in Slukatan Village stated that health counseling with pictures had been carried out. Meanwhile counseling about GAKI and salt testing was last conducted in 2012, although there are also people who have never received counseling about GAKI. The community needs continuous counseling about GAKI. In the early stages, counseling will be carried out by a team from BP2GAKI in the form of training and equipped with pictures and how to do a salt test. The training will be carried out several times, then it will be carried out by the community itself to maintain its continuity. The providers of counseling materials are village midwives and cadres, because they are used to speaking in public and are more listened to by the community.

From the results of interviews, village midwives and cadres stated that they were willing to provide material about GAKI, as long as they had previously

been given training and provided with guidebooks. "Nothing. For example, it is enough for the puskesmas to be represented by me. Originally I was given the guide from GAKI. As long as there's a reference, that's fine. It can be refreshed every few months. It's okay if it's just refreshing, while evaluating it too..." (Informant 5).

The counseling aids provided to village midwives and cadres were in the form of pocket books and flipcharts, with the hope that they would be more practical and concise to store and use. According to the community, stickers do not need to be used because they are considered more expensive.

"...No, a manual. What was proposed yesterday at the meeting in Dusun Bulu was actually a guidebook. In order to socialize it to the public, materials are needed..." "...So we are not confused. Usually, we talk about it up front, but later what will be issued will disappear if there is no material. (Group 8 FGD) "...It makes it easier to use pictures, wrap paper in plastic, and protect it from rain and heat..." (group 7, 12 and 13 FGD).

It is hoped that the community leaders of Slukatan Village will have the community in their area take their own initiative in dealing with IDD, so that it will be easier to implement IDD in the future. Residents provide input regarding the need for training for midwives and cadres before they conduct counseling about IDD. Support regarding training on GAKI and the use of this guidebook was also provided by the community leaders of Slukatan Village.

"He emm..yes..yes..that I also agree. If so, I will allow it. Because it's for health. In the end, it's health. Lha this is because we as citizens have never seen what is the factor of lack of health can you find. If only I agreed. And I support them, how come they have such a desire, even if they are told, they don't necessarily want to. It turns out that they really have such an initiative, right? It's one of the conveniences, so I agree. Maybe that's what we need to convey..." (Informant 6)

Regarding pocketbook and flipchart materials, the community wants material on how to store salt, choose the right salt, the benefits of iodized salt, causes, effects, and prevention of IDD. "Regarding GAKI, the best way to store salt is to choose the right salt. Storage, how to choose, benefits, due to iodine deficiency..." (Group 8 FGD).

*Discussion*

Kementerian Kesehatan (2015) said One of the strategies to improve public health is to empower the community and increase community participation in the health sector. Community participation to take part in improving health status is very important. One of the studies related to increasing community participation to contribute to improving health status is the Nutrition

Education and Rehabilitation Program. This program provides several interventions including fostering community participation. This program shows that the improvement in the nutritional status of children under five can be maintained even though the assistance is stopped. Widodo & Muljati (2012) that this shows that efforts to increase community participation which is realized in empowering and increasing the skills and abilities of mothers in caring for and feeding children have shown positive results.

Setyani et al. (2015) that FGD activities conducted with community leaders in Slukatan Village, in-depth interviews with stakeholders, and discussions with research teams and experts from BP2GAKI, have resulted in a form of activity in the context of managing GAKI which will involve community participation. These activities take the form of monitoring the use of household salt, early detection of IDD cases, and counseling about IDD.

Salt monitoring was carried out by health cadres and hamlet heads targeting all households, stalls and itinerant salt traders. Early detection of GAKI cases was carried out by posyandu cadres using a hypothyroid newborn index form and a guideline for identifying hypothyroid cases. Samsudin et al. (2010) that the purpose of early detection is to find IDD cases early so that treatment can be carried out as early as possible. The results of research on the IDD management model in iodine deficiency areas show that the early detection results carried out by village midwives are no different from those carried out by posyandu cadres. Martiyana & Samsudin (2012) Research on a qualitative study of early detection of IDD cases by village midwives in Wonosobo District recommended the need for education about IDD to raise awareness of health workers and the public about IDD through a socio-cultural approach in the local community.

GAKI counseling in the village of Slukan had an impact on increasing the knowledge, attitudes, abilities and confidence of mothers in caring for babies. Changes in mother's knowledge, attitudes, abilities, and self-confidence are expected to increase the baby's growth and development more optimally. Based on the results of interviews and FGDs by 30 housewives in Slukan Village, it was found that 18 housewives had poor knowledge of iodized salt and the rest of the housewives had good knowledge. It can be interpreted that in Slukan Village housewives have low knowledge of the benefits of iodized salt, and are still lacking in knowing the sources of iodine.

This can be seen from housewives who are less able to explain the benefits of iodized salt and are unable to explain the consequences of a lack of iodized salt other than goiter. As is the case in research Octaviasari (2021),

which states that there is a relationship between the knowledge of housewives about the consequences of a lack of iodized salt and the behavior of housewives towards use.

## Conclusion

In this study, it can be concluded that the level of behavior to prevent disorders due to iodine deficiency in the mothers of the experimental group in Slukatan Village, Wonosobo, of the 30 housewives who were respondents, 30 of them had insufficient knowledge of IDD. This can be seen from the lack of knowledge of housewives in Slukatan Village regarding other sources of iodine, the meaning of iodized salt, due to a lack of iodized salt and how to use iodized salt correctly.

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## Author Contributions

Authors listed in this article contributed to the research and development of the article. The authors have read and agreed to the published version of the manuscript.

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## Conflicts of Interest

The authors declare no conflict of interest.

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