

Report on community diagnosis to reduce the number of new malnutrition cases in the toddlers

Margaretha Pramesthi Utari¹, Ella Windasari Gultom², Tamara Muliani³, Silviana Tirtasari⁴
^{1,2,3,4}Universitas Tarumanagara

ARTICLE INFO

Article history:

Received Jan 30, 2023
Revised Feb 17 2023
Accepted Feb 28 , 2023

Keywords:

Community Diagnosis
Fishbone Diagram
Severe Wasting
Toddlers

ABSTRACT

Community diagnosis can be used to determine problems in the community, including analyzing the situation, identifying, prioritizing, and solving the problem. According to WHO, in 2017, 50% of child and infant mortality was caused by malnutrition. More than two-thirds of all children have malnutrition, especially severely wasting in Asia. Indonesia is the second country with the highest severe wasting rate in toddlers (2017 - 2021). *Riskesdas* 2018 shows that 3,5% of toddlers in Indonesia are severely wasted. The prevalence of wasted toddlers in Tangerang Regency 2021 is the highest compared to other districts in Banten. Data from the Cikupa Health Center showed an increase in new cases of severe wasting in toddlers between 2021 and January-June 2022. This research aims to recognize the location with the highest new case of severe wasting in toddlers that must be intervened immediately, the problems, interventions, and its results. Method community diagnosis has been used to overcome health issues in Cikupa Public Health Center. After the intervention, it showed 26 mothers with toddlers obtained a post-test score of > 80, 2 mothers with toddlers could mention a nutritious and varied food menu in one day for toddlers, and it was also found that eight toddlers with severe wasting. Talaga is the main location for the increase in new cases of severe wasting in toddlers caused by lifestyle. Interventions, such as counseling, demonstrations, and screenings, are expected to reduce new cases of severe wasting in toddlers at Cikupa Public Health Center.

This is an open-access article under the [CC BY-NC](#) license.



Corresponding Author:

Margaretha Pramesthi Utari
Faculty of Medicine
Tarumanagara University Jakarta
Letjen S. Parman 1, Tomang, Grogol petamburan, Jakarta, Indonesia
Email: margarethaautari@gmail.com

INTRODUCTION

According to the World Health Organization (WHO), community diagnosis is a description of both quantitative and qualitative health and the factors that influence the health condition of the community (Han & Goleman, daniel; Boyatzis, Richard; Mckee, 2019; World Health Organization, 2019). There are several stages in obtaining a community diagnosis that starts with analyzing the situation, identifying problems, determining problem priorities, and solving problems. Conducting community diagnosis is a skill that doctors must master to apply medical services holistically and

comprehensively with a family and occupational approach to patients (Kemenkes, 2017; KemenKes, 2019).

One of the main health problems in developing countries is nutritional problems, such as malnutrition (Amalia *et al.*, 2021; Boh & Richard, 2019; Visser *et al.*, 2020). Education and parenting styles of parents, as well as poverty, are the factors that can influence malnutrition (Alhamid *et al.*, 2021; Iswandari *et al.*, 2020). Malnourished children under five are very vulnerable to infectious diseases. Besides, malnutrition is often caused by infectious diseases, so prompt, appropriate, and integrated treatment must be carried out to prevent mortality and further complications and improve future child development. Malnutrition is one of the priorities in health development according to the policy direction of the 2020-2024 National Medium-Term Development Plan (RPJMN) with the management of malnutrition (Komalasari *et al.*, 2020; Ruaida, 2018)

In 2017, WHO stated that 50% of child and infant mortality in the Asian region was caused by malnutrition. The three countries with the highest malnutrition rates among children under five (2017 - 2021) are India, with a total of 5,772,472 cases, followed by Indonesia, with 812,564, and Pakistan, with 678,925 (Han & Goleman, daniel; Boyatzis, Richard; Mckee, 2019). Based on the Basic Health Research (*Risikesdas*) of the Ministry of Health in 2018, 13.7% of children under five still experienced nutritional problems, of which 3.5% was severe wasting (malnutrition). Based on the 2021 Indonesian Nutrition Status Study, the prevalence of wasted toddlers in Banten Province is 6.3%, where Tangerang Regency is the highest compared to other regencies/cities in Banten Province. In 2021, the status of severely malnourished children under five in Tangerang Regency decreased compared to 2020. This decrease results from assisting pediatricians, providing special medical food, better referral processes, and coordination with program managers. Of the target 213,536 toddlers who were registered, 0.64% of toddlers were malnourished (Amelia, 2019; Iswandari *et al.*, 2020; Nur Imanah & Sukmawati, 2021; Susilawati, 2021).

In 2021, there were twelve new malnutrition cases at the Cikupa Public Health Center. There were seven new malnutrition cases in January - March 2022, thirteen cases in April - June 2022, six cases in July - August 2022, and from September 2022 until September 8, three new malnutrition cases were found bad. New cases that continue to increase at the Cikupa Public Health Center in January - September 2022 is a problem that must be prevented and treated immediately. This is the basis for selecting malnutrition cases as a community diagnosis for promotive and preventive efforts. It is expected to prevent the addition of new cases at the Cikupa Public Health Center by increasing knowledge and awareness about malnutrition in toddlers.

RESEARCH METHOD

This qualitative research was carried out by identifying problems using the Blum concept (Prof.Dr.Sugiyono, 2019; Sugiyono, 2017, 2018). It is a paradigm through prioritizing the problem with the non-scoring technique (Delphi) method (Sugiarto *et al.*, 2020). A fishbone diagram was used to determine the root cause of the problem. Data were obtained through mini-surveys, pre-tests, and post-tests. Interventions were carried out through counseling about the effort to reduce the number of new malnutrition cases in toddlers.

RESULTS AND DISCUSSIONS

Inadequate energy intake causes a variety of physiological adaptations, including growth restriction, loss of fat, muscle, and visceral mass, decreased basal metabolic rate, and decreased total energy expenditure. The biochemical changes in acute malnutrition involve metabolic, hormonal, and glucoregulatory mechanisms. The main hormones affected are thyroid hormone, insulin, and growth hormone (GH). Changes included decreased levels of tri-iodothyronine (T3), insulin, insulin-like growth factor-1 (IGF-1), and increased levels of GH and cortisol. Glucose levels are often low initially, accompanied by depletion of glycogen stores (Abarca, 2021; Maramis, 2014).

In the initial phase, rapid gluconeogenesis occurs, resulting in the loss of skeletal muscle due to using amino acids, pyruvate, and lactate. Then, there is a protein conservation phase, with fat mobilization leading to lipolysis and ketogenesis, then electrolyte changes, especially sodium retention and intracellular potassium depletion. Organ systems vary in acute malnutrition. Cellular immunity is affected by atrophy of the thymus, lymph nodes, and tonsils. There is a decrease of CD4 with normal CD8-T lymphocytes, delayed loss of hypersensitivity, impaired phagocytosis, and immunoglobulin A. Consequently, there is an increased susceptibility to invasive infections (urinary tract infections, gastrointestinal infections, septicemia, etc.) (Abarca, 2021).

Villous atrophy due to loss of disaccharides, crypt hypoplasia, and altered intestinal permeability lead to malabsorption. Another common aspect is a bacterial overgrowth, and pancreatic atrophy resulting in fat malabsorption and fatty infiltration of the liver is also common. Drug metabolism may decrease due to decreased plasma albumin and glycoprotein fraction, which is responsible for drug binding. Cardiac myofibrils thinning caused impaired contractility. Cardiac output decreases in proportion to weight loss. Bradycardia and hypotension are also common in severe cases. The combination of bradycardia, impaired cardiac contractility, and electrolyte imbalance predisposes to arrhythmias. The decrease in thoracic muscle mass, metabolic rate, and electrolyte imbalance (hypokalemia and hypophosphatemia) can lead to decreased minute ventilation and impaired ventilatory response to hypoxia (Kurniawan, 2015; Sukmawati E et al., 2018).

The total population in Cikupa Village in 2021 is 198,826 people consisting of 96,730 males and 102,096 females. This shows that the ratio of the female population is relatively higher than the male population. The number of toddlers in Cikupa Village is 19,750 people. Cases regarding malnutrition in the working area of the Cikupa Public Health Center covering ten villages, namely Cikupa, Sukamulya, Talaga, Talagasari, Cibadak, Sukanagara, Bojong, Budi Mulya, Dukuh, and Bitung Jaya Villages in 2021 as many as 12 out of 38 toddlers measured. The number of new cases in the 1st quarter of 2022 measured 7 out of 21 toddlers. There was an increase in the number of new cases in the 2nd quarter of 2022 to 13 out of 41 under five measured. From July to August 2022, six new malnutrition cases were measured out of 11 children under five.

Based on the graph of malnutrition data in the working area at Cikupa Public Health Center, there was a decrease in the number of new cases between 2021 and 1st quarter (January - March) in 2022. There was an increase in new malnutrition cases in the village of Talagasari between the 1st quarter (January - March) in 2022 with the 2nd quarter (April - June) of 2022. Until July-August 2022, most villages experienced a decrease in new malnutrition cases. There were no new malnutrition cases in Sukamulya and Cibadak Villages, but Bojong Village was one and the only village with an increase in malnutrition cases.

The graph of malnutrition data it can also be seen the accumulation of new cases from January to August 2022, with 26 out of 73 children under five measured, which stated that there was an increase in new malnutrition cases between 2021 and January-August 2022 per 1000 children under five. The highest accumulation of new malnutrition cases during January-August 2022 was in Talaga Village, with ten new cases, followed by Dukuh Village, with seven new cases. Cikupa Village, Talagasari, Cibadak, Bojong each had two new cases. Based on the data, Talaga Village was selected for community diagnostic interventions.

Acute malnutrition has been recognized as a cause of a decreased number of neurons, synapses, dendritic arborization, and myelination, all of which result in decreased brain size. The cerebral cortex is thinned, and brain growth slows down. Decreased global function, motor function, and memory have been associated with malnutrition. Effects on the developing brain did not change after 3-4 years.

Problem identification at the Cikupa Public Health Center was done using the Blum Paradigm. Problems have been prioritized using the non-scoring technique (Delphi) and discussions between groups with various parties related to the Cikupa Public Health Center. The

selected lifestyle aspects were the priority issues from the discussions carried out and analyzed. The reason for choosing lifestyle as a priority issue is a need for knowledge, attitudes, and behavior regarding malnutrition. Interventions on lifestyle aspects were carried out so that people can understand malnutrition, improve attitudes and behavior to prevent new malnutrition cases in toddlers, and prevent complications that occur.

After selecting the priority of the problem and finding, the researcher selected the lifestyle aspects of the people in Talaga Village as a priority. Finding the root cause of the problem was carried out using a Fishbone diagram. It is necessary to conduct several alternative solutions to the problem regarding the high number of new malnutrition cases in toddlers in Talaga Village, including counseling about malnutrition in toddlers and balanced nutrition to mothers who have toddlers, and conducting screening checks for weight and height in toddlers. After identifying and determining the root causes of the problem, it was found that the increase in the number of new malnutrition cases in toddlers in Talaga Village was caused by a lack of knowledge, attitudes, and behavior in the community. Therefore, it is necessary to carry out interventions that can be used as alternatives to solving these problems.

The actions taken consisted of several interventions. The first intervention included holding counseling about malnutrition in toddlers and balanced nutrition for mothers who have toddlers in Talaga Village. The basis for establishing this activity is the need for more public knowledge regarding malnutrition in toddlers, starting from understanding causes, risk factors, signs and symptoms, examination, management, complications, and prevention.

Counseling activities on malnutrition in toddlers and balanced nutrition in the community were carried out on Tuesday, 18 October 2022, from 08.30 - 09.30 at the Talaga Village Community Health Center (*Posyandu*). The target participants for the intervention were 30 mothers who have toddlers. This activity was carried out by three young doctors from Tarumanagara University undergoing a public health science clerkship. This activity aims to increase knowledge about malnutrition and balanced nutrition to reduce new malnutrition cases in toddlers. This activity started with an opening and introduction of young doctors and an explanation related to the purpose of the participants. Then, a pre-test was carried out. A presentation about malnutrition and balanced nutrition followed the activity. The activity ended with a question and answer session, conducting a post-test, distributing leaflets, and closing. Some participants were reluctant to attend the intervention because their children were fussy and did not pay full attention to listening to counseling and filling out questionnaires.

The second intervention activity involved "PIRING-KU" in the form of delivering and explaining nutritious food material and cooking demonstrations to the mothers with toddlers in Talaga Village. It was carried out on Tuesday, 18 October 2022, from 09.30 - 10.00 in the Posyandu in Talaga Village. The target participants for the intervention were 30 mothers who have toddlers in Talaga Village. This activity was carried out by three young doctors from Tarumanagara University undergoing a public health science clerkship. The purpose of this activity is to increase public knowledge about nutritious food. This activity started with the opening and introduction of the young doctor to the Talaga Village community, explaining the purpose of the intervention, delivering and explaining material on nutritious food for toddlers, followed by a demonstration of cooking nutritious food. The activity ended with a question and answered session with participants and closing. The second intervention was carried out at the Talaga Village Posyandu for the Talaga Village residents. The activity demonstrations included cooking nutritious food: soup filled with carrots, potatoes, eggs, meatballs, shredded cob rice, and fruit pudding. All participants seemed enthusiastic to pay attention to the cooking demonstration and continued tasting the cooked dishes. The indicators for assessing this activity were represented by the two participants being able to name a nutritious and varied food menu in one day for toddlers. When doing a cooking demonstration, the wind was blowing hard, so the fire from the stove was not optimal.

The third intervention process was about screening activities for checking weight and height in toddlers in Talaga Village, which was carried out on Tuesday, 18 October 2022, from 10.00 - 11.00 in the Posyandu Talaga Village. The target participants for the intervention were 30 toddlers. This activity was carried out by three young doctors from Tarumanagara University who were currently undergoing a public health science clerkship and were assisted by seven cadres and one Talaga Village midwife. This activity aims to determine nutritional status and capture new malnutrition cases in toddlers in Talaga Village who have not been diagnosed with malnutrition. This activity started with the opening and introduction of the young doctor to the participants, explaining the purpose of the intervention and then checking the weight and height of the toddlers present. The next activity was to conduct counseling and education regarding nutritional status from the results of checking the weight and height of the toddler. Screening interventions for weight and height were carried out at the Posyandu in Talaga Village. The examination was successfully carried out on all toddlers who attended this activity. There were eight participants with severe malnutrition, nine with less nutrition, ninety-three with good nutrition, seven at risk of being overweight, one with overweight, and one with obesity. The obstacles faced in this activity were that those who attended this demonstration exceeded the planned target. Some participants should have visited the counseling and education table on the grounds since it was too late.

CONCLUSION

Cases of malnutrition in the Cikupa Public Health Center working area located in Talaga Village. Based on the Blum paradigm, lifestyles related to knowledge, attitude, and behavior were the problems that caused an increase in the number of cases of malnutrition that must be resolved immediately. Risks, impacts, and ways to prevent malnutrition, as well as a lack of knowledge about assessing under-fives with adequate nutrition, must be conveyed properly. The attitudes of the people there are that there are still those who do not know the types of food sources and environmental cleanliness affect nutritional status. They assumed that thin and short children were not a problem and thought that just being full was enough. In terms of behavior, there are still people who do not prepare their food for their toddlers, do not know the composition of the nutrients, and do not vary from morning to evening, even providing fast food or junk food as a snack for their toddlers. Intervention steps as an alternative problem solving that can be done in the short term. It also can support the achievement of medium and long-term goals.

References

- Abarca, R. M. (2021). Klaster Ilmu Kedokteran Keluarga. *Nuevos Sistemas de Comunicación e Información*.
- Alhamid, S. A., Carolin, B. T., & Lubis, R. (2021). Studi Mengenai Status Gizi Balita. *Jurnal Kebidanan Malahayati*, 7(1), 131-138. <https://doi.org/10.33024/jkm.v7i1.3068>
- Amalia, I. D., Lubis, D. P. U., & Khoeriyah, S. M. (2021). HUBUNGAN PENGETAHUAN IBU TENTANG GIZI DENGAN KEJADIAN STUNTING PADA BALITA. *JURNAL KESEHATAN SAMODRA ILMU*, 12(2). <https://doi.org/10.55426/jksi.v12i2.153>
- Amelia, R. R. (2019). Prevalensi dan Zat Gizi Mikro dalam Penanganan Stunting. *Jurnal Ilmu Kedokteran Dan Kesehatan*, 6(2). <https://doi.org/10.33024/jikk.v6i2.2193>
- Boh, N. M., & Richard, E. A. (2019). Factors Associated with the Implementation of the WHO Breastfeeding Recommendations in Momo Division, North-West Region of Cameroon. *European Journal of Nutrition & Food Safety*. <https://doi.org/10.9734/ejnsf/2019/v11i330149>
- Han, E. S., & goleman, daniel; boyatzis, Richard; Mckee, A. (2019). Data WHO. *Journal of Chemical Information and Modeling*, 53(9).
- Iswandari, D. P., Hariastuti, I., Anggriana, T. M., & Wardani, S. Y. (2020). Biblio-Journaling sebagai optimalisasi peran Ayah pada 1000 Hari Pertama Kehidupan (1000 HPK). *Counsellia: Jurnal Bimbingan Dan Konseling*, 10(1). <https://doi.org/10.25273/counsellia.v10i1.4988>
- Kemenkes. (2017). *Manajemen Mutu Informasi Kesehatan 1: Quality Assurance*.
- KemenKes. (2019). *Laporan Riskesdas 2018*. Jakarta: Kementerian Kesehatan RI.

- Komalasari, K., Supriati, E., Sanjaya, R., & Ifayanti, H. (2020). Faktor-Faktor Penyebab Kejadian Stunting Pada Balita. *Majalah Kesehatan Indonesia*, 1(2). <https://doi.org/10.47679/makein.202010>
- Kurniawan, H. (2015). Dokter Di Layanan Primer Dengan Pendekatan Kedokteran Keluarga Dalam Sistem Pelayanan Kesehatan. *Jurnal Kedokteran Syiah Kuala*, 15(2).
- Maramis, W. F. (2014). Kedokteran Keluarga = Family Medicine. *Jurnal Widya Medika*, 2(2).
- Nur Imanah, N. D., & Sukmawati, E. (2021). PERAN SERTA KADER DALAM KEGIATAN POSYANDU BALITA DENGAN JUMLAH KUNJUNGAN BALITA PADA ERA NEW NORMAL. *Jurnal Kebidanan Indonesia*, 12(1). <https://doi.org/10.36419/jki.v12i1.442>
- Prof.Dr.Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif Dan R&D*. Bandung: Alfabeta.
- Ruaida, N. (2018). Gerakan 1000 Hari Pertama Kehidupan Mencegah Terjadinya Stunting (Gizi Pendek) di Indonesia. *Global Health Science*, 3(1).
- Sugiarto, D. W., Ayubi, D., & Martha, E. (2020). Perilaku dan Promosi Kesehatan. In *Indonesian Journal of Health Promotion and Behavior* (Vol. 2, Issue 1).
- Sugiyono. (2017). *metode penelitian kualntitatif, kuallitatif,daln R&D*. Alfabeta.
- Sugiyono. (2018). *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Bandung: Alfabeta.
- Sukmawati E, wahyunita yulia sari, & indah sulistyoningrum. (2018). *Farmakologi Kebidanan*. Trans Info Media (TIM). <https://scholar.google.com/scholar?oi=bibs&cluster=11760770443894442881&btnI=1&hl=id>
- Susilawati, S. (2021). DAMPAK PERUBAHAN IKLIM TERHADAP KESEHATAN. *Electronic Journal Scientific of Environmental Health And Disease*, 2(1). <https://doi.org/10.22437/esehad.v2i1.13749>
- Visser, M., Schaap, L. A., & Wijnhoven, H. A. H. (2020). Self-Reported Impact of the COVID-19 Pandemic on Nutrition and Physical Activity Behaviour in Dutch Older Adults Living Independently. *Nutrients*, 12(12). <https://doi.org/10.3390/nu12123708>
- World Health Organization. (2019). WHO Global report on traditional and complementary medicine 2019. *World Health Organization*, Accessed: 18.12.2020.