

## Community diagnosis in an effort to reduce the number of diarrhea cases

Syerent Lawrence<sup>1</sup>, Dewi Indah Lestari<sup>2</sup>

<sup>1,2</sup>Medical Faculty, Universitas Tarumanagara Jakarta, Indonesia

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### ABSTRACT

Diarrhea is the second leading cause of mortality in children under the age of five. In order to reduce the incidence of diarrhea cases in the working area of the Sindang Jaya Public Health Center. The research problem was analyzed using Blum's Paradigm. Priority problem employed non-scoring technique method (Delphi). Fishbone diagram was used to determine the root cause of the problem. Data were obtained through mini survey, pre-test, and post-test. The intervention was carried out through diarrhea counseling, demonstrations on how to make a solution of sugar and salt, and how to wash hands correctly. Monitoring was carried out using the PDCA cycle and systems approach. Therefore lifestyle was the main problem that contributes to the high cases of diarrhea. The result of the root cause was known to be a lack of public knowledge about diarrhea. The findings of the intervention increased knowledge about diarrhea, with the average post-test score of 87.33. Participants' knowledge of how to make a solution aimed to increase sugar and salt on how to wash hands properly. The problem had caused the increase in cases of diarrhea. After the community diagnosis was conducted, an increase in the knowledge of the participants who took part in the counseling was obtained. The average value of post-test counseling is above the target value. Participants could re-explain about how to make a solution of sugar and salt, and can practice how to wash hands in 6 steps correctly.

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#### *Corresponding Author:*

Syerent Lawrence

Medical Faculty

Tarumanagara University

Letjen S. Parman No. 1, West Jakarta, 11440, Indonesia

sEmail: [syerent.lawrence@gmail.com](mailto:syerent.lawrence@gmail.com)

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## INTRODUCTION

Community diagnosis is a quantitative and qualitative explanations of the health conditions in the community and the factors that influence their health conditions. This community diagnosis identifies problems and then directs a corrective intervention to produce a real work plan. Community diagnosis (community assessment) is an activity to determine the existence of a problem by collecting data in the community (Harun et al., 2021), (UNC, 2022). The skill of conducting community diagnosis is a skill that must be mastered by doctors to apply medical services in a holistic and comprehensive manner with a family and occupational approach to the

patients. Community diagnosis includes problem identification (diagnosis) and solutions (treatment) to overcome problems based on existing sources. Diarrhea is defined as the passage of abnormal or amorphous stools accompanied by an increase in the frequency of three or more times per day. For adults on a typical Western diet, stool weight >200 g/day can generally be considered as diarrhea. Diarrhea can be further defined as acute if occurs <2 weeks, persistent if occurs 2-4 weeks, and chronic if occurs >4 weeks. Diarrhea is usually a symptom of an infection in the intestinal tract, which can be caused by a variety of bacterial, viral and parasitic organisms. The infection is spread through contaminated food or drinking water, or from person to person as a result of poor hygiene (J, 2018).

Diarrhea is the second most common cause of mortality case in children under five years of age, and it is responsible for the deaths of around 525,000 children each year (370,000 children in 2019). In 2017, 1.6 million people died from diarrheal diseases globally. In the past, for most people, severe dehydration and fluid loss were the leading causes of death from diarrhea. In this current situation, other causes such as septic bacterial infection are likely to account for an increasing proportion of all diarrhea-related deaths (World Health Organization, 2017). Diarrhea is also a major cause of malnutrition, making the person more susceptible to future attacks of diarrhea and other illnesses. If diarrhea is not treated properly, it can cause complications, such as dehydration, malnutrition, failure to thrive, hypovolemic shock, and even death.

Rotavirus is the virus leading cause of diarrhea with severe dehydration in children under 5 years worldwide. It is estimated that 82% of deaths caused from rotavirus diarrhea which occur in developing countries, especially in Asia and Africa, where access to health care and nutritional status is still being a problem. The second ARSN (Asian Rotavirus Surveillance Networks) study conducted in several countries in Asia (China, Taiwan, Hong Kong, Vietnam, Myanmar, Thailand, Malaysia and Indonesia) found that Rotavirus infection is responsible for 45% of diarrhea cases in Asia.

Diarrhea disease is an endemic disease with have potential for Extraordinary Events (KLB) which is often accompanied by death in Indonesia (Basuki K, 2019). Based on the Indonesian health profile of the Ministry of Health of the Republic of Indonesia in 2018, the total coverage of services for diarrhea sufferers of all ages is 4,504,524 sufferers or 62.93% of estimates of diarrhea in health facilities.<sup>7</sup> According to the 2018 Riskesdas, the prevalence of diarrhea is 6.8% based on the diagnosis of health workers in Banten Province, Tangerang Regency (Basuki K, 2019).

Based on data from the Sindang Jaya Public Health Center, the number of patients with diarrhea cases from January to June 2022 was 447 cases and the highest number of cases happened in June. Cases of diarrhea have increased compared to 63 cases in May 2022 and 87 cases in June 2022. Patients who came to the health center with complaints of diarrhea had an acute onset and were on average aged 20-44 years. Besides, there was no data on deaths caused by diarrhea at the Sindang Jaya Public Health Center. Data from the Sindang Jaya Health Center also found that the number of new cases of infectious diseases from May to June 2022 indicated that diarrhea was in first place case, followed by scabies, confirmed tuberculosis, tinea corporis, and others.

## RESEARCH METHOD

This type of qualitative research was carried out by identifying problems using the Blum Paradigm through prioritizing the problem with the non-scoring technique (Delphi) method. 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 diarrhea, demonstrating how to make a solution of sugar and salt, and how to wash hands properly. Monitoring was carried out using the PDCA cycle and a systems approach.

## RESULTS AND DISCUSSIONS

Based on the data from epidemiologists at the Sindang Jaya Public Health Center in May - June 2022, there were 150 cases of diarrhea for all ages, 63 cases in May and 87 cases in June. The village with the most cases of diarrhea was Sindang Asih Village with the most cases of 24 cases. The villages with the second most cases of diarrhea were Sindang Sono Village and Sukaharja Village with a total of 21 cases. Then, the village with the third most cases of diarrhea was Sindang Panon Village with a total of 19 cases. On data from epidemiologists at the Sindang Jaya Health Center itself in May - June 2022, there were 150 cases of diarrhea for all ages, that was 63 cases in May and 87 cases in June. The village with the most cases of diarrhea was Sindang Asih Village with the most cases of 24 cases. The villages with the second most cases of diarrhea were Sindang Sono Village and Sukaharja Village with a total of 21 cases. Then, the village with the third most cases of diarrhea is Sindang Panon Village with a total of 19 cases.

Based on the results of the basic six Public Health Center (*Puskesmas*) survey, diarrhea was selected as a topic for Community Diagnosis because it was included in the main mandatory efforts of the Sindang Jaya Public Health Center which were adjusted to the results of the Basic Six *Puskesmas* survey, namely by carrying out health promotion efforts, environmental health efforts, maternal, child and family planning health efforts, efforts to improve people's nutrition, efforts to prevent, and control infectious diseases and efforts to treat them. From the results of this analysis, the prioritization of the problems obtained was lifestyle. Then, identify the root cause of the problem with Fishbone. Based on data from a mini survey of 30 respondents who came for treatment at the Sindang Jaya Public Health Center, problems were found related to knowledge, attitudes, and people's behavior about diarrhea and prevention so that it did not occur. Determining the priority of this problem was done by Non-Scoring Technique (Delphi).

After identifying and determining the root causes of the problem, it can be concluded that the increase in diarrhea cases that have occurred in the working area of the Sindang Jaya Public Health Center is due to a lack of knowledge, attitudes, and behavior of the surrounding people regarding diarrhea prevention. Therefore, several interventions are needed to solve the problem. Based on the Fishbone diagram, several alternative solutions to the problem of diarrhea in Sindang Asih Village could be planned, namely counseling on diarrhea starting from its definition, causes and ways of transmission, risk factors, signs and symptoms (dehydrated and not dehydrated), how to prevent it, early treatment, and complications of diarrhea to the people in the working area of the Sindang Jaya Public Health Center, the people, and cadres in Sindang Asih Village whose event took place at the Sindang Asih Village Office. In addition, the demonstrations on how to make a sugar and salt solution for the people in the working area of the Sindang Jaya Public Health Center had been carried out by the people and cadres in Sindang Asih Village and the event which will take place at the Sindang Asih Village Office. Demonstration on how to wash hands 6 steps, make and use sugar-salt solution correctly for the people was also carried out in the working area of the Sindang Jaya Health Center, the people and cadres in Sindang Asih Village and the event which took place at the Sindang Asih Village Office.

Several intervention activities were done to solve this problem. The intervention process was began with the implementation of counseling activities regarding diarrhea which was carried out on Thursday, July 21, 2022 at 08.00 - 08.30, located in front of the general poly, children's poly, and KIA poly at the Sindang Jaya Public Health Center. On Wednesday, July 27 2022 at 10.30-11.00 WIB, the activity was located at the Sindang Asih Village Office with a total of 45 counseling participants. Counseling was carried out according to health protocols and material was delivered by young doctors who were carrying out clerkships for the period 20 June 2022-13 August 2022. This activity aims to increase knowledge, attitudes and behavior regarding diarrheal diseases to the people in the working area of the Sindang Jaya Public Health Center, the people, and cadres in Sindang Asih Village so that cadres can educate and motivate other people about diarrheal disease and how to handle it early if you have diarrhea.

After the counseling participants gathered at the location, the activity was began by giving an opening greeting and introducing the young doctor as the provider of the counseling material. Prior to counseling, distribution and filling of pre-test questionnaire sheets and leaflets were carried out. Counseling was done with the help of Powerpoint media, posters, and leaflets. After that, a Q&A session was carried out regarding the topics that had been submitted, then distribution and filling out of the post-test questionnaire sheets were carried out. The activity was closed with closing greetings, thanksgiving, and distribution of snacks.

The data were obtained from the results of the pre-test and post-test, then the data obtained was processed manually and performed digital calculations using the Microsoft Excel program. Counseling activity was attended by 45 participants with an average pre-test score of 67.56, the lowest score was 20, and the highest score was 100. The post-test average score was 87.33, the lowest score was 50, and the highest score was 100. There was an increase in the mean pre-test and post-test where was  $\geq 80\%$  of the participants who attended received a mean post-test score of  $\geq 70$ . So, it can be concluded that the counseling activities carried out were declared successful.

The obstacle faced in this research was that some people who came to the *Puskesmas* were not willing to participate in counseling for various reasons, such as not being able to read and write, having to return to their activities immediately after the treatment finished, and being afraid of being left behind when polyclinics started. In addition, there were participants who lacked concentration in participating in the activity because they were afraid that their queue numbers would be missed, there were participants who brought small children and played on cellphones. The participants also did not meet the target due to the lack of participation from the Sindang Asih Village people.

After that, the next intervention activity was a demonstration of the procedure for making sugar and salt solution for the people in the Sindang Jaya Health Center Work Area, the people and cadres in Sindang Asih village. The demonstration was held on Thursday, 21 July 2022 at 08.00 - 08.30, located in front of the general poly, children's poly, and KIA poly of the Sindang Jaya Public Health Center. On Wednesday, July 27 2022 at 10.30-11.00 WIB, the activity was located at the Sindang Asih Village Office with 45 participants. Demonstrations were carried out according to health protocols, and material was delivered by three young doctors who were carrying out clerkships for the period 20 June 2022 - 13 August 2022. This activity aimed to increase knowledge, attitudes, and behavior regarding diarrheal disease to the people and cadres in Sindang Asih Village. So that the cadres can educate and motivate other people about diarrheal disease and how to handle it early if you have diarrhea.

After the counseling participants gathered at the location, the activity was started by giving an opening greeting and introducing the young doctor as the demonstration material provider. Demonstrations were carried out with the help of Powerpoint media and leaflets by demonstrating how to make a sugar and salt solution. After that, a Q&A session was held regarding the topic that had been presented. The activity was closed by distributing prizes to the people and active cadres and closing greetings by the three young doctors. In the last intervention action, namely a demonstration of the correct hand washing procedures in the community. Demonstrations on how to wash your hands properly were carried out at the Sukaharja Village Office on Thursday, 21 July 2022 at 08.00 - 08.30, located in front of the general poly, children's poly, and KIA poly at the Sindang Jaya Public Health Center. On Wednesday, July 27 2022 at 10.30-11.00 WIB, located at the Sindang Asih Village Office with a total of 45 counseling participants. Counseling was carried out according to health protocols, and material was delivered by three young doctors who were carrying out clerkships for the period 20 June 2022-13 August 2022. The purpose of this activity was to increase knowledge, attitudes, and behavior of the community and cadres regarding the ways and benefits of washing hands properly to prevent diarrhea.

Results and monitoring of the implementation of this intervention, namely a demonstration regarding the procedure for making a sugar and salt solution which was attended

by 45 participants. The result of the intervention mentioned that all participants who attended in this activity were able to re-explain the procedure for making the sugar and salt solution correctly and several representatives of the participants who were randomly selected to appear in front and were able to re-mention the procedure for making the sugar and salt solution correctly. When randomly selecting participants to recall the procedure for making sugar and salt solution correctly, the situation became uncondusive and they answered before being given a turn to answer. From the results of the analysis it was known that the participants did not meet the target due to the lack of participation of the Sindang Asih Village people.

The activity begins with an explanation of the steps for washing hands properly and correctly which were illustrated in Powerpoint slides and leaflets. After that, a demonstration of how to wash hands was carried out by a young doctor, the participants were invited to follow the hand washing movement being demonstrated. After that, the activity continued with the random selection of participant representatives to re-demonstrate the 6 steps of how to wash hands. Before the activity was finished, participants were given the opportunity to ask questions to young doctors. The activity was closed by distributing prizes to the people and active cadres and closing greetings by the three young doctors. This third intervention was attended by 45 participants. The result of the intervention mentioned that all participants were able to demonstrate the 6 steps of washing hands correctly when asked to demonstrate together and several representatives of the participants who were randomly selected to appear in front were able to demonstrate again the 6 steps of washing hands correctly.

The results of the above interventions can be a solution to the problem of diarrhea in the community. If diarrhea is not handled properly, it will cause complications, such as dehydration, malnutrition, failure to thrive, hypovolemic shock, and even death. Diarrhea complications will vary based on the specific cause. In general, the main complication that occurs in all patients with diarrhea is malabsorption, if the transit time is low in the intestine, the proper amount of nutrients and fluids cannot be absorbed, signs of malnutrition can be found, such as anemia and weight loss. Another complication can be acute kidney injury (AKI) due to dehydration, which occurs when the digestive tract cannot absorb enough fluids, thereby affecting kidney function. Electrolyte abnormalities can also occur and require monitoring for therapy.

## CONCLUSION

Regarding the problem mentioned above had caused the increase of diarrhea. After the community diagnosis was made, an increase in the knowledge of the participants who took part in the counseling was obtained. The average value of post-test counseling showed above the target value. In addition, the participants were able to re-explain how to make a solution of sugar and salt, and practice how to wash hands in 6 steps correctly.

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