COMMUNITY KNOWLEDGE ON CHILD GASTROINTESTINAL DISEASE, GROWTH, AND DEVELOPMENT : A CROSS SECTIONAL STUDY IN MANDANGIN ISLAND, SAMPANG, INDONESIA

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ABSTRACT

The prevalence of diarrhea in Madura is higher than in East Java. Mandangin island, an isolated island in Sampang, Madura has limited access to healthcare and knowledge. It will lead to disruptions in the children's growth and development. This study aimed to evaluate the impact of health education on community knowledge about gastrointestinal disorders and children's development. This cross-sectional study involved 48 subjects from Mandangin Island, Sampang by total sampling. The subjects received some presentations related to gastrointestinal disease, growth, and development in children using a handbook and audio-visual media. The subjects were required to complete pretest and posttest questionnaires. The pretest and post-test results were processed and analyzed using the statistical software "SPSS" and the Wilcoxon test. Most of the subjects were housewives with a mean age of 28.73 ± 6.22 years old. There was a significant difference between pre-and post-test in gastrointestinal disease, growth, and development in children (46.04 ± 21.71 vs 62.29 ± 13.25, p<0.001). This study found that health education through face-to-face, handbooks, and audiovisual media can enhance community knowledge.

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INTRODUCTION

Indonesia is a country with the fourth-largest child population in the world. Children are highly susceptible to the health risks of environmental exposures during their crucial developmental phase. Contaminated water, air, food, and soil pose serious threats, leading to digestive issues and hindering proper growth and development. Many children still lack access to adequate nutrition[1]. A common digestive issue that often occurs is diarrhea. Diarrhea continues to be a prevalent infectious disease in Indonesia, with a prevalence rate in toddlers reaching 12.3%

and being the main cause of death in neonates at 7% and in infants aged 28 days at 6%[2]. It remains a primary cause of both child mortality and morbidity, predominantly attributed to suboptimal water, sanitation, and hygiene practices. Inadequate sanitation and hygiene correlate with elevated rates of stunting and malnutrition in children[3]. With a prevailing rate exceeding 40% in children, stunting persistently represents a profound health challenge within the community population[4,5]. This indicates that the child has endured a prolonged period of insufficient dietary intake and/or has been frequently exposed to illness[6–8].

In the Sampang region, one of the regencies in East Java, the diarrhea prevalence (46.3%) was higher than in the whole East Java (44.8%)[9]. Mandangin Island, an isolated area in Sampang, has limited access to healthcare and education. This is compounded by the low community participation in nutrition improvement efforts with a significant portion of the population having only completed primary education[10,11]. The majority of the community holds the belief that monitoring a child's development is unnecessary after completing full immunization. Insufficient exclusive breastfeeding and the utilization of rainwater for daily needs, particularly during the rainy season, increase the risk of cleanliness-related infectious diseases in children, particularly gastrointestinal diseases[12].

Gastrointestinal diseases are predominantly preventable and treatable conditions[13]. Community empowerment plays a crucial role in both prevention and initial treatment. Therefore, this study aimed to evaluate community knowledge of gastrointestinal disorders, growth, and development in children.

MATERIALS AND METHODS

This study employed a cross-sectional design. 48 daily active people of Mandangin Island were included in this study utilising the total sampling method. After completing the pretest questionnaire independently, the participants then received a direct health education intervention on gastrointestinal disease, growth, and development in children. A pediatrician and a doctor conducted this face-to-face activity using a presentation medium that the community could easily understand. Following the presentation, a discussion session between participants and speakers ensued. During this discussion, the speakers and other attending pediatricians encouraged participants to pose questions or share experiences related to the presented material. Each participant also received a handbook about gastrointestinal disease, growth, and development in children. We then administered a posttest using the same protocol as the pretest.

This study used pre and post-test questionnaires with 10 questions and demographic data. Statistical tests were used to compare results with normality testing for a limited number of participants (<50) using the Shapiro-Wilk test and Paired T-test for Windows, $p > 0.05$ was considered normal distribution.; otherwise the Wilcoxon test would be applied. Sociodemographic data were presented using univariate analysis.

In addition to the community health education for the Mandangin Island, medical check-ups were carried out for children under the age of five who voluntarily visited the examination site. These check-ups involved gathering medical history, conducting physical examinations, taking anthropometric

measurements, and providing pediatric consultations. History taking covered current patient or family complaints, and demographic data such as age, gender, gestational age, birth weight, and birth length.

Anthropometric measurement included weight, length/height, head and upper arm circumference using standardized tools such as One-Med digital weighing scales and microtones for older children, One-Med baby scales and infantometers for infants, and General Care upper arm and head circumference tapes.

Anthropometric data was graphed using WHO z-score 2006 charts for weight-for-age, length/height-for-age, and weight-for-length/height; Nellhaus 1968 chart for head circumference; and Indonesian Ministry of Health classification for upper arm circumference[14,15]. Univariate analysis was used to present the characteristics data of children under 5 years on Mandangin Island for each variable. All statistical tests were performed using IBM Statistical Product and Service Solutions (SPSS) Software version 16.0 for Windows.

RESULTS

The study involved forty-eight female subjects who were dominated by housewives with a mean age of 28.73 ± 6.22 years old. The subject characteristics are described in Table 1. After the intervention using a handbook and audio-visual media, there was an increase in the mean posttest score (62.29±13.25) compared to the mean pretest score (46.04±21.71), with a significance value of 0.001 ($p<0.05$) (Figure 1).

Table 1. Subject Characteristics

Variables	N (n=48) or mean ± SD	Percentage (%)
Age	28.73 ± 6.22	
Occupation		
Housewife	43	89.59
Fisherman	1	2.08
Cadres	3	6.25
Teacher	1	2.08
Sex		
Female	48	100
Male	0	0
Educational Level		
Not-school	13	27.09
Elementary school	25	52.08
Junior high school	10	20.83

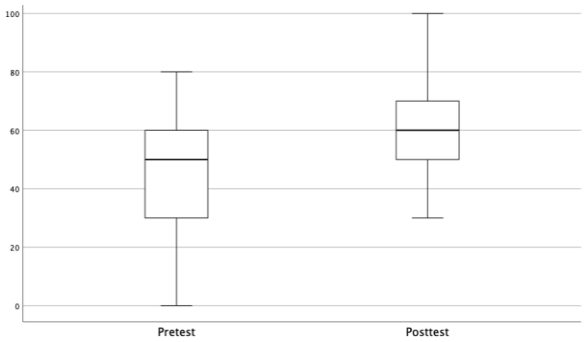

Figure 1. The result of the pretest and post-test

In this study, children under five years old were equally divided between boys and girls, with a mean age of 28±13.14 months. Most of them were born at full-term gestational age. The mean birth weight was 2949±517.67 grams, classified as normal birth weight. The mean height was 49±1.93 cm.

About 47.8% of the children under five years old were still categorized as stunted and severely stunted. Over 50% of the children in this study experienced underweight and severely underweight. Within this investigation, a notable proportion of children with both wasted and severely wasted conditions were identified, 27.2% of the total. Microcephaly is characterized by a small head

circumference, which was observed in 36.4% of cases when compared to the head size for their age. According to the measurement of upper arm circumference, 6.8% are still categorized as wasted and 22.7% of children under five years were not breastfed (Table 2).

Table 2. Characteristics of Children Under Five Years on Mandangin Island

Variables	N (n=44) or mean ± SD	Percentage (%)
Sex		
Male	22	50
Female	22	50
Age (in months)	28 ± 13.14	
Gestational age		
Preterm	4	9.1
Term	40	90.9
Birth weight		
Low birth weight	4	9.1
Normal	40	90.9
Birth length (in cm)	49 ± 1.93	
Length/height-for-age		
Tall	4	9.1
Normal	19	43.2
Stunted	12	27.3
Severely stunted	9	20.5
Weight-for-age		
Normal	16	36.4
Underweight	20	45.5
Severely underweight	8	18.2
Weight-for-length/height		
Normal	32	72.7
Wasted	10	22.7
Severely wasted	2	4.5
Head circumference-for-age		
Normal	28	63.6
Microcephaly	16	36.4
Upper arm circumference-for-age		
Normal	41	93.2
Wasted	3	6.8
Exclusive breastfeeding		
Yes	34	77.3
No	10	22.7

DISCUSSION

Indonesia experiences a significant prevalence of gastrointestinal illnesses, primarily caused by infections, particularly among children. This encompasses a diverse range of illnesses with different causes and mechanisms. Gastrointestinal disorders in children have the potential risk of growth failure[16], such as in the case of diarrhea.

Diarrhea in children under 5 years in various developing countries is caused by several factors, including poor sanitation, inadequate drinking water sources, improper water storage, lack of handwashing with soap, unsafe fecal disposal practices, low maternal or caregiver education levels, and non-exclusive breastfeeding[16-21].

This study found that almost all women living on Mandangin Island worked as housewives, and they had their last educational level in elementary school. The majority of the Mandangin Island community faces significant economic challenges, including low per capita income. Most residents earn below the regional minimum wage in Indonesia and have limited access to healthcare facilities due to the lack of infrastructure and poor transportation resulting from the geographic isolation of Mandangin Island from the mainland of Madura Island. As a result, children in this area are vulnerable to various diseases[22].

After the health education intervention and focus group discussion about gastrointestinal disorders and the growth and development of children, there was an improvement in the knowledge of the Mandangin Island community, as evidenced by the increased post-test scores. The findings of this research similarly with

a study from Gustini et al, there was an increasing knowledge after educational intervention about PHBS as diarrhea prevention[23]. This may be due to the educational intervention by enhancing self efficacy, modifying beliefs and perceptions[24].

According to the previous study, there was a lack of comprehension and awareness among parents and caregivers regarding inadequate care for gastrointestinal diseases and their impact on children's growth and development[22]. Prioritizing health education is essential to addressing this problem, particularly in remote and isolated areas with limited access to healthcare and educational resources[25]. Health education is critical for improving the public's understanding of health issues. Enhancing health education can decrease the incidence of illness, disability, and mortality, as well as aid in the prevention and early detection of diseases[26-29]. Additionally, improving public trust in healthcare providers can contribute to the efficient running of health services[25-27]. This study was the initial investigation intended for enhancing knowledge regarding gastrointestinal disorders and growth development of children in Mandangin; nonetheless, the low sample size needs a bigger cohort to substantiate these findings.

CONCLUSION

Health education through audio-media visuals, a handbook, and direct presentation increased the community's knowledge of gastrointestinal disease, growth, and development in children.

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CONFLICT OF INTEREST

There is no conflict of interest.

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AUTHOR CONTRIBUTION

All authors have been involved in all stages of this research, encompassing preparation, data collection and analysis, drafting, and approval for the publication of this manuscript.

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