

The Role of E-Module Application Media as Health Literacy to Increase Knowledge of Cadres in the Prevention and Management of Diarrhea in Children

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ABSTRACT

Introduction: Diarrhea is still a major global problem and the biggest cause of death in children under five in Indonesia. Cadres have an important role in improving the level of children's health so it is necessary to increase knowledge about the prevention and handling of diarrhea in children. E-module application media is one of the health literacy options that can provide experience accessing the process.

Objectives: to analyze the effect of e-module application media in the prevention and treatment of diarrhea in children

Methods: Pre-experiment with one group without control pretest and post-test design was used. The population in this study was 30 posyandu cadres in Punggolaka Village using total sampling. The instrument used e-module application media to provide education on the prevention and management of diarrhea in children and questionnaires to measure cadre knowledge.

Results: The results showed that there was an increase after the post-test with a mean value of 63.00 before intervention and 85.3 after intervention, while the paired t-test showed a significant effect with a p-value of 0.000 (<0.005).

Conclusions: There is a significant effect of education through the e-module application media on the knowledge of posyandu cadres in Punggolaka Village

Introduction

Diarrhea is one of the infectious diseases of the gastrointestinal tract that is a health problem in the world including Indonesia. Diarrhea is a health condition in which the consistency of the stool is more liquid than usual and the frequency of defecation increases. (Islaeli, Ari Nofitasari, 2018). Diarrhea can be caused by bacteria, viruses, and protozoa with a fecal-oral transmission process, but it can also be due to allergies, absorption mechanism problems, drugs, and psychological problems. (Rendang Indriyani & Putra, 2020). Diarrhea can be a dangerous condition if not treated properly, as it can lead to dehydration, and in cases of prolonged diarrhea it can lead to malnutrition and even stunting due to recurrent diarrhea (Kemenkes RI, 2023; Kementerian Kesehatan Republik Indonesia, 2022). Diarrhea that lasts less than 14 days is called acute diarrhea which can cause dehydration and contribute to malnutrition, while diarrhea that lasts 14 days or more is called persistent diarrhea, which often causes chronic nutritional problems that contribute to chronic malnutrition (Wangge & Oka, 2019). Diarrhea in toddlers not only disrupts the daily activities and comfort of toddlers, but can also cause dehydration, weight loss, and if not treated properly can disrupt the growth of the child.

According to World Health Organization and United Nation Children Fund, there are about 2 billion cases of diarrhea, and 1.9 million children <5 die from diarrhea worldwide each year



(Kemenkes RI, 2023). Diarrhea is an endemic disease that has the potential to cause extraordinary events and is still a contributor to the mortality rate among children under five in Indonesia. (Kementrian Kesehatan, 2023). In Indonesia, the highest mortality rate among children under five (12-59 months) was 10.3% (Kemenkes RI, 2022), and by 2023 decreased to 1.1% (Kementrian Kesehatan, 2023). Despite the significant decline, it is still a public health challenge, disproportionately affecting vulnerable populations such as children under five due to hygiene, sanitation, knowledge, and care resources, so WHO emphasizes increased training of health workers especially at the community level on the need for complex understanding and appropriate interventions for the prevention and management of diarrhea.

Despite the significant decline, it is still a public health challenge, disproportionately affecting vulnerable populations such as children under five due to hygiene, sanitation, knowledge, and care resources, so WHO emphasizes increased training of health workers especially at the community level on the need for complex understanding and appropriate interventions for the prevention and management of diarrhea (WHO, 2024).

The incidence of diarrhea in Southeast Sulawesi, especially in Kendari City in 2021, was 2,299 cases of diarrhea and one of the largest areas was Puuwatu sub-district with 669 cases of diarrhea (BPS-Statistics Indonesia Kota Kendari, 2023). Kelurahan Punggolaka has one of the highest population densities in Puuwatu sub-district. Diarrheal disease is possible with population density because transmission and proliferation of bacteria are easier (Margarethy et al., 2020). In addition, knowledge about diarrhea is very important, especially posyandu cadres who have a role in improving health levels in the family and the wider community. However, there are still posyandu cadres who do not understand the prevention and treatment of diarrhea and consider it trivial because it will heal by itself, besides that diarrhea is not considered a problem so it does not require health services, this is due to the lack of a comprehensive source of information about the prevention and treatment of diarrhea that can be accessed easily and whenever needed. Cadres play an important role in the health of children under five, especially in preventing diarrhea that can interfere with children's growth and development. Cadres should understand the prevention and management of diarrhea in children under five so that they can disseminate and provide education to mothers of children under five, but in reality cadres in Punggolaka village still lack understanding about diarrheal disease so that home visits to provide education to mothers of children under five in their working area are less than optimal. The lack of knowledge of cadres about the prevention and handling of diarrhea is one of the causes of the increasing incidence of diarrhea (Septiana Dewi, Apriani Susmia Sari, 2023).

In addition, knowledge about diarrhea is very important, especially posyandu cadres who have a role in improving health levels in the family and the wider community. However, there are still posyandu cadres who do not understand the prevention and treatment of diarrhea and consider it trivial because it will heal by itself, besides that diarrhea is not considered a problem so it does not require health services, this is due to the lack of a comprehensive source of information about the prevention and treatment of diarrhea that can be accessed easily and whenever needed. Cadres play an important role in the health of children under five, especially in preventing diarrhea that can interfere with children's growth and development. Cadres should understand the prevention and management of diarrhea in children under five so that they can disseminate and provide education to mothers of children under five, but in reality cadres in Punggolaka village still lack understanding about diarrheal disease so that home visits to provide education to mothers of children under five in their working area are less than optimal. The lack of knowledge of cadres about the prevention and handling of diarrhea is one of the causes of the increasing incidence of diarrhea (Septiana Dewi, Apriani Susmia Sari, 2023). Communication technology where applying the competencies of the process of accessing, understanding,



assessing, and applying information (Parnell, 2018), This module application media will make it easier for cadres to access information about diarrhea prevention and treatment. Cadres are an extension of health workers and part of the community who should know the conditions of their work area. For this reason, it is necessary to provide education through module applications as one of the improvements in health literacy that can be accessed and applied easily which can be done independently by posyandu cadres. The purpose of this study was to analyze the role of e-module applications in increasing cadres' knowledge about the prevention and treatment of diarrhea in toddlers.

Methods

This research was conducted in August-September 2024 in Punggolaka Village. This research design uses pre-experiment with one group without control pretest and post-test design. The population in this study were posyandu cadres in Punggolaka Village consisting of six posyandu, each of which had five members so the total number of cadres in this village was 30 people and the sample in this study using total sampling. The instrument used module application media to provide education on the prevention and handling of diarrhea children and questionnaires to measure cadre knowledge. Based on the results of the Shapiro Wilk data normality test $0.348 > 0.005$ indicates that the data is normally distributed so the statistical test used is the paired t-test to determine the effect of education through the module application media with knowledge of posyandu cadres in Punggolaka Village.

Results

The results of research conducted in Punggolaka Village on posyandu cadres with a total of 30 respondents can be seen in the following table:

Table 1. Distribution of Respondent Characteristics

Characteristics	n	%
Age (Years)		
25 - 35	10	33
36 - 45	15	50
46 - 55	5	17
Education		
Junior High	4	13
High School	20	67
Bachelor's Degree	6	20
Occupation		
Housewife	23	77
Honoror / Teacher	7	23
Total	30	100

Source Primary data 2024



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Based on table 1 shows the most cadres at the age of 36-45 years, namely 15 (50%), with the most education at the high school level as many as 20 respondents (67%), and the majority of housewives' work, namely 23 (77%) respondents.

Table 2. Knowledge distribution of cadres before and after intervention intervention

Knowledge	Good		Less		Total	
	n	%	n	%	n	%
Pre-test	15	50	15	50	30	100
Post-test	28	93,3	2	6,7	30	100

Based on table 2, the pretest results of 30 respondents showed good and poor knowledge of 15 (50%) respondents each and after treatment the posttest results showed good knowledge of 28 (93.3%) respondents and there were 2 (6.7%) respondents with poor knowledge.

Table 3. Effect of E-Module Education Intervention on Cadres' Knowledge in preventing and managing diarrhea in children

	Mean	SD	t	p
Pre-test	63.00	18.128		
Post-test	85.33	14.794		
Pretest-posttest	-22.333	5.371	-22.774	0.000

Based on table 3 shows that of 30 cadres with a mean value of before treatment obtained 63.00 and after treatment obtained 85.33, this indicates an increase in knowledge after educational intervention through the e-module application media in increasing the knowledge of cadres in the prevention and handling of diarrhea children.

In this analysis based on the data distribution test using Shapiro-Wilk, it was found that the test result was 0.034 > from 0.005, which means that the data is normally distributed so it is continued with the paired t-test parametric test. Table 3 shows the results of the paired t-test, namely -22.774 (SD) with a p-value of 0.000 (<0.05) which shows that there is an effect of e-module application media on cadre knowledge in the prevention and handling of diarrhea children...

Discussion

The characteristics of respondents based on the most age are from 36-45 years old (50%) and the majority of education at the secondary level (67%). Based on the results of the study of 30 respondents, there was an increase in knowledge before being given an intervention with good knowledge as many as 50% of respondents and after the intervention increased by 93.3% of respondents, knowledge is everything that is obtained through information and daily experience (Awaliah et al., 2023). The use of application education media is one of the health literacy options that emphasizes the role of information and technology and communication where applying the competencies of the process of accessing, understanding, assessing, and applying. One option for health literacy is the use of e-module applications as educational media, this process



emphasizes the role of information, technology, and communication in applying a person's ability to access the process (Parnell, 2018).

Likewise, the mean value where the average knowledge before the intervention was 63.00, and after the intervention there was an increase in knowledge with an average value of 85.33. This can increase significantly after cadres are given education through the e-module application with simple examples of everyday life at home so that cadres understand more easily. Cadres understand more about causal factors that are less aware of home behavior that does not pay attention to cleanliness in preparing and feeding children, and transmission routes through fecal-oral with 5F (Faces, Flies, Food, Fluid, and Fingers) and immediate treatment that must be given to children with diarrhea to avoid dehydration. This is in line with the results of previous studies that there is a significant difference between before and after education about the prevention and treatment of diarrhea with the role-play method in school-age children (Israeli, Ari Nofitasari, 2018). This is possibly supported by the education of the majority of high school cadres and the age of cadres still in the range of 25 to 45 years so that the focus on receiving material during education is still very optimal. In addition to the potential and understanding of cadres an important role in improving children's health status with e-module application media that is easy to use at any time and material that is easy to understand cadres are proven to have increased knowledge about the prevention and handling of diarrhea so that with this hope it is also easy to independently manage diarrhea disease in toddlers in each cadre work area. Poor knowledge about diarrhea is one of the factors that can contribute to a large number of diarrhea cases (Ari Tjahyadi Rafiuddin, 2020). This is supported by the results of the study with a p-value of 0.000 which shows that there is a relationship between knowledge and the incidence of diarrhea, thus emphasizing the application of a healthy lifestyle (Yulia Rahmani et al., 2022). By increasing knowledge about the prevention and treatment of diarrhea in cadres, it is hoped that they can apply it to the wider community create healthy living behaviors and ultimately reduce the incidence of diarrhea in children.

Children's health determines the quality of children in the future because children's success will depend on how children pass through the early stages of life, namely infancy, toddlerhood, preschool, school, and adolescence (Israeli et al., 2020). For this reason, it is important to maintain the level of child health. Diarrheal diseases continue to pose a significant threat to the well-being of children under five, emphasizing the need for comprehensive understanding and targeted interventions (Azanaw et al., 2024; Fagbamigbe et al., 2021). In principle, diarrhea can be prevented by improving personal hygiene and the environment (Ariyanto, 2018), this will certainly be easy with good knowledge about the prevention and handling of diarrhea. Early diarrhea prevention is one of the roles of cadres. (Suryati, 2013), This means that good knowledge applied by cadres and disseminated to the community so that together the prevention and handling of diarrhea at home appropriately, will help reduce morbidity and mortality rates of children under five due to diarrhea.

Conclusion

The results of this study can conclude that there is an effect of education through the e-module application media on increasing the knowledge of Punggolaka village cadres in the prevention and handling of diarrhea children. This education provides an understanding to cadres starting with how to prevent and handle diarrhea in children. By providing this education, it is hoped that a healthy lifestyle can be created and disseminated continuously to improve children's welfare.



Ethics Approval and consent to participate

This process has received ethical approval issued by the Health Research Ethics Committee of the Bani Saleh College of Health Sciences with the number No: EC.0493/KEPK/STKBS/VII/2024.

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