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Effect on Video Conference's Education in Mandangin's Community Health Center's Healthcare Knowledge about Acute Diarrhea in Children

Alpha Fardah Athiyyah*, Andy Darma, Dwiyanti Puspitasari, Khadijah Rizky Sumitro, Ni Nyoman Metriani Nesa, Steven Christian Susianto, Muhammad Faizi, Reza Gunadi Ranuh, Subijanto Marto Sudarmo

Department of Child Health Faculty of Medicine, Universitas Airlangga/ Dr. Soetomo General Academic Hospital, Surabaya, East Java, Indonesia

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CORRESPONDING AUTHOR*
Alpha Fardah Athiyyah
alpha-f-a@fk.unair.ac.id
Department of Child Health Faculty of Medicine, Universitas Airlangga/ Dr. Soetomo General Academic Hospital

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ABSTRACT

Introduction: The involvement and ability of health workers in Mandangin Island in early managing acute diarrhea in children to reduce infant mortality due to diarrhea is very important. This study aimed to determine the effect of community development Faculty of Medicine Universitas Airlangga - Dr. Soetomo General Academic Hospital Surabaya in a seminar on Early Management of Acute Diarrhea in Children using video conference to educate healthcare workers (HCWs) at the Mandangin Community Health Center.

Material and Methods: This cross-sectional study was designed on 20 HCWs at the Mandangin community health centre. Subjects were evaluated for demographic data (gender, age, occupation, last education), and the knowledge was assessed using a pre-test before the seminar was given. We used a questionnaire about acute diarrhea containing ten questions with a maximum score of 100. The seminar was given through video conferences with form classical lecturer and a case study on acute diarrhea, and subjects attended the seminar in Community Health Center's Hall. We assessed knowledge after the seminar using the same questionnaire with randomization in question and answer and compared the pre-and post-test using the Wilcoxon Rank sum test.

Results: Most of the subjects were midwifery, with a mean age of 32.4 ± 5.75 years old, 45% with D-3 last education and 80% were female. There was a significant difference between pre-and post-test in acute diarrhea in children (47.89±20.7 vs 64.74±22.94) (p=0.008).

Conclusion: Video conference education effectively increased healthcare workers' knowledge about acute diarrhea in children in the Mandangin community health centre.

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INTRODUCTION

Diarrhea is defined by an increase in defecation frequency as well as a change in consistency for more than or equal to three times within 24 hours. Despite being monitored annually, the number of child deaths caused by diarrhea is still high [1,2]. In 2014, the mortality rate of children under five years old in Sampang District reached the number of 244 people, becoming one of the most common causalities of under-five mortality in Sampang. The exact number of diarrhea cases on Mandangin island is still unknown; however, the rate is considered high considering Mandangin's island condition [3].

Mandangin is an isolated island from Sampang with economic, educational, and social problems that make children vulnerable to diarrhea and at risk of being referred late when experiencing a severe diarrhea

complication due to limitations [4]. Therefore, proper and early management of acute diarrhea in children is important for healthcare workers to understand in primary health facilities.

The limited facilities and infrastructure at Mandangin Community Health Center, accompanied by the patient-health care worker ratio, affect the management of acute diarrhea in children. There needs to be more logistics and transportation, resulting in medical management being carried out based on available time and capabilities to expense as standard protocols will be challenging to fulfil [5,6]. Department of Child Health Faculty of Medicine Universitas Airlangga – Dr. Soetomo General Academic Hospital conducted community development in the seminar on acute diarrhea management in Children in collaboration with Mandangin's community health centre as the main provider of health services in Mandangin. This study aimed to determine the knowledge of Mandangin's health care workers (HCWs) after a community development seminar in acute diarrhea management in children.

MATERIAL AND METHODS

We conducted a cross-sectional study on Mandangin Island, Sampang 17th February 2022. Department of Child Health Faculty of Medicine Universitas Airlangga- Dr. Soetomo General Academic Hospital conducted community development in 20 Mandangin's Community Health Care HCWs. The subjects were gathered data for their occupation (doctor, midwifery, nurse, dentist), age, gender (male and female), and last education before the pre-test. All subjects were assessed for their knowledge using a Pre-test questionnaire about acute diarrhea in children before the presentation started.

The questionnaire was made based on material from the presentation, definition, epidemiology, diarrhea's sign and symptom, degree of dehydration, 5-basic step of managing diarrhea, intravenous and oral therapy for rehydration, step-by-step on how to refer dehydrated patients with complications to higher health facility, and case study. The questionnaire consisted of 10 questions, with a minimum score of 0 and a maximum score of 100. All participants were working on questionnaires at the Puskesmas's hall without being allowed to share the answer. The presenter provides material on acute diarrhea in children to healthcare workers via video conference Zoom for about 30 minutes and presents some case studies in acute diarrhea management for about 30 minutes. Subjects were allowed to discuss with the presenter for the difficult case in Mandangin's Island. After the seminar, the subjects were re-examined for their knowledge using the same pre-test questionnaire with randomization in question and answer. We compared pre and post-test questionnaires using the Wilcoxon sum rank test using SPSS 20.00 for Windows (IBM Corp., New Jersey, United States of America), and characteristics data were described in the Table 1.

RESULTS

There were 20 healthcare workers included in this study, most of whom were Midwifery and Nurses. Other characteristics were described in Table 1.

Table 1. Subject Characteristics

Variable (n=20)	Frequency (Percentage (%))
Occupation	
Midwifery	11 (55)
Nurses	8 (40)
Medical Doctor	1 (5)
Gender	
Male	4 (20)
Female	16 (80)
Last education	
S-1	8 (40)
D-4	3 (15)
D-3	9 (45)
Age (mean ± standard deviation)	32.4 ± 5.75

There was a significant difference between the pre- and post-test of childhood acute diarrhea management (47.89±20.7 vs 64.74±22.94) (Fig. 1).

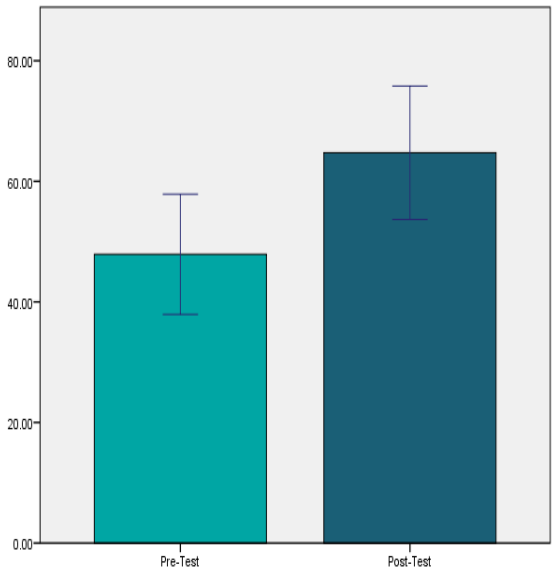


Fig. 1. Pre and Post-Test Results in Acute Diarrhea in Children

DISCUSSION

The concept of community development that we conducted is based on increasing the degree of public health through education to healthcare workers. A good education will be effective if HCWs are able to increase public knowledge, encourage and enable the community to have the right health behaviour [7]. The classical lecture method has often been used as an effective method to teach theoretical knowledge to a large number of respondents simultaneously. Lecture methods activities could also be done quickly by distributing modules to the subjects [8,9].

The type of work of HCWs and their level of education also affect educational interventions for healthcare workers. Learner satisfaction, self-assessed health and attitude have become quite influential outcomes since education was provided for health workers In various types of occupations, the medical education acceptance by HCWs also has a higher rate of change in behaviour and knowledge, particularly in nurses and midwives with a higher level of education (Master's or Doctoral) [10,11]. Early recognition from parents and comprehensive management of HCWs based on the five pillars of diarrhea therapy strongly influences acute diarrhoea in children. Administration of fluid therapy in doses and timing to correct dehydration is very important before further referral to a health facility [12,13].

Black *et al.* stated that diarrhea mortality in children under five has declined by approximately 80% because of oral rehydration solution (ORS). ORS has been disseminated nationally, improving access to health facilities and implementing programs to provide community-based treatment of diarrhea [14]. ORS, intravenous fluids, and intravenous lines have been routinely distributed to health facilities in Indonesia, especially to isolated health facilities and contributing to HCWs could receive a better education. The presenter is only required re-review the education material, including intraosseous fluid therapy [15].

Based on post-test result, we found that there was a significant increase in the knowledge of HCWs. Recently, the provision of health education in many ways, both face-to-face seminars with the community and video conferences, such as zoom. The beneficial use of video conferences is that education can be carried out in a more flexible time, the appearance of education could vary with the media used, and bring speakers from all regions, both in Indonesia and abroad. Providing education through video media in the learning process can increase the motivation and learning outcomes of HCWs because video has the ability to explain complicated or complex through audio-visual stimuli, which can bear good results and facilitate the presenter to convey or present enticing information [16,17].

However, video conferencing requires more complex preparation in its implementation. Compliance with this makes the subject can receive the education properly. The presentation will be much better if there is convenience and continuity in the video and audio and a comfortable environment. While the material is interrupted, it will interfere with the subject's acceptance of knowledge [18]. During the video conference, the presenter and Mandangin's hall speaker had no discontinuance of the presentation.

The presentation's video was displayed using a camera with a resolution of 1440p and an appealing appearance of the presenter using virtual backgrounds resulting HCWs can stay focused on the presenter. The audio system is mainly influenced by the presenter's microphone, used either directly through a laptop or an additional microphone that must be heard clearly. Participants can also listen through clear speakers. This system must be supported with a fair internet connection from wi-fi and internet tethering from the daily provider, with the usual video conference application that HCWs use. The utilization of zoom® as a video conference was based on an application routinely used by Mandangin's community health care HCWs, mainly by the head of Puskesmas and medical doctors, that HCWs were easier to use [19,20].

The limitation of this study was that the HCWs' knowledge was assessed after the presentation. At the same time, the post-test was held 10 minutes after the presentation was done HCWs still remembered the presentation. This research did not know whether the knowledge is still valuable for the future or requires additional presentation follow-up.

CONCLUSION

Video conference education effectively increased Health care Workers' knowledge of acute diarrhea in children in Mandangin community health centre. However, using video conferencing in education requires high-quality video, audio, internet and environment. Thus, this education should be carried out in other isolated islands to decrease the infant mortality rate due to diarrhea.

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CONFLICT OF INTEREST

The authors declare there is no potential conflict of interest.

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