

EFFECTIVENESS OF VIDEO CONFERENCING EDUCATION IN CHILDHOOD FUNCTIONAL GASTROINTESTINAL DISORDERS KNOWLEDGE IN LIMITED RESOURCE HEALTH CARE WORKERS

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

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

ABSTRACT

Childhood Functional Gastrointestinal Disorder (FGID) knowledge is important for healthcare workers (HCWs), particularly in isolated islands, such as Mandangin island, Sampang, Indonesia. Video conferencing technology has been globally used as medical education media to educate among HCWs. This study examined the effectiveness of video conferencing technology about Childhood FGID in limited resources HCWs. This cross-sectional study was conducted among 20 HCWs from Mandangin's community health center along with community medicine by the Department of Child Health, Faculty of Medicine, Universitas Airlangga - Dr. Soetomo General Academic Hospital. The subject was assessed for general characteristics and FGID pre-test to examine HCWs' knowledge before the seminar through video conferencing. FGID pre-test was consisted of seven questions and randomized for FGID post-test after the seminar and the question-answer part was done. The pre-and post-test was compared using the Wilcoxon rank sum test using SPSS version 20.0. Among 20 subjects, 80% were female, and 45% had the last education of Diploma Degree (D-3). There was a significant difference between pre-and post-test among subjects ($p < 0,05$), of which 16 (80%) subjects had an increase in post-test compared to the pre-test result. Health education using videoconferencing technology effectively increased knowledge about childhood FGID in limited resources healthcare workers and expected to be a sustainable program in the community health center.

How to cite:

Puspitasari, D., Ranuh, GR., Athiyah, FA., Darma, A., Sumitro, RK., Nesa, MNN., Susianto, CS., Faizi, M., Sudarmo, MS. 2023. Effectiveness of Video Conferencing Education in Childhood Functional Gastrointestinal Disorders Knowledge in Limited Resource Health Care Workers. Journal of Community Medicine and Public Health Research, 4(1): 9-13.



Open access under Creative Commons Attribution-ShareAlike 4.0 International License (CC-BY-SA)

ARTICLE HISTORY

Received: October, 26, 2022
Revision: January, 04, 2023
Accepted: February, 01, 2023
Online: June, 12, 2023

doi:
10.20473/jcmphr.v4i1.40163

KEYWORDS

Video Conference, Functional Gastrointestinal Disorders, Child Health

Corresponding author

Reza Gunadi Ranuh

✉ Rezagunadi@gmail.com

Department of Child Health,
Faculty of Medicine,
Universitas Airlangga,
Surabaya, Indonesia

INTRODUCTION

Among the problems faced by healthcare workers (HCWs) in the field is Childhood Functional gastrointestinal disorders (FGID) that have been prevalent among children under five years. These disorders have impact to their parents' emotional and economic condition. These are the combination of chronic and recurrent symptoms that cannot be attributed to another medical condition after appropriate medical evaluation¹. It has evolved during this last decade in diagnosing and treating FGID. Several changes in terms and flowchart has been done to improve FGID's treatment. Different types of FGID could be coexisted in the same patient or with other comorbidities and medical disorders^{2,3}. Proper treatment and early recognition from healthcare workers may provide a good prognosis for children with FGID. Mandangin is an isolated island in East Java located approximately 17 km from Sampang District. The island can be reached using a boat from Tanglok pier. There is only one medical facility on Mandangin island which serves more than 20.000 people with an average of 40-60 patient visits per day⁴.

Regarding the remote location of Mandangin and the limitation of health care workers (HCWs) with limited supporting examinations and therapy, healthcare workers in Mandangin island must acquire sufficient knowledge and skills regarding childhood FGID. The delivery of knowledge and education in the form of seminars is recently been widely assisted by video conferencing technology⁵. Department of Child Health, Faculty of Medicine, Universitas Airlangga - Dr. Soetomo General Academic Hospital, Surabaya, Indonesia had carried out community service to Mandangin

community health center's HCWs through video conferencing by presenting a seminar on childhood FGID to increase their knowledge. This study examined the effect of video conferencing in educating HCWs about childhood FGID in Mandangin Island.

MATERIALS AND METHODS

A cross-sectional study in Mandangin community health center HCWs was conducted along with community medicine from the Department of Child Health, Faculty of Medicine, Universitas Airlangga - Dr. Soetomo General Academic Hospital, Surabaya, Indonesia. Twenty HCWs from Mandangin community health center, medical doctors, midwifery, and nurse were invited as our subjects for this research. The subjects were examined for their general characteristics from age, occupation, gender, and last education. Before the seminar was given, the subject's knowledge was assessed. A pre and post-test research questionnaire was developed, consisting of seven questions about childhood functional gastrointestinal disorders. The subjects were given 10 minutes to finish the pre-test and there was distance between subjects to prevent teamwork. The seminar was given by a pediatrician through Zoom® video conference for 30 minutes, followed by case discussion and question and answer with the presenter. The subjects attended the seminar in the hall of Mandangin's community health center, and the seminar was displayed via LCD screen. Immediately after the seminar was completed, the subjects took a post-test with the same question design as the pre-test. The pre-and post-test results were compared for assessing the subjects'

knowledge after community medicine using the Wilcoxon sum rank test using SPSS 20.00 for Windows (IBM Corp, New Jersey, United States of America) and the increase of the post-test scores were examined. Ethical approval was not applicable to this paper.

RESULTS

The community medicine was attended by 20 healthcare workers included in this study. Among them 80% were female and 45% had of Diploma Degree (D-3) in health education (nursing and midwifery). There was a significant difference between pre-and post-test among subjects ($p < 0.05$) (Table 1). Sixteen (80%) of them had an increase in post-test compared to the pre-test, while three (15%) of them showed no increase in post-test.

Table 1. Pre- and Post-test of Subjects

	N	Mean \pm SD	p-value
Pre-test	20	35.7 \pm 21,4	p=0.0001
Post-test	20	70.6 \pm 28	

DISCUSSION

This study showed that community education through video conferences increased HCWs' knowledge about Childhood FGID. The findings aligned with a previous systematic review indicating that video conferencing and in-person education had equivalent effects, while one study revealed a greater knowledge increase among medical staff using video conferencing compared to face-to-face methods.⁶ Knowledge theoretically constructs health-specific information contributing to people's attitudes and behavioral responses. Knowledge can be acquired from external resources such as health education⁷. Health education is very

valuable in increasing global health, which can be done in some way as an offline seminar, mass or electronic media such as magazines, newspapers, or online video conferencing⁸.

Utilization of video conferencing technology has begun and has been widely used since the beginning of the COVID-19 pandemic to commit physical distancing⁹. Video conferencing provides the opportunity for two or more people in different locations to interact audio and visually even at great distances¹⁰. The seminar would be delivered through webcasting mediated by the internet and the content source can be delivered live or recorded, heard and seen by the subject directly. The importance of video conferencing in providing education is determined by the application, the internet's speed, the type of speaker used in the hall, and the screen displayed^{11,12}. Zoom® is a video-conferencing application that has been downloaded and used by HCWs in Indonesia, even in teaching hospitals, universities, and some education seminars provided by any medical organization^{13,14}.

The acceptance and use of technology model is determined by performance expectancy, effort expectancy, social influence, facilitating condition, gender, age, experience, and voluntariness of use. Healthcare workers have a better acceptance of health education than the community, and HCWs are more often participating in continuing medical offline education¹⁵. Education for HCWs is also supported by a good social environment that allow mutual supports among the HCWs and is facilitated by education and medical instrument that helps them receive education¹⁶.

Limited resources on an isolated island did not limit acceptance because the media and instrument education that the authors' department has arranged has met the educational needs. The fulfillment of internet speed with minimal upload and download speed at 10 megabytes per second, the capacity of the room, and audiovisual quality have met the minimum standard education for healthcare workers' increasing the effectiveness of video conferencing technology usage¹⁷.

CONCLUSION

Video conferencing education in childhood Functional Gastrointestinal Disorder (FGID) effectively increased knowledge among healthcare workers (HCWs) with minimal resources, in this case the HCWs in Mandangin Island, Sampang, Indonesia. This type of education is expected to become a routine and sustainable program conducted from several months to years, resulting in the increase of knowledge among the HCWs in the isolated islands.

ACKNOWLEDGMENT

The author thanks the all participant who contributed to this paper

CONFLICT OF INTEREST

All Authors have no conflict of interest

FUNDING

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

AUTHOR CONTRIBUTION

All authors have contributed to all processes in this research, including preparation, data gathering, analysis, drafting, and approval for publication of this manuscript.

REFERENCES

1. McOmber, MA & Shulman, RJ. 2010. Pediatric Functional Gastrointestinal Disorder. *Nutr Clin Pract.* 23 (3):268.
2. Hyams, JS, Lorenzom CD, Saps M, Shulman, Staiano, A, Tilburg MV. 2020. Chidlhooood Functional Gastrointestinal Disorder: Child/ Adolescent. *Gastroenterology*, 130(5): 1527-537.
3. Zimmerman LA, Srinath AI, Goyal A, et al. 2013 The overlap of functional abdominal pain in pediatric Chron's disease. *Inflamm Bowel Disease.* 19(4)
4. Badan Pusat Statistik Kabupaten Sampang. 2022. Kecamatan Sampang Dalam Angka 2022.
5. Kamakari A & Drigas, A. 2010. Video Conferencing and Knowledge Management in In-Service Teacher Distance Lifelong Training and Development. *Tech-Education, CCIS* 73, 610-619.
6. Chipps J, Brysiewicz P, Mars M. 2012. A Systematic Review of the Effectiveness of Videoconference-Based Tele- Education for Medical and Nursing Education. *Worldviews on Evidence-Based Nursing*
7. Uribe FAR, Godinho RCdS, Machado MAS, et al. 2021. Health knowledge, health behaviors, attitudes during pandemic emergencies: A systematic review. *PLoS One.* 16 (9); e0256731.
8. Kruger JM & Chowers I. 2020. The ethical advantages of video conferencing in medical education.

- Medical Education online. 25(1):1787310
9. Chick RC, Clifton GT, Peace KM, et al. 2020. Using technology to maintain the education of residents during the COVID-19 pandemic. *Journal Surg Educ.* 77(4):729-732.
 10. Sa MJ, Ferreira, CM, Serpa S. 2019. Virtual and Face-to-Face Academic Conferences: Comparison and Potentials. *Journal of Educational and Social Research.* 9(2):35
 11. Rose S. 2020. Medical student education in the time of COVID-19. *JAMA.* 323 (21):2131-2
 12. Ferrel MN, Ryan JJ. The impact of COVID-19 on medical education. *Cureus.* 12(3):e7492
 13. Salim J, Tandy S, Arnindita JN, Wibisono JJ, Haryanto MR, Wibisono MG. 2022. Zoom Fatigue and its Risk Factors in online learning during the COVID-19 pandemic. *Medical journal of Indonesia.* 31(1)
 14. Erna N, Genisa RAA, Muslaini F, Suhartini T. 2022. The Effectiveness of Media Zoom Meetings as Online Learning during the COVID-19 pandemic. *ELT-Lectura studies and Perspective in English Language Articles.* 9(1).
 15. Chao C. 2019. Factors Determining the Behavioral Intention to Use Mobile Learning: An Application and Extension of the UTAUT Model. *Frontiers in Psychology.*
 16. Rimmer M, Elfaki N, Dunlop C, et al. 2022. Effectiveness of a web-based virtual journal club to promote medical education (Web-Ed): protocol of a multicentre pragmatic randomized trial. *BMJ Open,* 12 (6): e058610
 17. Wasfy NF, Abouzeid E, Nasser AA, Ahmed SA, Youssry I, Hegazy NN, Shehata MHK, Kamal D, Atwa H. 2021. A guide for evaluation of online learning in medical education: a qualitative reflective analysis. *BMC Medical Education,* 21(339).