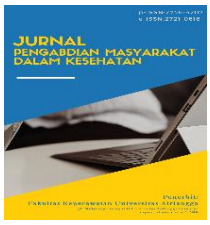

JURNAL PENGABDIAN MASYARAKAT DALAM KESEHATAN
Vol. 3 No. 2, October 2021

Laman Jurnal: https://e-journal.unair.ac.id/JPMK

ENHANCING COMMUNITY SERVICE ACTIVITIES ON EARLY DETECTION AND MANAGEMENT OF HEARING IMPAIRMENT IN THE ERA OF THE COVID-19 PANDEMIC

Puguh Setyo Nugroho, Nyilo Purnami, Rizka Fathoni Perdana, Rosa Falerina and Alfian Nurfaizi

Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia

ARTICLE HISTORY
Received: February 19, 2021
Accepted: June 05, 2021

CONTACT
Puguh Setyo Nugroho
puguh-s-n@fk.unair.ac.id
Faculty of Medicine,
Universitas Airlangga,
Surabaya, Indonesia

ABSTRACT

Introduction: The ears are one of the most important organs of sense, which allow humans to hear, receive information, communicate, interact, and socialize with others. The hearing impairment will hinder the life and socialization of human beings. Children who are born with hearing impairment will become deaf-mute; therefore, hearing impairment must be detected and managed early and thoroughly. The outbreak of COVID-19 has an impact on the early detection and management of hearing impairment. Socialization in the form of education on early detection and management of hearing impairment in the era of the COVID-19 pandemic to frontline medical personnel is needed. The educational activities aim to increase the medical personnel's knowledge to conduct early detection and management of hearing impairment in the COVID-19 pandemic.

Methods: The subject of this study is medical personnel from any various fields in Indonesia. Education method is carried out through online seminars by playing educational videos, public lectures, and Q&A. The results of pre-test and post-test were analyzed statistically with the t-test.

Results: The seminar with the online method was held with lectures and Q&A (Questions and Answers) attended by 1.484 participants of medical personnel. The average score of the pre-test was 55.05 (+ 15.61) and the average score of the post-test was 72.00 (+ 21.61). The comparison of both results with the t-test resulted in a significantly different result ($p < 0.05$).

Conclusion: The online methods in educational activities showed significant results in increasing medical personnel knowledge in the early detection and management of hearing impairment efforts in the community.

KEYWORDS

education; online; hearing; early detection; management of hearing disorders

Cite this as:

Nugroho, P. S., Purnami, N., Perdana, R. F., Falerina, R., & and Nurfaizi, A. (2021). Enhancing Community Service Activities on Early Detection and Management of Hearing Impairment in The Era Of The Covid-19 Pandemic. *J. Pengabdian Masyarakat dalam Kesehatan.* 3(2). 33-39. Doi: 10.20473/jpmk.v3i2.25545

1. INTRODUCTION

The COVID-19 pandemic has an impact on early detection and management of hearing impairment activities, and it increases the incidence of hearing impairment with changes in patterns of daily life hence education on early detection and management of hearing impairment is now needed to be conducted (Dawes, 2015; McKee, Moran and Zazove, 2020; Pattisapu et al., 2020; West, Franck and Welling, 2020)

Hearing impairment can be prevented if all parties play their roles in efforts to prevent and detect hearing impairment early. Education and socialization activities to prevent and detect hearing impairment early shall always be conducted, especially for frontline medical personnel of health

services (Alsoufi et al., 2020; Ferrel and Ryan, 2020; Kelly, Hwei and Octavius, 2020)

The educational activities were focused on the early detection and management of five major diseases. The five ear diseases that could affect hearing are congenital deafness (0.1%), impacted cerumen (27.41%), presbycusis (2.6%), chronic suppurative otitis media (CSOM) (3.1%), Noise-Induced Hearing Loss (NIHL) (31.55%) (Setyo Nugroho and Wiyadi, 2012; Alshuaib, Al-Kandari and Hasan, 2015; Nugroho et al., 2020; World Health Organization, 2020; Aldè et al., 2021; Raad et al., 2021)

To conduct the study activities for medical personnel to increase knowledge in implementing early detection and management of hearing impairment in pandemic era, the community service activities were held in the form of education for medical personnel. These activities were carried out using online methods. Whilst the online method was performed using a ZOOM platform.

2. MATERIAL AND METHODS

The subject of this study is medical personnel, they are doctors, midwives dan nurses from various fields in Indonesia, our research sample selection is doing by total sampling. The education method is carried out through online seminars by playing educational videos, public lectures, and Q&A by Zoom Meeting on October 5th, 2020 (Figure 1). The variable for assessing the health personnel knowledge on the management of hearing loss in the pandemic era was assessed by pre and post-tests in a knowledge level questionnaire. The results of the pre-test and post-test were analyzed statistically with the t-test.

3. RESULTS

The online education method was carried out in the form of a seminar with the theme of early detection and management of hearing impairment and 1.484 participants attended it with 363 doctors (24,46%), 697 midwives (46,96%), and 424 nurses (28,58%).

Figure 1. Online Seminars on Various Aspects that are related to Early Detection.

Table 1. Participants Attended the Online Education

Profesion	Participants	%
Doctors	363	24.46
Midwives	697	46.96
Nurses	424	28.58
Total	1.484	100

The participants were medical personnel from all over Indonesia (Tabel 1).

The activities were done using the online method in the form of educational videos, public lectures, and Q&A. The materials provided in the online seminar activities were the prevention of hearing impairment program during the pandemic at the Public Health Center, ear anatomy and hearing physiology, early detection, and management of hearing impairment in the pandemic era. The committees were responsible for handling hearing impairment and deafness; the midwives played a role in detecting hearing impairment; the nurses played a role in overcoming hearing impairment (Figure 2).

Figure 2. Online Seminar Activities on Early Detection and Management of Hearing Loss

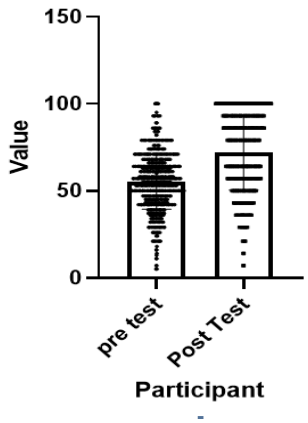

Figure 3. The Pre-Test and Post-Test Results of Online Seminar Participants

Before the online seminar was held, a pre-test and a post-test were performed. Test for medical personnel knowledge in the early detection and management of hearing impairment efforts in the community The average score of the pre-test was 55.05 (+ 15.61) while the average score of the post-test was 72.00 (+ 21.61). The comparison of both results with the t-test showed a significantly different result ($p < 0.05$) (Figure 3).

4. DISCUSSION

The ears as organs of hearing are one of the meaningful senses in a human's life for either communicating or socializing with each other. Hearing impairment can disrupt communication with an impact on social, school, and work environments. The prevalence of hearing impairment is increasing worldwide. The World Health Organization (WHO)

estimated that in 2018 there would have been 466 million people with a hearing impairment, which was 6.1% of the world's population. It is also estimated that the number could reach 630 million by 2030 and perhaps over 900 million in 2050 if prevention efforts are not taken (Setyo Nugroho and Wiyadi, 2012; Alshuaib, Al-Kandari and Hasan, 2015; Nugroho *et al.*, 2020; World Health Organization, 2020).

The conditions of the pandemic have caused those with hearing impairment mentioned above were hampered to seek treatment at health services for fear of being exposed to the coronavirus. That is why the community needs to be educated on when to seek treatment so that more severe complications do not occur. The frontline medical personnel of health services in the community need to understand the potential threat of the outbreak to hearing health and they should provide education to the community and prepare health service infrastructure in the era of the pandemic. They also should improve medical knowledge and skills periodically. Therefore, it is necessary to educate them on early detection and management of hearing impairment in the era of the pandemic (Bashiruddin *et al.*, 2020; Ferrel and Ryan, 2020; McKee, Moran and Zazove, 2020).

The conditions of the COVID-19 pandemic have caused early detection activities in hospitals and Integrated Health Post (Posyandu) to not run well on congenital deafness or hearing loss at birth can occur in high-risk The potential for hearing impairment in children is quite large; however, it is not detected earlier. The one that often occurs is impacted cerumen or excess ear oil with an incidence of 27.41%. It inhibits the entry of sound waves into the ear so that children become less hearing, lacks concentration, and confidence because they often do not hear when they are called out. Nevertheless, this can be overcome with regular cleaning by a general practitioner or Ear Nose Throat (ENT) specialist once every six months (Patel *et al.*, 2011; Hamam and Purnami, 2020; World Health Organization, 2020; Mohammed *et al.*, 2021).

Presbycusis or age-related hearing loss has an incidence of 2.6% of the world's population. Elderly sufferers with a complaint of difficulty catching conversations and getting mad at them when communicating. In the pandemic era they are neglected (Dawes, 2015; McKee, Moran and Zazove, 2020; West, Franck and Welling, 2020).

Coronavirus and the therapy can also complicate it in the form of sudden deafness and tinnitus due to the influence of the virus and drugs on the hearing nerves, which is why it must be treated immediately (Abdel Rhman and Abdel Wahid, 2020; Degen, Lenarz and Willenborg, 2020; Koumpa, Forde and Manjaly, 2020; Munro *et al.*, 2020; Afzali *et al.*, 2021; Chirakkal *et al.*, 2021; Saniasiaya, 2021; Skarzynska *et al.*, 2021).

In the outbreak of the COVID-19, which causes learning to be carried out online, there is a threat of hearing damage caused by the excessive use of earphones or headsets. The hearing impairment due to exposure to noise from the use of earphones or headsets is also known as Noise-Induced Hearing Loss (NIHL) (Alshuaib, Al-Kandari and Hasan, 2015; Neitzel and B. Fligor, 2017; Syah and Soedjajadi, 2017; Nugroho *et al.*, 2020).

The COVID-19 pandemic has a very broad impact not only on the medical sector but also in the education sector. It has obviously changed the patterns of education. Before the pandemic, the education process was carried out offline but now it has turned into a remote or online education system. Even so, it is not something most people do. The online educational process has become a transitional phase that takes place very quickly. In several countries, it has been going well and fast by using platforms such as ZOOM, Microsoft, and so on to support the educational process (Papapanou *et al.*, 2021).

Medical personnel have a responsibility to keep on developing themselves by following scientific

developments and to equip themselves with medical skills to support health service activities to provide the best public health services. The conditions of the outbreak of COVID-19 have made online seminars became an alternative means of increasing the medical personnel knowledge in health services, but they also have limitations in improving skills. The results statistically showed an increase in the medical personnel knowledge who had participated. Therefore, that means the online education method can be an alternative educational method along the outbreak of COVID-19(Ferrel and Ryan, 2020).

Education, especially for medical personnel, requires a very good process preparation and best performed using the offline method because it relates to increasing knowledge and practical skills that must comply with the standard operating procedure (SOP). Problem-based learning methods and simulations through instructional videos can also be used. In several countries, online education has been proven to be effective, while in some cases it is ineffective. It is necessary to conduct a study on the comparison of online and offline methods in educational activities of medical personnel. The study on these methods was then conducted in educational activities on early detection and management of hearing impairment in the era of the COVID-19 pandemic (Ferrel and Ryan, 2020; Papapanou *et al.*, 2021).

Online seminars can accommodate quite many participants and reach remote areas in Indonesia. It is necessary to develop educational tools; strengthen internet networks in remote areas of Indonesia; develop a delivery model in the form of interesting and interactive video tutorials of medical skills; and it is expected or hoped that there will be a model of continuing education that is managed with communication and consultation models with experts in their respective fields using available information technology to implement the knowledge gained in health services in the field (Ferrel and Ryan, 2020; Papapanou *et al.*, 2021).

The online seminar activities, which were held, received appreciation from the participants because they presented speakers from across professions such as doctors, midwives, and nurses. The early detection and management of hearing impairment from the views and standards of each profession were also discussed so it can provide benefits on how each profession can collaborate to improve hearing health in the community. They claimed that hearing impairment is one of the cases they often encounter. Knowledge about early detection and management of hearing impairment is critical for health services.Therefore, the online method can be an alternative educational method to increase knowledge in the pandemic era that limits social interactions widely and openly (Ferrel and Ryan, 2020; Papapanou *et al.*, 2021).

5. CONCLUSION

The online education method in efforts to increase knowledge of early detection and management of hearing impairment needs to be conducted to prevent an increase in hearing impairment, which can be prevented from an early age. Nevertheless, the offline method still provides better results in improving medical personnel skills. Furthermore, it is necessary to conduct the development of a learning model by making video tutorials on medical skills to increase the medical personnel capacities of knowledge and skills.

The implementation of community service is expected to provide new thoughts, methods, and skills, which it is necessary to conduct continuous training for medical personnel to have the ability to detect and manage hearing impairment in the community. The online method is an alternative method of education during the COVID-19 pandemic. Therefore, exchange information, consultations, and building a referral system for handling early detection and management of hearing impairment in the community can continue to run well. Continuous and sustainable involvement of medical personnel in the

implementation of knowledge in the community needs to be conducted by utilizing available information technology tools.

6. ACKNOWLEDGMENT

The community service team would like to thank the funding assistance from plan of activity cost sheet of the Faculty of Medicine, Universitas Airlangga for the 2020 Fiscal Year under the Decree of the Chancellor of Universitas Airlangga Regarding the Implementation of the Universitas Airlangga Community Service Program for 2020 No. 532/UN3/2020 of July 1, 2020. Moreover, the team would like to thank the leaders of the relevant institutions for their assistance in the success of community service activities that have been done.

7. REFERENCES

Abdel Rhman, S. and Abdel Wahid, A. (2020) 'COVID - 19 and sudden sensorineural hearing loss, a case report', Otolaryngology Case Reports. Elsevier Inc., 16, p. 100198. doi: 10.1016/j.xocr.2020.100198.

Afzali, M. et al. (2021) 'Review : Covid-19 and Tinnitus', 4(3), pp. 2020–2022.

Aldè, M. et al. (2021) 'Effects of COVID-19 Lockdown on Otitis Media With Effusion in Children: Future Therapeutic Implications', Otolaryngology - Head and Neck Surgery (United States). doi: 10.1177/0194599820987458.

Alshuaib, W. B., Al-Kandari, J. M. and Hasan, S. M. (2015) 'Classification of Hearing Loss', Update On Hearing Loss. doi: 10.5772/61835.

Alsoufi, A. et al. (2020) 'Impact of the COVID-19 pandemic on medical education: Medical students' knowledge, attitudes, and practices regarding electronic learning', PLoS ONE, 15(11 November), pp. 1–20. doi: 10.1371/journal.pone.0242905.

Bashiruddin, J. et al. (2020) 'PEMERIKSAAN PASIEN T.H.T.K.L SELAMA MASA PANDEMI COVID-19', in Bashiruddin, J. et al. (eds) BUKU PEDOMAN TATALAKSANA DI BIDANG T.H.T.K.L SELAMA PANDEMI COVID-19. Pertama. Jakarta: PERHATI-KL INDONESIA, p. 27.

Chirakkal, P. et al. (2021) 'COVID-19 and Tinnitus', Ear, Nose and Throat Journal, 100(2_suppl), pp. 160S-162S. doi: 10.1177/0145561320974849.

Dawes, P. (2015) 'Geriatric Audiology, second edition', International Journal of Audiology, 54(6), pp. 433–433. doi: 10.3109/14992027.2015.1004465.

Degen, C., Lenarz, T. and Willenborg, K. (2020) 'Acute Profound Sensorineural Hearing Loss After COVID-19 Pneumonia', Mayo Clinic Proceedings, 95(8), pp. 1801–1803. doi: 10.1016/j.mayocp.2020.05.034.

Ferrel, M. N. and Ryan, J. J. (2020) 'The Impact of COVID-19 on Medical Education', Cureus, 12(3), pp. 10–13. doi: 10.7759/cureus.7492.

Hamam, K. and Purnami, N. (2020) 'Newborns Hearing Screening With Otoacoustic Emissions and Auditory Brainstem Response', Journal of Community Medicine and Public Health Research, 1(1), p. 1. doi: 10.20473/jcmphr.v1i1.20287.

Kelly, K., Hwei, L. R. Y. and Octavius, G. S. (2020) 'Coronavirus outbreaks including COVID-19 and impacts on medical education: a systematic review', Journal of Community Empowerment for Health, 3(2), p. 130. doi: 10.22146/jcoemph.57082.

Koumpa, F. S., Forde, C. T. and Manjaly, J. G. (2020) 'Sudden irreversible hearing loss post COVID-19', BMJ Case Reports, 13(11), pp. 13–15. doi: 10.1136/bcr-2020-238419.

McKee, M., Moran, C. and Zazove, P. (2020) 'Overcoming Additional Barriers to Care for Deaf and Hard of Hearing Patients during COVID-19', JAMA Otolaryngology - Head and Neck Surgery, 146(9), pp. 781–782. doi: 10.1001/jamaoto.2020.1705.

Mohammed, H. et al. (2021) 'A prospective study on the feasibility of cochlear implantation during the coronavirus disease 2019 crisis and trends of assessment: Experience in a UK centre', Journal of Laryngology and Otology, 135(1), pp. 21–27. doi: 10.1017/S0022215121000190.

Munro, K. J. et al. (2020) 'Persistent self-reported changes in hearing and tinnitus in post-hospitalisation COVID-19 cases', International Journal of Audiology. Taylor & Francis, 59(12), pp. 889–890. doi: 10.1080/14992027.2020.1798519.

Neitzel, R. and B. Fligor (2017) 'DETERMINATION OF RISK Make Listening Safe', Who, (February).

Nugroho, P. S. et al. (2020) Kenali Tuli Lebih Awal. 1st edn. Edited by P. S. Nugroho and N. Purnami. Surabaya: Pustaka Saga.

Papapanou, M. et al. (2021) 'Medical education challenges and innovations during COVID-19 pandemic', Postgraduate Medical Journal, pp. 1–7. doi: 10.1136/postgradmedj-2021-140032.

Patel, H. et al. (2011) 'Universal newborn hearing screening', Paediatrics and Child Health, 16(5), pp. 301–305. doi: 10.1093/pch/16.5.301.

Pattisapu, P. et al. (2020) 'Defining Essential Services for Deaf and Hard of Hearing Children during the COVID-19 Pandemic', Otolaryngology - Head and Neck Surgery (United States), 163(1), pp. 91–93. doi: 10.1177/0194599820925058.

Raad, N. et al. (2021) 'Otitis media in coronavirus disease 2019: A case series', Journal of Laryngology and Otology, 135(1), pp. 10–13. doi: 10.1017/S0022215120002741.

Saniasiaya, J. (2021) 'Hearing Loss in SARS-CoV-2: What Do We Know?', Ear, Nose and Throat Journal, 100(2_suppl), pp. 152S-154S. doi: 10.1177/0145561320946902.

Setyo Nugroho, P. and Wiyadi, H. (2012) 'Anatomi Dan Fisiologi Pendengaran Perifer', Jurnal THT-KL, 2(2), pp. 76–85. Available at: file:///Users/macintoshhd/Desktop/anat dan fisio telinga.pdf.

Skarzynska, M. B. et al. (2021) 'Ototoxicity of Drugs Used in the Treatment of Covid-19', Journal of Hearing Science, 10(1), pp. 9–20. doi: 10.17430/jhs.2020.10.1.1.

Syah, P. B. and Soedjajadi, K. (2017) 'Effect of Using Hearing Protection and Earphone on Noise Induced Hearing Loss and Tinnitus in Workshop's Workers', Jurnal Kesehatan Lingkungan, 9(1), pp. 21–30.

West, J. S., Franck, K. H. and Welling, D. B. (2020) ' Providing health care to patients with hearing loss during COVID -19 and physical distancing ', Laryngoscope Investigative Otolaryngology, 5(3), pp. 396–398. doi: 10.1002/lio2.382.

World Health Organization (2020) Basic ear and hearing care resource. Available at: http://apps.who.int/iris.