Effectiveness of Video Tutorial-Based and Conventional Learning Media on Knowledge of Initial Cardiac Assessment in Undergraduate Nursing Students

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Abstract

An initial cardiac assessment is an initial assessment that is carried out quickly, precisely, sequentially, simultaneously, and thoroughly on the condition of a patient who shows signs of cardiac arrest. Strong knowledge regarding initial cardiac assessment can help save a patient's life quickly when a case is discovered. The research aims to determine the difference in the effectiveness of video tutorial-based learning media and conventional media on knowledge about initial cardiac assessment among undergraduate nursing students at ITEKES Bali. This research uses a quasi-experimental design with two groups: pre-test and post-test. The sample came from ITEKES Bali level 3 undergraduate nursing students: 34 people in the video tutorial group and 34 people in the conventional group. The sampling technique used was simple random sampling. The initial cardiac assessment knowledge questionnaire, adapted from AHA 2020. Data analysis use Mann-Whitney and Wilcoxon. The results show that video tutorial media and conventional media are effective in increasing student knowledge, with a p-value of 0.001. There is a significant difference between the effectiveness of video tutorial media and conventional media, with a p-value of 0.001. Video tutorial media is more effectively used to increase undergraduate nursing students' knowledge regarding initial cardiac assessment.

INTRODUCTION

Initial Cardiac Assessment (IAC) is an initial assessment carried out quickly, precisely, sequentially, simultaneously, and thoroughly on the condition of patients who show signs of cardiac arrest (Wijayanto et al., 2022). Knowledge about the management of cardiac arrest in hospitals is very important for nursing students to know. Nursing students, as people who will have direct contact with patients, are required to have this knowledge. Knowledge about IAC can be obtained through various media. The media generally used by students today is conventional media or face-to-face in class. However, conventional media has several disadvantages, namely that it cannot be played back, learning time is not flexible, and it is done by gathering in one room. As the flow of technology progresses, the emergence of other media is deemed necessary to further support student learning. Another alternative medium that can be used as a learning medium is video tutorial media.

Cardiac arrest is one of the leading causes of death due to heart disease. In Indonesia, the death rate regarding cardiac arrest has not been fully recorded. The prevalence of heart disease based on a doctor's diagnosis in Indonesia is 1.5%, with the highest cases being in North Kalimantan Province at 2.2%. In Bali, the case prevalence rate is 1.3%, and heart disease is still a non-communicable disease with a fairly high mortality rate (RISKESDAS, 2019). Cardiac arrest (IHCA), or cardiac arrest in hospital, is an emergency event in the form of cardiac arrest that occurs while the patient is undergoing

treatment in hospital (Chen et al., 2016). According to research conducted by Chen et al. (2016) in Taiwan, it was found that 382 IHCA patients occurred during the study out of a total of 117,529 patients treated, which means an incidence rate of 3.25 cases per 1000 admissions. The average age of IHCA patients ranges from 67 to 22 years, and 66.6% of IHCA patients are men.

Strong knowledge of initial cardiac assessment helps save patients' lives quickly when such cases are discovered. This is in line with research conducted by Rina et al. (2020) that the higher the knowledge, the better they are at handling primary surveys. When the heart stops beating, blood flow will automatically stop, and as a result, oxygen cannot flow throughout the body. If this is not treated immediately, it can cause brain damage and even death. The golden time for preventing brain damage is 4-6 minutes. In the first minute, the probability of successful treatment is 98%; in the fourth minute, success decreases to 50%; and in the 10th minute, success becomes 1%. For this reason, the handling of cardiac arrest events must be carried out as soon as possible (AGD 118, 2018).

Several previous studies stated that there are differences between video and conventional media in increasing knowledge. such as research conducted by Tahir (2019) with the title "Effectiveness of Audiovisual Methods and Conventional Methods on Basic Life Support Knowledge in Coastal Communities in the Working Area of the Soropia Health Center," which states that conventional methods are more effective in increasing knowledge about basic life support in coastal communities compared to audiovisual methods. Another study conducted by Hatala (2022) with the title "Differences in Student Learning Outcomes through Audio Visual Media and Conventional Media in Class Research conducted by Faizatiwahida et al. (2022) with the title "Effectiveness of Conventional Methods and Explicit Instruction on Basic Life Support Knowledge in PMR Members" states that PMR members' knowledge of Basic Life Support provided with explicit instruction media is higher than with conventional media. In research conducted by Yulinda and Fitriyah (2018) entitled "Effectiveness of Lecture and Audiovisual Method Counseling in Increasing Knowledge and Attitudes about BSE at SMKN 5 Surabaya," it was stated that the knowledge and attitudes of young women increased after being given health education using lecture and audiovisual methods. The methods and media used determine the success of capturing the information conveyed to young women regarding BSE.

This research aims to determine the difference in the effectiveness of video tutorial-based learning media and conventional media on knowledge about initial cardiac assessment among undergraduate nursing students at Institute Technology and Health Bali. It is hoped that in the future, through appropriate media, ITEKES Bali Nursing Undergraduate Students' knowledge of Initial Cardiac Assessment will be further increased.

RESEARCH METHODS

This is quantitative research using a quasi-experiment design with a pre-test and post-test approach with two groups. The research was conducted at ITEKES Bali. The population in this study was 110 ITEKES Bali undergraduate nursing students. There are two groups, namely the video tutorial group and the conventional group. The sample consisted of 34 people who met the inclusion criteria in each group, for a total sample of 64 people. The inclusion criteria are Bachelor of Nursing students at ITEKES Bali Level 3 Study Program and students who have studied Basic Life Support (BLS). The sampling technique uses a simple random sampling method. The data collection tool uses a knowledge questionnaire about initial cardiac assessment consisting of 15 questions in the form of multiple choices adopted from AHA 2020. Data analysis used the Wilcoxon test to determine the effectiveness of each media on students' knowledge about initial cardiac assessment and the Mann-Whitney test to determine differences in the effectiveness of video tutorial media and conventional media on students' knowledge about initial cardiac assessment.

RESULT

Age characteristics of respondents in the video tutorial group (n = 34): the majority were 20 years old with a total of 28 people (82.4%), while in the conventional group (n = 34), the majority were 21 years old with a total of 25 people (73.5%). The majority of respondents in the two groups were female; in the video tutorial group, there were 29 people (85.3%), and in the conventional group, there were 31 people (91.2%). A total of 22 people (64.7%) in each group had received information about Cardiopulmonary Resuscitation (CPR) and DC Shock. In the video tutorial group, 17 people (50%) had seen CPR directly, while in the conventional group, 14 people (41.2%) had seen CPR directly. A total of 4 people (11.8%) in each group said that they had carried out CPR, and then 4 people (100%) said that the CPR that was carried out was not followed by the use of DC shock.

Table 1
Frequency Distribution of Descriptive Statistics of Pre-Test and Post-Test Scores for Video Tutorial and Conventional Media Groups (n = 68)

	Video Tutorial Group		Conventional Group	
	Pre-Test	*Post-Test*	*Pre-Test*	*Post-Test*
Median	60	100	53	93
Std. Deviation	8.068	6.709	10.169	5.656
Varian's	65.098	45.013	103.401	31.987
Minimum	47	80	40	73
Maximum	73	100	80	100

Based on Table 1, during the pre-test, the video tutorial group had a median score of 60, a minimum score of 47, and a maximum score of 73. During the post-test, there was an increase, namely, median score 100, minimum score 80, and maximum score 100. In the conventional group, at the pre-test, the median score was 53, the minimum score was 40, and the maximum score was 80. In the post-test, there was an increase in the median score of 93, the minimum score was 73, and the maximum score was 100.

Table 2
Frequency Distribution of Pre-Test and Post-Test Knowledge Scores Regarding Initial Cardiac Assessment in the Video Tutorial and Conventional Media Group (n = 68).

	Video Tutorial Group		Conventional Group	
	Pre-Test *n (%)*	*Post-Test* *n (%)*	*Pre-Test* *n (%)*	*Post-Test* *n (%)*
High	-	34 (100)	1 (2.9)	33 (97.1)
Medium	16 (47.1)	-	10 (29.4)	1 (2.9)
Low	18 (52.9)	-	23 (67.6)	-

Based on Table 2, the knowledge scores of respondents in the video tutorial group during the pre-test were 16 people (47.1%) with moderate knowledge and 18 people (52.9%) with low knowledge. Then, during the post-test, it was seen that the respondents' knowledge had increased, namely that 34 people (100%) had high knowledge. In the conventional group, during the pre-test, there were 1 respondent with high knowledge (2.9%), 10 people with moderate knowledge (29.4%), and 23 people with low knowledge (67.6%). At the time of the post-test, the results of the respondents' knowledge scores were 33 people (97.1%) with high knowledge and 1 person (2.9%) with moderate knowledge.

Table 3
Wilcoxon Rank Test

	Video Tutorial Group	Conventional Group
Asymp. Sig. (*2-tailed*)	.001	.001

The results of the Wilcoxon Rank Test (Table 3) in the video tutorial group have a p-value of $0.001 < \alpha\ 0.05$, which means Ha is accepted, and it can be concluded that the video tutorial media is effective in increasing knowledge about initial cardiac assessment in ITEKES Bali undergraduate nursing students. In the conventional group, the results of the Wilcoxon rank test show a p-value of $0.001 < \alpha\ 0.05$, which means Ha is accepted, so it can be concluded that conventional media is effective in increasing knowledge about initial cardiac assessment in ITEKES Bali undergraduate nursing students.

Table 4
Mann-Whitney test

Groups	N	*Mean Rank*	*P-value*
Conventional	34	29.50	
Video Tutorial	34	39.50	0.025
Total	68		

The results of the analysis test using the Mann-Whitney test in Table 4 show a p-value of $0.025 < \alpha\ 0.05$, which means that Ha is accepted and Ho is rejected. So, it can be concluded that there is a significant difference between the knowledge scores of students who are taught using video tutorial media and conventional media. Video tutorial media is more effective than conventional media, with a higher mean value of 39.50.

DISCUSSION

This research found that students' knowledge scores increased after being taught through video tutorial media. At the pre-test, the majority of respondents had low knowledge, and at the post-test, all had high knowledge. This research also found that video tutorial media were effective in increasing students' knowledge regarding initial cardiac assessment. The results of this research are in line with research conducted by Fauzan et al. (2021), which stated that there was a significant difference in the level of knowledge of basic life support (BLS) of high school children after being given health education via video. Audiovisuals such as reading, listening, and videos further improve a person's memory process. Another study conducted by Sayuti et al. (2022) states that video media influences knowledge before and after video intervention on students' level of knowledge in implementing health protocols. The use of media that is packaged in an attractive, concise, clear, and easy-to-understand manner can facilitate understanding and strengthen respondents' memories.

The research results in Table 3 state that conventional media are effective in increasing undergraduate nursing students' knowledge about initial cardiac assessment. Student knowledge scores showed an increase; during the pre-test, the majority of students had low knowledge, and during the post-test, the majority of students had high knowledge. These results are in line with research conducted by Tahir (2019), which stated that conventional methods were effective in increasing knowledge of basic life support in coastal communities in the Soropia Health Center Working Area. Conventional media is considered capable of creating a calm and conducive classroom atmosphere. Teachers play a big role in organizing the process of delivering material so that respondents understand the material being presented.

This research shows that there is a significant difference between video tutorial media and conventional media in knowledge about initial cardiac assessment among ITEKES Bali undergraduate

nursing students. Between the two media that were tested, the results showed that video tutorial media was more effective than conventional media in increasing undergraduate nursing students' knowledge regarding Initial Cardiac Assessment, with the mean value of video tutorial media (39.50) being greater than the mean of the conventional group (29.50). This is in line with research conducted by Hatala (2022), which states that with audiovisual media, it is easy for respondents to remember the material because the images and sounds are in sync, and with audiovisual media, participants can feel and see events directly. Research conducted by Septianova and Rusiyanto (2017) stated that audiovisual media is more effective than conventional media because audio-visual media can be used to support learning in schools where learning time is limited and in lessons that are quite complicated.

Knowledge is an understanding of a subject obtained through education or experience (Swarjana, 2021). One factor that can influence knowledge is age. In this study, the respondents were in their late teens, so the material explained could be conveyed well. Apart from age, education also has an influence. The respondents were students from the undergraduate nursing study program and had received Basic Life Support (BLS training so that, in the process, most of the respondents could easily understand the material provided, namely the initial cardiac assessment.

CONCLUSION

Based on the research that has been conducted, it can be concluded that video tutorial media and conventional media are effective in increasing knowledge about initial cardiac assessment among undergraduate nursing students. There is a significant difference between video tutorial media and conventional media in terms of knowledge about initial cardiac assessment among ITEKES Bali undergraduate nursing students. Between the two media, video tutorial media is considered more effective than conventional media. Some of the advantages of video tutorials are that they can be played back, are easy to access, and are interesting. This makes it easier for teachers to present information so that the information conveyed is easier to remember.

BIBLIOGRAPHY

Badan Penelitian dan Pengembangan Kesehatan. (2019). *Laporan Nasional RIKESDAS 2018*. Lembaga Penerbit Badan dan Pengembangan Kesehatan (LPB).

Chen, C. T., Chiu, P. C., Tang, C. Y., Lin, Y. Y., Lee, Y. T., How, C. K., Yen, D. H. T., & Huang, M. S. (2016). Prognostic factors for survival outcome after in-hospital cardiac arrest: An observational study of the oriental population in Taiwan. *Journal of the Chinese Medical Association*, *79*(1), 11–16. https://doi.org/10.1016/j.jcma.2015.07.011

Faizatiwahida, N., Suratmi, & Ekawati, H. (2022). Efektifitas Metode Konvensional dan Explicit Instruction Terhadap Pengetahuan Basic Life Support pada Anggota PMR. *Jurnal Keperawatan Muhammadiyah Bengkulu*, *10*(2), 84–91. https://doi.org/10.36085/jkmb.v10i2.3344

Fauzan, S., Kahtan, I., & Herman. (2021). Pengaruh Pemberian Pendidikan Kesehatan Bantuan Hidup Dasar (BHD) Awam Melalui Video terhadap Tingkat Pengetahuan Anak Sekolah Menengah Atas (SMA) di Kota Pontianak. *Jurnal Keperawatan Dan Kesehatan*, *12*(2), 66–73. http://jurnal.stikmuh.ptk.ac.id

Hatala, R. (2022). Perbedaan Hasil Belajar Siswa melalui Media Audio Visual dan Media Konvensional pada Siswa Kelas XII. *Jurnal PAJAR (Pendidikan Dan Pengajaran)*, *6*(1), 270. https://doi.org/10.33578/pjr.v6i1.8637

Rina, Anggeini, D. Y., & Amaliyah, N. (2020). Hubungan Tingkat Pengetahuan Perawat tentang BTCLS (Basic Trauma Cardiac Life Support) dengan Penanganan Primary Survey di IGD RSU Yarsi Pontianak Provinsi Kalimantan Barat. *Khatulistiwa Nursing Journal*, *2*(1), 43–55. https://doi.org/10.53399/knj.v2i1.40

Sayuti, S., Almuhaimin, Sofiyeti, & Sari, P. (2022). Efektivitas Edukasi Kesehatan Melalui Media Video Terhadap Tingkat Pengetahuan Siswa dalam Penerapan Protokol Kesehatan di SMPN 19 Kota Jambi. *Jurnal Kesmas Jambi*, *6*(2), 32–39.

Septianova, B. S. F., & Rusiyanto. (2017). Perbandingan Hasil Belajar Siswa Menggunakan Media Pembelajaran Audio Visual dan dengan Menggunakan Media Konvensional. *Jurnal Pendidikan Teknik Mesin*, *17*(2), 62–67.

Swarjana, I. K. (2021). *Konsep Pengetahuan, Sikap, Perilaku, Persepsi, Stres, Kecemasan, Nyeri, Dukungan Sosial, Kepatuhan, Motivasi, Kepuasan, Pandemi Covid-19, Akses Layanan Kesehatan*. Yogyakarta: Penerbit ANDI.

Tahir, R. (2019). Efektivitas Metode Audiovisual dan Metode Konvensional Terhadap Pengetahuan Basic Life Support Pada Masyarakat Pesisir di Wilayah Kerja Puskesmas Soropia. *Jurnal Keperawatan*, *03*(01), 13–17. https://stikesks-kendari.e-journal.id/JK

Wijayanto, T., Tiara, & Maryadi, S. (2022). Workshop tentang Bantuan Hidup Dasar dan Penanganan Awal pada Pasien Trauma pada Perawat Pelaksana. *Journal of Public Health Concerns*, *2*(3), 150–160. https://doi.org/https://doi.org/10.56922/phc.v2i3.216

Yayasan Ambulans gawat Darurat 118, & PT Ambulans Satu Satu Delapan. (2018). *BT&CLS (Basic Trauma Life Support & Basic Cardiac Life Support)* (Edisi 7). Jakarta: Yayasan Ambulans Gawat Darurat 118.

Yulinda, A., & Fitriyah, N. (2018). Efektivitas Penyuluhan Metode Ceramah dan Audiovisual dalam Meningkatkan Pengetahuan dan Sikap Tentang Sadari di SMKN 5 Surabaya. *Jurnal Promkes*, *6*(2), 116–128.