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Learning Method in the Covid-19 Pandemic Era: Systematic Review

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ABSTRACT

A Covid 19 pandemic still haunts people around the world. The spread of this virus is a problem for the entire world community, especially in the education and learning sector. The purpose of this research analysed learning methods that can be done during the Covid 19 pandemic. The research design used a systematic review. Search for articles was carried out from September to December 2020 by accessing 5 electronic databases namely Scopus, Science direct, Pubmed, Ebscohost and Proquest. The articles taken were articles of the last 5 years. The keywords based on MeSH according to the topic determined by the researcher. To assess the quality of researches that the researchers used the Joanna Briggs Institute Critical Appraisal Tool and PRISMA checklist as a guide for screening articles. A total of 11 articles were reviewed with a JBI score of > 50%. The results of the article analysis obtained a total of 11 articles consisting of 4 observational studies, 2 studies using perspective studies, 3 cross-sectional studies, 1 qualitative and descriptive studies. Based on the results obtained, data was obtained that online learning methods are the main choice during the pandemic, namely by online learning using applications and e-learning, virtual and online simulations. This method is able to provide good effectiveness and is the main choice.

Keywords: Covid 19, Learning, Online Method

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BACKGROUND

The Covid 19 pandemic still haunts people around the world (Chick et al., 2020; Sunita, 2020; Zame et al., 2020). The spread of this virus to this day is still growing so that it can affect all community activities in terms of economy, education, health, and so on (Ng, Lai and Or, 2020; Ross, 2020; Sastranegara and Setiawan, 2020). Based on case reports in the world to date, there have been 85 million positive cases with a death rate of nearly 2 million people. In Indonesia, cases per day reached 828,026 positive cases with a death rate of 24,129 people (BPBD, 2021).

The education sector is a problem that must be taken seriously considering that education is a milestone in the development of a country. Whatever conditions the community experiences, the educational process must continue, with the conditions of the COVID-19 pandemic, education must run even though in a different way (Ahmed et al., 2020). The right learning method must be considered so that the implementation and learning process take place as it should.

The learning method that can be done is the online learning method with various models that can be used. Based on research conducted by Herman et al., (2020) stated that virtual learning can improve and maintain effective teaching and learning activities. Another study conducted by Chick et al., (2020) the use of appropriate technology can increase the effectiveness of the educational process.

METHODS

The systematic review was conducted to provide a comprehensive systematic overview of learning methods that can be done during the Covid-19 pandemic. The protocol in this systematic review refers to The Centre for Review and Dissemination and the Joanna Briggs Institute Guideline as a guide in assessing the quality of the research. Systematic reviews can be evaluated by using the PRISMA checklist to determine the selection of studies that have been identified. This systematic review will be registered at Muhammadiyah University of Surabaya. Literature search strategy used 5 data bases; Scopus, Science direct, Pubmed, Ebscohost, and ProQuest. The search was conducted from 29 September 2020 to 16 December 2020 to identify relevant research. Phrase searching used the boolean logic used is "And", and "Or". The inclusion criteria in the researches were all articles that discussed the learning methods can be carried out during the pandemic and the exclusion criteria are articles with the same design, namely systematic and literature review. In addition, the search process for articles was limited to article journals and in English and the year limitation focuses on articles published in the last 5 years. Keywords in this Systematic review are adjusted to Medical Subject Heading (MeSH) Pubmed Communication, simulation and nursing student.

RESULT

The results of the articles analysis obtained a total of 11 articles that consisted of 4 observational studies, 2 studies using perspective studies, 3 cross-sectional studies, 1 qualitative and descriptive studies. Based on these results, after the critical appraisal was carried out using the JBI critical appraisal tools, a quality score was given with a value > 50% so that a systematic review could be carried out.

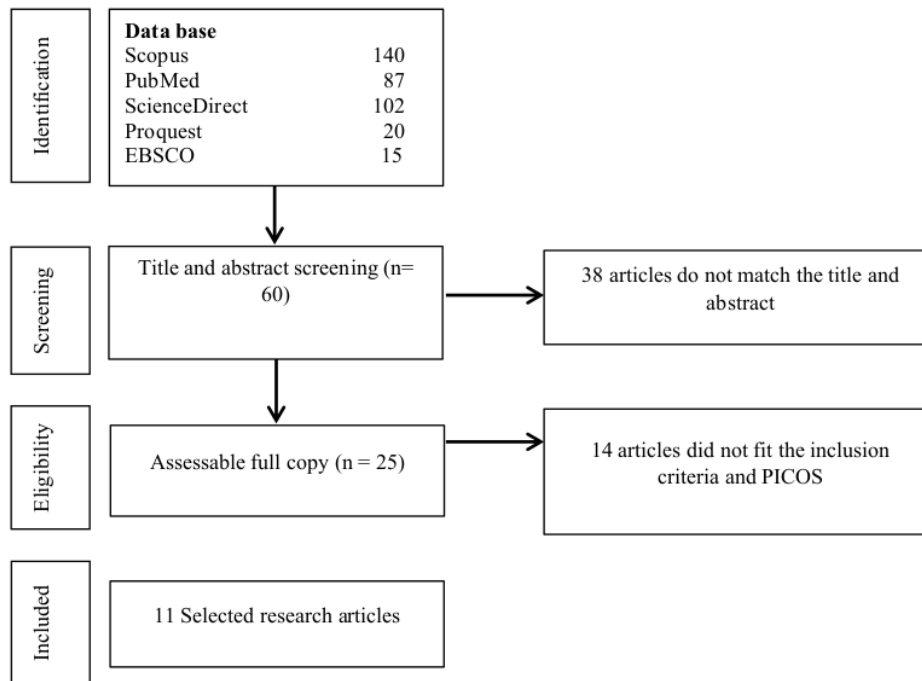


Figure 1. Flow diagram and article selection

From Figure 1 it can be explained that the search results for articles are based on 5 databases, namely Scopus, Siencedirect, Ebscohost, Pubmed and Proquest. The total number of articles found was 364 then checked for duplication and suitability of titles and abstracts. Therefore, a total of 60 articles were obtained 11 final articles that match the inclusion criteria determined by the researcher.

The researches were included in this systematic review article that were 4 studies in USA, 4 studies in Europe, 4 studies in the Middle East and 1 study in Asia. The time of the researches were carried out between the end of 2019 and the end of 2020. These researches had mentioned several learning methods that were carried out during the pandemic, with a total of 2,281 participants.

Table 1. Summary of Results for Literature Systematic Review

No	Author, year and country	Study Design	Summary results of
1	(Shebrain et al., 2020), USA	Design: Observational Sample: 27 students Variables: Virtual Mok Oral Examinations (V-Mos)	The result showed that V-MOE was feasible, accessible, and was a viable alternative to direct MOE at program level for ABS-CE preparation. Given the time and cost constraints associated with IP-MOE.
2	(Herman et al., 2020), UK	Design: Observational Sample: 1500 participants Variable: Virtual Otolaryngology Training	Most of the participants found it easier to attend and concentrate in this format compared to face-to-face sessions. Ninety-one percent of respondents suggested the ideal frequency of scheduled breaks in a typical 4 hours session should be every 45 to 90 minutes. Overall, participants considered virtual training to be very positive in the value of learning.
3	(Metchik et al., 2021), USA	Design: Descriptive Sample: 50 students Variable: Virtual Multi-institutional collaborative	The Series' virtual and multi-institutional collaborative lectures that began involving more than 50 students in an operations residency program, allowed for daily didactic by experts in their fields during the initial wave of the COVID-19 pandemic, while maintaining social distancing and provision of essential clinical care
4	(Mahmoud et al., 2020), Jordan	Design: Cross sectional Study Sample: 3700 students Variable: online learning	The results obtained were learning to use online to be the main choice and zoom to the most used platform. (48.7%) and (57%) clinical and basic students expressed their

interactions. Maintaining social distancing was the greatest advantage of online teaching, while poor technical setting and no direct contact were most disadvantaged by the inability to have real clinical access to scores ($p < .001$). With reference to student preferences 75% of students are not happy with their experience and 42% of students prefer to integrate online learning with traditional learning.

5	(Garc1 and Verde, 2020), France	Design: Observational Study Sample: 400 respondents Variable: image-guide surgical e-learning	E-Learning can influence surgical education in other places, according to the educational goals set. Although undergraduate education in medical schools is primarily a theoretical program, residencies and fellowships are primarily based on direct / technical skills. However, the e-learning solution, as for the IRCAD / IHU experience, can be of benefit to all surgery students, even if their different learning is desired to come. The true balance for optimizing a hybrid course that may impact surgical education should be found
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6	(Ahmed et al., 2020), Egypt	Design: Qualitative Study Sample: 79Majors Variable: Distance learning using PACT	² Participants agreed that face-to-face teaching allowed them to inspire and have a meaningful connection with them. They also agree that DL provides a good environment for most students. With regard to social issues, participants agreed that face-to-face learning provides better opportunities for professionalism through enhanced teamwork. Cognitive, communication, and clinical skills are best achieved face-to-face. Participants agreed that the logistics of doing DL is much more complicated when compared to face-to-face learning. Participants identified about 10 warning signs for each method that need to be continuously monitored to minimize the lack of excess focus at one point at the expense of the other
7	(Sandhaus, Kushnir, Ta and Ashkenazi, 2020), Israel	Design: Cross-sectional Study Sample: Health Students Variable: Electronic Distance Learning, Student Responses and Potential Future Impact	¹ With a response rate of 100%, students reported high satisfaction with electronic learning regarding its quality, online interactions, instructions provided, technical assistance, and availability of records for future studies. Most students (68.6%) noted a preference to continue <90% of online learning in the post-outbreak era. High overall satisfaction rates and low levels of technical problems during electronic learning were significantly correlated with

			desire to continue online learning (P <0.01)
8	(Chick et al., 2020), USA	Design: Study perspective Sample: More than 10 respondents Variable: Use of technology in education	From the results obtained innovative solutions including flipped classroom models, online practice, teleconferencing in face-to-face lectures, involving residents in telemedicine clinics, procedural simulations, and the use of facilitated surgical videos. While there is no substitute for hands-on learning through surgical experience and direct patient care, this may be a way to reduce the exposure to learning over time.
9	(Srivastava, Pandey and Tiwari, 2020), India	Design: Cross-sectional Study Sample: 55 Medical students Variable: utility of online teaching	From the results obtained in the first year and second year; However, the 3rd year group showed a median of 3, giving rise to that only 50% of 3rd year respondents like online learning.
10	(Okland, Pepper and Valdez, 2020), USA	Design: Perspective Study Sample: More than 10 students Variable: Simulation	Based on the results of this article, we briefly discussed the simulation options there were for training programs, including new concepts in "surgical equipment". This method included all the necessary instruments to simulate the procedure at home, effectively relating to safety and utility

11	(Sunita, 2020), Trinidad and Tobago	Design: Observation Sample: 150 respondents Variable: Online education	The results showed that the world of education has become very dependent on technology to ensure continuity of online learning during the pandemic. However online education was shown to be hindered by poverty including infrastructure, networks, power, inaccessibility and unavailability of networks. Made worse by poor digital skills.
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DISCUSSION

Based on the results of a systematic review of learning methods carried out during the pandemic, namely the online learning method with various kinds of learning models used. The online learning method was the main alternative that can be chosen in teaching and learning processes or activities during the pandemic (Garcı and Verde, 2020; Mahmoud et al., 2020; Srivastava, Pandey and Tiwari, 2020). Online learning certainly affected the level of satisfaction, learning effectiveness and so on. This was a concern that needs to be considered by institutions in choosing a model or tool to use considering that it costs money to get internet quota (Ross, 2020). The results obtained from the systematic review of the researchers divided the learning methods that could be done during the pandemic as follows:

Online learning with applications and e-learning

Online learning with applications and e-learning was the most common choice using applications such as zoom cloud (Chick et al. al., 2020; Mahmoud et al., 2020; Srivastava, Pandey and Tiwari, 2020; Sunita, 2020). The application used, of course, requires an internet quota where a student is a problem for students who come from underprivileged groups (Ross, 2020). Based on the research, it is stated that the use of online learning with applications helps students get material even though it is not as good as direct learning (Mahmoud et al., 2020). Another research states that there are significant results that students like learning online using applications (Srivastava, Pandey and Tiwari, 2020; Sunita, 2020).

The solution that was the choice was indeed online learning using certain applications, but there were several things that institutions needed to consider regarding the use of internet quotas that students must have so that they can participate in online learning properly.

Online learning with virtual

Virtual learning can be carried out by agencies, especially in terms of student practice and training so that they can improve their skills and psychomotor skills (Herman et al., 2020; Shebrain et al., 2020). From several research results, it was found that with the use of virtual both practice and practice can significantly improve students' abilities and skills even though it was done online (Herman et al., 2020; Metchik et al., 2021).

Online learning with simulation

The method provided a good stimulus because this activity was carried out directly by students so that it can affect responses and skill changes. There were two types of simulation methods to improve communication skills, namely the d simulation method (Okland, Pepper and Valdez, 2020) in the form of both offline and online training and simulation methods in the form of roleplay or role playing (Rofiqi et al., 2020). Based on the research conducted, it was stated that the simulation method can help students improve skills according to the expected competencies (Okland, Pepper and Valdez, 2020). The students were more applicable and can understand the skills they must have (Rofiqi et al., 2020). With pandemic conditions like this, the online simulation method can be used because students were also not required to always be on standby with internet quotas.

CONCLUSION

The learning method that can be used during a pandemic was the online learning method that this method was the main choice because it prevented the direct interaction between lecturers and students so that it can reduce transmission of the Covid 19 virus. Online learning can be done both by using applications and e-learning, virtual and simulation.

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