

Endourological Society 2020 Summer Student Scholarship
Medical Student Researcher: Edward Christopher Yo
Supervisor: Dyandra Parikesit, M.D.

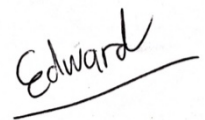
Dear Endourological Society,

First of all, I would like to express my gratitude to the Endourological Society for the opportunity given to me. The Summer Student Scholarship has enabled me to conduct an exciting, national-scale research project that may help improve online learning after the pandemic. As a young medical student, it is not easy to find research opportunities as I realize my experience is still limited. Thanks to this Scholarship, I have been able to enrich my knowledge as well as skills regarding good research practice.

When I first received news that I had been selected as one of the recipients for the 2020 Scholarship, I was very excited and immediately began planning the details for the project. At first, my original research project was actually about “Comparing Urinary Citrate, Oxalate, and Calcium Levels from Different Dietary Sources: A Clinical Study”. Unfortunately, as we all know, the COVID-19 pandemic suddenly surfaced and interfered with the plan. As a result, I was unable to proceed with this original project as lockdown restrictions in Indonesia made clinical studies almost impossible due to ethical and safety reasons. However, the Endourological Society kindly acknowledged this limitation and allowed me to change my project into another cross-sectional, observational study that was conducted fully online.

I was very fortunate to be able to work with Dyandra Parikesit, M.D., who is a urologist in Universitas Indonesia Hospital, as my mentor and research supervisor. He has tremendously helped me in terms of planning the project, collaborating with fellow physicians, analyzing the data from thousands of subjects, and writing the final report. I am still very keen on being involved in future research projects in the Urology and Endourology field. I believe this invaluable experience will help me become a better medical researcher in the future – one who is able to adapt to difficult situations and improvise.

Best regards,

A handwritten signature in black ink that reads "Edward" with a stylized flourish underneath.

Edward Christopher Yo

Project Summary

Assessing webinar outcomes for health professionals: a perspective from Indonesia during COVID-19

Abstract

Background

With the ongoing Coronavirus disease (COVID-19) pandemic, medical schools and teaching hospitals are increasingly relying on e-learning for continuing education. The aim of this study is to evaluate how health professionals in Indonesia respond to webinar as a form of online learning.

Methods

We collected participants' demographic information, including health profession, place of work, work unit, and year of graduation, and assess the effect of these variables on webinar outcomes. Webinar outcomes included reaction and learning scores based on Kirkpatrick's learning evaluation model 1 and 2. Regarding satisfaction, participants were asked to rate overall satisfaction and whether they would recommend the webinar to their colleagues. Regarding learning, information on their mean pre-test and post-test scores as well as whether they passed the post-test on first attempt were collected.

Results

A total of 3607 health professionals were enrolled, with the highest participation in webinars about emergency cases and COVID-19 management. The response towards satisfaction was overwhelmingly positive. In all six webinars, post-test scores were statistically significantly higher than pre-test scores. Recently graduated physicians scored higher in learning than senior physicians, while place of work and work unit did not significantly affect the scores.

Conclusion

The use of webinar for health professionals training in Indonesia was well-received despite the ongoing pandemic. In the future, health institutions and teaching hospitals should optimize the implementation of webinar training as it is associated with low cost, high flexibility, and less time commuting.

Study background

The idea for this study came from my discussion with my supervisor, Dyandra Parikesit, M.D., who is a urologist working in the Universitas Indonesia Hospital. This teaching hospital is part of a leading medical

faculty in Indonesia – Faculty of Medicine, Universitas Indonesia. Last year during the pandemic, the hospital conducted a large-scale online webinar series known as i-CORPS (Interactive Course for General Practitioners) targeted to health professionals all across Indonesia. The main purpose of this webinar series was to help health professionals (physicians, nurses, pharmacists, etc.) keep up with the most updated medical knowledge amid facing new challenges and heavier workload due to the COVID-19 pandemic. The lockdown restrictions in Indonesia prevented gatherings including medical conferences and workshops, so we had to think of an alternative way to educate and train health professionals. Although online learning activities such as webinar was traditionally viewed as a replacement for traditional face-to-face teaching, they are now seen as an adjuvant to transcend the learning process and make it more effective. With the ongoing COVID-19 pandemic, online learning has attracted an unprecedented level of fame and has been included by many health institutions around the world in their latest curriculum. Nevertheless, there was no previous research in Indonesia that investigated the effectiveness and satisfaction of webinar for health professionals training. Most similar studies were conducted in high-income countries, which may have different medical education culture.

Study aims

The aim of this study was to evaluate how health professionals in Indonesia respond to webinar as a form of online learning in terms of knowledge gain and satisfaction. Specifically, we were looking at two parameters: the difference between their webinar pre-test and post-test scores as well as the satisfaction ratings they gave to various aspects of the webinar. Eventually, we expect the results from this study to help inform medical educators on how to create effective and well-perceived online learning activities like webinar training for health professionals.

Methods

This cross-sectional study used an online questionnaire to assess the satisfaction and learning output of participants following 6 separate webinars conducted by Universitas Indonesia Hospital via Zoom videoconferencing platform and Youtube Live from the hospital's channel. There were 6 webinars included in the i-CORPS webinar series. Each webinar was delivered in 2 consecutive days with 4 to 5 subtopics and lasted for 1 hour each. Arranged in order from the first to sixth webinar, the themes were as follow: emergency cases in daily practice, disorders of the special senses and nervous system, clinical approach towards COVID-19, medicolegal aspect of medicine and non-clinical medicine, metabolic disorders and nutrition, and emergency cases of the vital organs. Subjects enrolled were physicians, nurses, pharmacists, other healthcare workers, and medical students and had to be residing in Indonesia. Following the end of each webinar, subjects were required to complete post-test and satisfaction survey. The scores were later compared with regards to the participants' demographic profile

such as their health profession, place of work, year of graduation, and work unit. IBM SPSS software was used to analyze the data.

Results and discussion

A total of 3607 health professionals from all around Indonesia participated in the webinar series. Most of the subjects were physicians (93.6%) and worked mainly in Java Island (58.1%). Almost half of them (41.6%) were working in a managerial and related position or other unspecified work units. The majority of the subjects (78.9%) were recent graduates, completing their formal education within 2015-2020. The fact that Universitas Indonesia teaching hospital was located in Depok, which is a part of satellite Jakarta metropolitan area, may explain why more subjects were from Java Island than from outside Java. We initially expected that most of them worked in the patient service units as the themes of the webinar were intended to supplement daily clinical practice, but surprisingly almost half of all subjects (41.6%) worked in a managerial and related position. This position includes, but is not limited to, hospital board of directors, academician, researcher, and member of health organizations (e.g., Ministry of Health). This may be a good sign, insinuating that those who do not work in patient service units also felt compelled to keep up with the latest medical knowledge especially during these times of crisis. Webinars about emergency cases (Webinar 1 and 6) and COVID-19 management (Webinar 3) had the highest attendance (60.2%), and most participants from patient service work units worked in the emergency department. This resonates with the current pandemic situation in which a lot of health professionals have been constantly looking for the latest clinical guidelines regarding COVID-19 treatment. The number of COVID-19 cases in Indonesia, despite gradually declining, is still regarded as high.

From a score range of 1-10, the mean overall satisfaction score given by all physicians and non-physicians ranged from 8.70 (lowest) to 9.00 (highest). Full details can be found in Table 1. These numbers concluded that participants found the webinar series highly satisfying. Moreover, more than 98% of all physicians and non-physicians stated that they would recommend this kind of webinar to their colleagues in the future. Participants perceived the webinar series to be engaging and interactive. More importantly, as the webinars were conducted fully online, they found it to be convenient as they did not have to commute and left their workplace. This is a very important consideration since health professionals often have busy schedule. Since the pandemic has led to massive staff shortages in many hospitals, their workload has likely also increased. Nevertheless, some challenges in the implementation of online learning persist which include poor Internet connection, unfamiliarity with videoconferencing platform, and other technical problems.

Variables	Webinar 1	Webinar 2	Webinar 3	Webinar 4	Webinar 5	Webinar 6
Overall satisfaction score						
Physician	8.92 ± 0.91	8.88 ± 0.99	8.84 ± 1.00	8.85 ± 1.08	8.85 ± 1.07	8.87 ± 1.03
Non-physician	8.92 ± 0.94	8.75 ± 1.14	8.89 ± 1.04	8.70 ± 1.29	9.00 ± 0.98	8.91 ± 1.08
Percentage of participants that would recommend this webinar to their colleagues						
Physician	99.6	99.4	99.5	99.1	99.6	99.8
Non-physician	99.3	98.7	100.0	100.0	100.0	100.0

Table 1. Overall Satisfaction Score and Response About Webinar Recommendation for each Webinar

Data are presented as mean ± standard deviation or proportion (%)

In general, the scores statistically significantly increased from pre-test to post-test in all six webinars for both profession groups. Full details can be found in Table 2. Place of work and work unit did not appear to have any major effect on post-test scores. On the other hand, year of graduation played a much bigger role in determining the learning outcome for physicians. In all six webinars, the average post-test scores of recently graduated physicians were higher than those who graduated in 2014 or prior. This should become a concern for medical educators and teaching hospitals, as physicians everywhere including in Indonesia are obliged to participate in continuing medical education (CME) for re-registration purpose and lifelong learning.

Table 2. Mean Pre-test and Post-test Scores for Different Demographic Subgroups

Variables	Webinar 1	p-value	Webinar 2	p-value	Webinar 3	p-value	Webinar 4	p-value	Webinar 5	p-value	Webinar 6	p-value
Physician												
Pre-test score ^{a)}	61.77 ± 15.19		45.43 ± 14.79		57.23 ± 15.14		57.13 ± 16.62		52.23 ± 15.16		41.77 ± 14.97	
		<0.001 *		<0.001 *		<0.001 *		<0.001 *		<0.001 *		<0.001 *
Average post-test score ^{a)}	73.76 ± 14.05		54.60 ± 14.09		67.92 ± 13.11		70.77 ± 14.73		63.29 ± 13.64		55.87 ± 13.73	

Place of work												
Java ^{b)}	73.70		54.61 ±		68.38 ±		70.71 ±		63.31 ±		56.34 ±	
	±	0.808	13.93	0.97	13.26	0.099	14.85	0.888	13.56	0.955	13.24	0.131
	14.13		9									
Outside Java ^{b)}	73.84		54.59 ±		67.23 ±		70.86 ±		63.26 ±		55.12 ±	
	±		14.36		12.85		14.58		13.79		14.44	
	13.95											
Year of graduation												
Graduate d within 2015-2020 ^{b)}	75.48		55.10 ±		68.02 ±		71.97 ±		63.88 ±		56.68 ±	
	±	<0.001	13.51	0.04	13.14	0.615	14.41	0.001*	12.99	0.016*	13.44	<0.001
	13.15	*		1*								*
Graduate d in 2014 or prior ^{b)}	66.54		53.10 ±		67.63 ±		68.30 ±		61.52 ±		53.36 ±	
	±		15.66		13.05		15.12		15.32		14.32	
	15.38											
Work unit												
Patient service ^{b)}	72.97		54.54 ±		68.10 ±		70.51 ±		63.39 ±		55.64 ±	
	±	0.001*	14.34	0.85	13.13	0.528	14.82	0.540	13.56	0.734	13.75	0.412
	14.26		0									
Non-patient service ^{b)}	74.96		54.70 ±		67.66 ±		71.16 ±		63.11 ±		56.30 ±	
	±		13.72		13.10		14.61		13.79		13.69	
	13.65											
II. Not physician												
Pre-test score ^{a)}	55.63		45.06 ±		51.34 ±		55.25 ±		52.04 ±		36.10 ±	
	±	<0.001	17.75	0.00	15.05	<0.001	19.61	0.015*	19.04	0.003*	13.77	<0.001
	16.91	*		2*		*						*
Average post-test score ^{a)}	74.81		52.46 ±		60.76 ±		61.85 ±		63.28 ±		50.84 ±	
	±		15.49		16.28		22.15		17.38		17.19	
	16.01											
Place of work												

Java ^{b)}	74.01	50.89 ±	59.58 ±	54.46 ±	59.96 ±	50.71 ±
	± 0.431	14.30	0.25 15.83	0.280 21.73	0.043* 16.56	0.231 19.76
	16.32		0			0.954
Outside	76.23	55.04 ±	63.98 ±	68.54 ±	65.98 ±	50.97 ±
Java ^{b)}	±	17.21	17.41	20.80	17.87	14.63
	15.52					

Data are presented as mean ± standard deviation.

a) Score shown is the mean pre-test score and average post-test score for each webinar. Paired-samples t-test was used.

b) Score shown is the average post-test score for various demographic subgroups. Independent-samples t-test was used.

* p<0.05

Conclusion

In conclusion, we found that webinar training was well-perceived and regarded as a convenient method that accommodated continuing medical education for health professionals in Indonesia. Considering its positive association with satisfaction and learning, webinar should be integrated with traditional, face-to-face teaching rather than being discarded in the future. However, several limitations of webinar must be addressed, including connection problems and other technical problems. Hospitals and other health facilities are encouraged to organize more webinars and other online learning activities in order to boost their staff performance without interfering too much with their duty hours.

Future plans for the study

Following the finalization of this study, our next plan is to construct a full manuscript and submit it to a reputable journal in the medical education field. We would like to contribute to the scientific community by publishing the study's findings and hopefully help medical educators in the future. After that, we would also like to conduct a follow-up study that will investigate how the new knowledge gained from the webinar series has helped change the participants' behavior in daily practice as well as their career trajectories. As a young medical student with ambitions, I feel very blessed with the opportunity to be able to conduct meaningful research and share it with other medical researchers. I hope the study's findings can help bring into light the benefits and opportunities presented by online learning especially in the middle of the pandemic.