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MANDATORY CONTINUING MEDICAL EDUCATION FOR GENERAL PRACTITIONERS IN INDONESIA: BENEFIT OR COST?

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ABSTRACT

The purpose of this study is to determine whether the mandated continuing medical education (CME) for general practitioners (GPs) is worthwhile or a waste of money. The Indonesian General Practitioners Association (DGI) has prepared an online module used as an official learning media for GPs. A pre-experimental pre-test, post-test group design was employed in this study. Five thousand four hundred sixty-four general practitioners were invited to participate from Indonesia's six big islands. However, only 1449 GPs qualified as samples for this study. The results of the paired sample t-test showed a difference between the results of the pre-test and post-test. The survey results, which were followed by 389 of the 1449 eligible GPs, indicate that this CME is beneficial. In addition, GPs are not charged for online learning because DGI covers the costs.

I. INTRODUCTION

As health care practitioners, ensuring continuing competency for consumer protection is critical. Few would disagree that general practitioners (GPs) should have current knowledge in a field where acquiring new skills and information is critical. Therefore, the acquisition of skills and information by general practitioners (GPs) and their evaluation is frequently examined.

Health services in Indonesia are regulated in the Law on Medical Practice No. 29 of 2004 (UU RI Nomor 29 Tahun, 2004). This law stipulates: 1) Health service facilities are places where health service efforts are carried out can be used to practice medicine or dentistry, 2) Patient is any person who consults his health problems to obtain necessary health services either directly or indirectly to the doctor or dentist, 3) The profession of medicine or dentistry is an occupation of medicine or dentistry carried out based on science, competence obtained through education tiered, and a code of ethics that serves the community, 4) Professional organizations are the Indonesian Doctors Association for doctors and the Association of Dentists Indonesia for dentists, 5) The Indonesian medical collegium and the Indonesian dentistry collegium are bodies that formed by professional organizations for each branch of the discipline in charge of these disciplines, 6) The Indonesian Medical Discipline Honorary Council is the institution authorized to determine whether there are errors made by doctors and dentists in the application of medical and dental disciplines, and impose sanctions.

In addition, this law also stipulates quality assurance of medical practice that must be carried out based on Pancasila (a reference to all laws and regulations of the Republic of Indonesia) and based on scientific values, benefits, fairness, humanity, justice, and patient protection and safety. Thus the regulation of medical practice aims to: 1) protect patients, 2) maintain and improve the quality of medical service services provided by doctors and dentists, and 3) provide legal certainty to the public, doctors, and dentists (UU RI Nomor 29 Tahun, 2004).

That is why, in order to maintain the quality of medical practice, the government and Indonesian medical associations issue requirements that doctors and dentists must meet in order to be granted a license to practice medicine. For example, in the medical practice law number 29 of 2004, chapter 1, it is stipulated that 1) Registration is the official registration of doctors and dentist who already has a certificate of competence and

already have specific other qualifications and are recognized legally to carry out professional actions, 2) Re-registration is the re-registration of doctors and dentists who have been registered after fulfilling applicable requirements, 3) Practice permit is written evidence provided government to doctors and dentists who will practice medicine after fulfilling requirements, and 4) Doctor and dentist registration certificates are evidence written by the Indonesian Medical Council registered doctors and dentists (UU RI Nomor 29 Tahun, 2004).

As discussed earlier, health services for patients are essential, and therefore, quality must be guaranteed. For this reason, every doctor and dentist must continuously improve and add the latest skills and information related to their medical practice license. For this reason, Article 5 of the law on medical practice number 29 of 2004 also regulates Medical Education and Training for doctors and dentists (UU RI Nomor 29 Tahun, 2004). Medical education and training are to provide competence to a doctor or dentist. Medical education and training are carried out under medical or dental professional education standards. Thus, it can be concluded that every practising doctor or dentist is obliged to follow continuing medical or dental education and training organized by professional organizations and other institutions accredited by professional organizations to absorb the development of medical science and technology or dentistry. As referred to in article 5 of this law, continuing medical or dental education and training must be carried out as determined by the professional organization of medicine or dentistry.

Based on this law, the Indonesian General Practitioners Association (PDUI) provides continuing education media for general practitioners (GPs). Of course, this is based on the consideration that general practitioners (GPs) can provide medical practice services if they already have a medical practice license. One of the requirements that general practitioners must meet to obtain a medical practice license is to collect 250 Practice Credit Units (SKP) in 5 years. This medical practice license is called a doctor's registration certificate. In addition, the Indonesian General Practitioners Association (PDUI) provides an online module to continue medical education for GPs.

In connection with the description in the introduction, this study aims to answer the research question, namely, whether this continuing medical education through an online module is beneficial or just wasting cost for GPs?

II. LITERATURE REVIEW

The issue of health care employees' continual education is not new. In the 1980s, America debated the importance of ongoing education, particularly for nurses. There are numerous arguments in favour of continuing education as a means of ensuring sustained proficiency. Sure, nurses claimed it was an efficient approach. Additionally, some estimates place the cost of continuing education programs in the hundreds of thousands of dollars (Rizzuto, 1982). These costs are then passed on to the consumer, who may expect some discernible benefit to justify the expense. Costs to the individual nurse are also significant regarding this research. Other proponents of continuing education feel that it is less risky than other methods of demonstrating ability. There is a worry, in particular, that examinations may be required for licensure.

In summary, the justifications advanced for promoting continuous education to demonstrate continued proficiency do not appear appropriate. Acquiring new skills and knowledge is critical, and the consumer must be guaranteed ongoing competence. On the other hand, continuing education may not be adequate to provide that guarantee in its current form. There seems to be little justification for mandating something that is not advantageous. Requiring ongoing education, if it does not result in the promotion of desired competence, appears to be a missed opportunity.

In the field of radiography, continuing education is also not a new issue. Several articles on this subject have been written since the 1970s. As is the case with many other health professions, medical radiation science careers are continually evolving. Technology and information are constantly evolving at a breakneck pace. What may have sufficed as practice preparation a few years ago does not suffice to meet today's needs. The half-life of health sciences professionals' knowledge has been estimated to be between two and five years. As a result, the knowledge base acquired during initial training/education is insufficient to sustain an individual throughout a lifetime of professional practice. All health professionals are responsible for maintaining an up-to-date body of knowledge and skills to practice efficiently (Field, 2004).

Physicians must also enhance their knowledge and skills in medical physics, particularly in the use of cutting-edge medical technology equipment. As a result, a variety of models of continuous learning for physicians have been established. Physicians' continuing education is mandated because data indicate that physicians practising in less attractive specialties (LASs) face higher workloads, feelings of professional isolation, limited opportunities for career promotion, and economic insecurity (Thi Nguyen et al., 2021).

In a unique situation, research has been conducted on the level of knowledge of general practitioners on hypertension prevention in China. ¹³ This study is predicated on the belief that hypertension is a prevalent chronic ¹³ condition throughout the world and a significant risk factor for cardiovascular disease. Simultaneously, hypertension prevalence is high in China, while patient knowledge, therapy, and control of hypertension are low. As a result, the Chinese research team hypothesizes that general practitioners' knowledge and training in hypertension control may be significant confounding variables. The researchers examine general practitioners' knowledge and future training needs regarding hypertension prevention. Their findings indicate that general practitioners in urban areas have a low degree of awareness about hypertension prevention. Continuing education in hypertension is critical to ensuring that general practitioners are informed of and follow national hypertension prevention guidelines (Chen et al., 2013).

³⁴ The facts and data that have been described previously can be concluded that continuing medical education is essential. So, one of the problems that must be answered is an effective continuing medical education model for general practitioners. Continuing medical education that is widely used today is an online learning model. Several studies on online learning models have succeeded in influencing the learning outcomes of their students.

Online courses are becoming more prevalent in higher education. Due to the coronavirus epidemic, this trend has ² been accelerated, either temporarily or permanently (Cutri & Mena, 2020). Online Continuing Education provides a convenient platform for healthcare professionals from varied educational and geographic backgrounds to stay current on current trends and best practices. The purpose of this evaluation was to determine the effectiveness of online continuing professional education (CPE) courses ³¹ given by a prominent Australian CPE provider in terms of pedagogical and instructional design (e-pedagogy). The purpose of this evaluation was to determine the effect of pedagogical and instructional design difficulties on learner achievement and satisfaction in courses giving web-based teaching to healthcare professionals. Online continuing ² professional education classes enable healthcare professionals to learn about their schedules and issues pertinent to their professional practice, allowing for just-in-time learning. Healthcare practitioners choose web-based education courses because they are self-paced and can be studied from any location at any time (Pullen, 2006).

⁴ Without a doubt, the advancement of Information and Communication Technologies (ICT) has resulted in transformations across all spheres of society, including education. The internet and the use of networked devices have permeated traditional ways of teaching and learning. As a result, new educational modalities have emerged to reflect these changes and generate novel scenarios that influence training processes. Among the emerging modes of online education is e-learning, which uses information and communication technologies to provide educational content and assist diverse populations. Due to synchronous and asynchronous processes, this mode of operation has the advantage of the versatility and the flexibility to be used remotely and at various times.

²⁶ Additionally, its communication potential and the availability of ubiquitous learning (anytime, anywhere) encourage users to engage in lifelong learning and exchanges. The negative is that when such interactions are absent from a course, a student's drive dwindles. Additionally, evaluations in areas requiring applied skills are challenging to conduct online (Portuguez Castro & Gómez Zermeño, 2020).

³³ The use of information and communication technology in education has increased significantly during the last decade. Online or web-based education has been used in various contexts and throughout the educational spectrum, including professional development. Flexible access and communication are vital features of web-based education, as is the possibility of electronically forming personal and professional networks. Networked continuing professional education (CPE) is considered to have several benefits, including accessibility and flexibility, which would appear particularly beneficial to busy, working professionals. In addition, with continuing professional education (CPE) available at any time and practically anywhere, web-based learning for professional development has a lot to offer self-directed self-education (Brace-Govan & Gabbott, 2004).

The engagement of GPs significantly aided in the creation of the online intervention. Using a co-production development method ensured that the intervention was consistently adapted to fit the needs of GPs. The usability assessment demonstrated that the intervention's material was appropriate, readily available, engaging, and provided at an appropriate degree of intensity, validating the development strategy used (French et al., 2020).

Of course, online learning to support continuing medical education is not without challenges. Availability of materials or cases of the disease is only one of them. The continuous online learning module also faces challenges,

especially in mobilizing the participation of general practitioners in online learning. In addition, technical matters of online learning services, such as internet access, need to be considered (Wenczenovicz, 2020).

In line with the exposure of the positive effects of continuous learning through online learning, the Indonesian General Practitioners Association (PDUI) has designed a continuing medical education model for its members, general practitioners. Based on the explanation in the introduction and literature review, the two research questions to be answered are:

1. Does the continuous medical education approach in online courses beneficial or waste cost?
2. Is there a difference in scores between pre-test and post-test achieved by GPs?

III. METHODS

Participants

The researchers used Pre-Experimental Pre-Test Post-Test Group Design. The researcher used this method in the absence of a control group sample. The participants in this study were GPs registered on the PDUI online module page and hailed from Indonesia's major islands. Researchers have decided that the majority of GPs enrolling in the PDUI module are from this region. Therefore, 5464 GPs originating from the six big islands of Indonesia were invited to participate in this study.

Data Collection

The data collection will be based on the pre-test and post-test findings, which can be found at <https://modul.pdui.org>. Only those who meet the requirements have taken the pre-test, read the module, and participated in the post-test. In other words, if there are GPs who took the pre-test but do not read the module and took the post-test, then the GPs data is not selected in this study. In short, the GPs data taken must meet these three criteria.

Data Analysis

The data will be analyzed in stages, beginning with descriptive analysis and continuing with a normality test and paired sample t-test to see if the scores are normally distributed. The Wilcoxon test, on the other hand, is used when the scores are not regularly distributed.

Additionally, the research team surveyed GPs who participated in learning via this PDUI module. This poll was conducted to determine whether or not continuing medical education benefited general practitioners. The researcher utilized the Likert scale to construct positive statements for the survey. The researcher compiled five positive statements about the module's content and six positive statements about the module's benefits for GPs' everyday job.

IV. RESULT

Participants

Five thousand four hundred sixty-four (5464) general practitioners registered with the Indonesian General Doctors Association were invited to participate in the study (PDUI). The research team included Indonesia's largest islands, including Java, Kalimantan, Sulawesi, Sumatra, Bali, and smaller islands. Indonesia is made up of more than 1700 islands, five of which are classified as big islands. Around 26.52 per cent of general practitioners, or 1449 general practitioners, match the criteria for inclusion in study samples.

The research team has not determined why certain general practitioners did not engage in this study. However, the researcher hypothesizes that GPs are unaware of the online module developed by PDUI. In addition, they have not yet received information, which is suspected due to network or internet access issues.

The following table details the total number of GPs involved:

ISLANDS	INVITED	PARTICIPATED	%
Java	1535	495	34,16
Sulawesi	886	242	16,70
Kalimantan	683	248	17,12
Other Islands	884	26	1,79
Bali	935	166	11,46
Sumatera	541	272	18,77
TOTAL GPs	5464	1449	26,52

Modules

PDUI prepared ten modules in Continuing Medical Education for GPs, namely Bell's Palsy disease system, Tension Headache, Diabetes Mellitus, Typhoid Fever, Bronchial Asthma, Hypertension, Dengue Fever, Dyslipipimedia, Tuberculosis, and Dermatitis. PDUI provides 15 cases for each disease system. One hundred fifty questions were prepared for the pre-test and post-test with a total score of 100. However, the pre-test questions were not the same as the post-test. The same is only in the case of the disease, but the treatment is different. So, the disease in the pre-test will provide information to the GPs to study the module. This module material leads GPs to have new skills and information about the disease system in this module.

Survey

The researchers used a Likert scale with positive statements to answer whether or not the online module prepared by PDUI for GPs was useful. Researchers prepared 11 positive statements that reflect the benefits of continuing medical education through online modules. The eleven statements are as follows:

X1.1. Modules are easy to learn

X1.2. The module provides up-to-date information

X1.3. The module can be used as a reference for practice

X1.4. The module as a means to improve the competence of doctors in primary care

X1.5. The substance and essence of the module still need to be improved

X2.1. Ease of accessing and operating Online/Online-Based Learning Modules

X2.2. The completeness of the Online/Online-based Learning features supports the competency improvement process

X2.3. Admin-Operator helps the implementation of the learning process if there are problems

X2.4. Accuracy and appropriateness of time available for module learning

X2.5. Effective Online/Online-Based Learning Modules to Improve Doctor Competence

X2.6. Case Study Discussion can enrich knowledge based on various types of cases

389 of the 1449 GPs that filled out the survey. Based on the Likert scale, the eleven positive statements in the survey have been tested for validity and reliability. The results of the validity test showed that the eleven statements were valid and reliable.

Pre-test dan Post-Test Result

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The researcher can provide descriptive information regarding the pre-test and post-test results. For the pre-test, the lowest score is 36,8, and the highest is 61,3. The post-test score ranges from 61,3 to 100. The average score on the pre-test is 48,99, while the average score on the post-test is 83,77. Additionally, based on Skewness, which is 0,07, the findings of this post-test score can be deemed to be normally distributed. This Skewness value is calculated using the Statistic/Standard Error.

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Pre-Test	1449	36,8	61,3	48,999	9,9535	0,01	0,064
Post-Test	1449	61,3	100	83,778	9,0786	-0,005	0,064
Valid N (listwise)	1449						

Along with this information, the researcher includes frequency statistics from the pre-test results. As can be shown, GPs achieve a score between 36,8 and 61,3. The average proportion is not far off and typically falls within the range of more than 30%. Therefore, 49,0 is the modus score.

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Pre-Test					
	Scores	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	36,8	480	33,1	33,1	33,1
	49,0	493	34,0	34,0	67,1
	61,3	476	32,9	32,9	100,0
	Total	1449	100,0	100,0	

The following table summarizes the frequency of post-test outcomes. The score appears to be 61,3 to 100. Therefore, 80,0 is the modus score.

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Post-Test					
	Scores	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	61,3	65	4,5	4,5	4,5
	70,0	55	3,8	3,8	8,3
	80,0	802	55,3	55,3	63,6
	90,0	330	22,8	22,8	86,4
	100,0	197	13,6	13,6	100,0
	Total	1449	100,0	100,0	

V. DISCUSSION

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Researchers used surveys to answer the first research question. The Likert scale was used to measure the benefit of CME in this study. Based on the Likert scale, the researchers agreed to use the following CME beneficial standards:

Benefit Level	Score range
Very Helpful	4.0 - 5.0
Helpful	3.1 - 3.9
Useless	2.1 - 2.9
Very useless	1.0 - 1.9

According to the following survey results table, the average score is higher than 4. Only X1.5 statements fall within the three-digit range. As a result, the average of the eleven statements is 4.21. According to the Liker scale interpretation, this score indicates that CME using the online learning paradigm is highly beneficial for GPs. In other words, this continuing medical education course is beneficial.

Descriptive Statistics ³					
	N	Minimum	Maximum	Mean	Std. Deviation
X1.1	389	2	5	4,28	0,610
X1.2	389	2	5	4,24	0,561
X1.3	389	2	5	4,37	0,585
X1.4	389	4	5	4,46	0,499
X1.5	389	3	5	3,81	0,585
X2.1	389	2	5	4,17	0,552
X2.2	389	2	5	4,20	0,470
X2.3	389	2	5	4,15	0,485
X2.4	389	2	5	4,14	0,459
X2.5	389	2	5	4,28	0,519
X2.6	389	2	5	4,25	0,496
Valid N (listwise)	389				

Regarding learning funds, GPs are not charged. All provincial commissariat only send data of their GPs members to the PDUI Central Executive, whose office is in the capital city of Indonesia, Jakarta. The PDUI centre covers the cost of CME for those who wish to participate in this online module. In short, it can be said that GPs do not cost money.

The government mandates CME since primary health care is a basic necessity of the Indonesian people. Thus, it is appropriate for PDUI, as the parent organization, to develop a program to enhance the GPs' skills.

To answer the second research question, the researchers employed the paired sample t-test. Paired sample t-test is a test used to compare two means (mean scores) of paired samples. Paired sample means that the participant⁷ who are tested on the pre-test and post-test are the same. Thus, the pre-test score is paired with the post-test score. Paired samples come from the same subject with variables taken in different situations³⁰ and circumstances. The researcher wants to emphasize that these different situations and circumstances are pre-test and post-test situations and conditions.

The conclusion of the paired sample t-test is based on the significance value (2-tailed) < error tolerance level (5% or 0,05⁵). In other words, the confidence interval percentage (confidence analysis) is 95%. Thus, the significance score (2-tailed) < 0.05 indicates a significant difference between the initial variable (pre-test) and the final variable (post-test). In other words, these findings imply that the treatment administered to participants had a meaningful effect. Therefore, the final variable is the outcome of this treatment, reflected in the post-test score.

The following table summarizes the paired sample t-test results.

Paired Samples Statistics ¹⁷					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-Test	48,999	1449	9,9535	0,2615
	Post-Test	83,778	1449	9,0786	0,2385

Table Paired sample t-test shows the difference in mean between pre-test and post-test. The post-test score, which is higher than the pre-test score, provides a temporary conclusion that continuing medical education through online modules affects GPs learning outcomes. The significance of continuing medical education through the online module will be seen in the following paired sample t-test results.²⁰

Paired Samples Test							
	Paired Differences				t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			

					Lower	Upper			
Pair 1	Pre-Test - Post-Test	-34,7790	12,2324	0,3214	-35,4093	-34,1486	-108,228	1448	0,000

The paired sample t-test shows that the sig. (2-tailed) is 0,000 < 0,05, which indicates there is a difference between the pre-test and post-test mean. In other words, continuing medical education through online modules affects increasing knowledge and skills of GPs. Thus, the researchers conclude that GPs benefit from continuing medical education via online courses.

VI. CONCLUSION

1. The researcher can conclude from the data reviewed, evaluated, and discussed that:
2. CME via online module is suitable for GPs. This mode of instruction can help GPs improve their knowledge and skills,
3. GPs are not burdened with learning costs. PDUI has covered all costs associated with CME provided through this online module, and
4. The average post-test learning results are more significant than the average pre-test learning outcomes. This discrepancy demonstrates that CME via online modules affects GPs' learning achievement.

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