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CONTINUING MEDICAL EDUCATIONTHROUGH ONLINE MODULE TO EXPAND THE EXPERIENCE OF GENERAL PRACTITIONERS IN HANDLING CASES OF BELL'S PALSY

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ABSTRACT

The study examines the effect of Continuing Medical Education (CME) through the online module on the knowledge enrichment and broadening of general practitioners' insight in dealing with Bell's Palsy. The research method used is a pre-experimental, pre-test post-test group design. Seven hundred seventy-nine general practitioners from Central Java Province, Indonesia, participated as samples in this study. The results of the Wilcoxon statistical test show that the CME throughout the online module has an effect on the enrichment of knowledge and broadening the knowledge of general practitioners in dealing with Bell's Palsy.

I. INTRODUCTION

The last century has seen phenomenal advances in the breadth and depth of medical knowledge, but a lethargic knowledge dissemination system has limited its potential. Numerous technologies and approaches have been utilized to give continuing medical education (CME) to health care workers throughout the history of medical education (Natanzon et al., 2010). The development of the online intervention facilitated the work of general practitioners (GPs)significantly(French et al., 2020). Continuing medical education (CME) is critical for creating and maintaining high-quality primary care. Historically, CME has been offered face-to-face. However, due to geographical distances and work demands, GPs cannot relocate for several training days(Uzzaman et al., 2020). COVID-19's effects on GPs are compounded across all spheres of life—health, economy, social security, livelihood, and education(Salem, 2021). Continuing professional education appears to be especially well-suited to the internet environment, which allows for communication from anywhere and anytime(Senchyna et al., 2020).

It is widely acknowledged that a robust primary care system based on first contact access and the provision of comprehensive, person-centered care with continuity and coordination is critical. Nevertheless, despite mounting evidence that a strong primary care system is a successful method for reducing health disparities and attaining universal health coverage, Numerous countries have struggled to establish robust primary health care systems. Rather than that, primary services are frequently distinguished by insufficient resources and facilities, insufficient medical personnel training, variable quality of care delivery, and fragmented care.

These issues were worsened in the 2020s in Indonesia by the COVID-19 pandemic and changes in healthcare, including fiscal decentralization, commercialization of medical services, and underfunding of the public healthcare system. These incentives are causing entire generations of healthcare professionals and the GPs to place a premium on advanced tests, costly medications, and specialized care.

CME is a lifelearning concept. For GPs, CME is an alternative to increase knowledge about diseases and improve skills in handling various cases of the disease, especially Bell's palsy. The emergence and rapid growth of the world wide web and the internet have introduced new opportunities for providing CME. This study evaluates whether this online learning model can improve the knowledge and skills of the GPs in handling cases of Bell's

palsy in Indonesia.Researchers offer a CME model to the GPs through e-module. This module can be accessed on the https://modul.pdui.org.

Several studies have concluded that online learning media can increase knowledge and increase the experience of not only general practitioners in handling disease cases but also students in higher education(Halkic & Arnold, 2019; Mahenge & Sanga, 2016; D. Pullen, 2013; D. L. Pullen, 2006; Sumanen et al., 2012).In addition, online education can enhance learning settings and facilitate educational innovation processes(Bolldén, 2016; Halkic & Arnold, 2019; Ramirez-Montoya, 2020; Wilk, 1986).

Knowledge enrichment and information expansion of various case handling in primary care areessential for GPs. However, the enrichment of knowledge and the expansion of structured information online face many challenges. For example, only half of the doctors have bachelor's degrees in China or are registered as GPs as their prime registration inthe primary care workforce (Wong et al., 2017). Another technical impediment to online learning is the GPs' domicile location, which is not near an internet access point(Cutri & Mena, 2020). As a result, GPs sometimes still need a tutor as a discussion partner(Kara & Can, 2019).

This study will assess whether CME via online e-module can enhance GPs' knowledge and experience in dealing with cases of Bell's Palsy in Indonesia, based on research data that supports CME as a solution for improving the performance of primary care physicians and reducing the challenges faced by institutions in setting up online learning services.

II. METHODS

Participants

The researchers utilized Pre-Experimental Pre-test Post-Test Group Design. Two thousand seven hundred seventy general practitioners (GPs) in the Indonesian province of Central Java were invited to participate in this study. The sample selected in this study was only GPs who took the pre-test, read the module Bell's Palsy,and took the post-test. Fifty cases of Bell's Palsy were prepared on pre-test and post-test with a total score of 100.

Data Collection

The data collection will be based on the results of the pre-test and post-tests available on the https://modul.pdui.org page.

Data Analysis

The data will be studied in stages, beginning with descriptive analysis and progressing through a normality test and paired sample t-test to determine whether the scores are normally distributed. However, if the scores are not normally distributed, the Wilcoxon test is performed.

Additionally, the data will be checked for homogeneity before doing the independent T-test. If, however, the data are not normally distributed, the Mann-Whitney test is utilized.Therefore, the conclusion will be determined based on the Asymp Sig score. For example, if the Asymp Sig score is < 0.05, CME via e-module affects GPs learning outcomes.

III. RESULTS

Based on data obtained from the https://modul.pdui.org page, only 779 GPs participated in this study. Researchers have not found the reason for not joining other GPs. Their registration procedure is self-initiated by each GP at the Central Java Province commissariat of the Indonesian General Practitioners Association (PDUI). The Central Java region's PDUI administrator forwarded a list of GPs to researchers. Researchers enter the GPs data on the https://module.pdui.org page. The module system automatically sends GPs their account and password through email.

These 779 GPs began to be registered in this module in September 2021. Since then, access to these GPs has varied. Some access in September and some in the following months until February 2021.Their ages varied from 30 years to 60 years, as shown in the following table.

AGE	TOTAL
30 - 39	320
40 - 49	288

50 - 60	171
TOTAL	779

Based on the module system, pre-test and post-test data were obtained as shown in the following table:

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Pre Test	779	15	75	62,62	17,757
Post Test	779	20	100	85,15	15,556
Valid N (listwise)	779				

In this table, the average pre-test score for GPs is 62.62, with the lowest score being 15 and the highest score being 75. While the average post-test score achieved by GPs is 85.15, with the lowest score being 20 and the highest score being is 100.

IV. DISCUSSION

The researcher will test the normality of the pre-test and post-test data. There are at least four normality tests obtained, namely the Skewness, Kurtosis, Kolmogorov-Smirnov, and Shapiro-Wilk normality tests.Based on the data recorded in this PDUI module, the researchers conducted a normality test. The results of the normality test are shown in the following table:

Descriptives

			Statistic	Std. Error
Pre Test	Mean		62,62	0,636
	95% Confidence Interval for Mean	Lower Bound	61,37	
		Upper Bound	63,87	
	5% Trimmed Mean		64,58	
	Median		75,00	
	Variance		315,306	
	Std. Deviation		17,757	
	Minimum		15	
	Maximum		75	
	Range		60	
	Interquartile Range		15	
	Skewness		-1,399	0,088
	Kurtosis		0,946	0,175
Post Test	Mean		85,15	0,557
	95% Confidence Interval for Mean	Lower Bound	84,05	
		Upper Bound	86,24	
	5% Trimmed Mean		86,59	
	Median		90,00	
	Variance		241,977	
	Std. Deviation		15,556	
	Minimum		20	
	Maximum		100	
	Range		80	
	Interquartile Range		20	
	Skewness		-1,129	0,088
	Kurtosis		1,145	0,175

The Skewness and Kurtosis formulas are statistical scores/std Error. If the Skewness/Kurtosis ratio value is between -2 and +2, then the data is considered normal. Based on the table above, the Skewness normality test is obtained:

Pre-test: -1,399/0,088 = -15,973

Post test: -1,129/0.088 = -12,844

The skewness ratio shows that the pre-test data is not normal because it is -15,973 outside the intervals of -2 and +2. Similarly, the Skewness ratio for the post-test is also not normalbecauseit is -12,844 outside of the -2 and +2 intervals.

Furthermore, for the Kurtosis normality test, it is obtained:

Pre-test: 0,946/0,175 = 5,405

Post test: 1,145/0,175 = 6,543

The Kurtosis ratio shows that the pre-test data is not normal because it is 5,405 outside the -2 and +2 intervals. Likewise, the Kurtosis ratio for the post-test is also not normal because it is 6,543 outside the -2 and +2 intervals.

For the Kolmogorov-Smirnov and Shapiro-Wilk tests, the following table will be used. If the sig value is more significant than 0,05, then the data is considered normal. For the Kolmogorov-Smirnov normality test, it can be seen that the Sig value is 0,000 <0,05 for both pre-test and post-test. Therefore, according to decision making, the pre-test and post-test results were considered not normal because the score was 0,000 <0,05. The scores are the same for the Shapiro-Wilk normality test. In the table, the sig value is 0,000, which means it is smaller than 0,05. Thus, the results of the pre-test and post-test are also not normal.

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre Test	0,327	779	0,000	0,716	779	0,000
Post Test	0,195	779	0,000	0,848	779	0,000

a. Lilliefors Significance Correction

Following the stages of statistical analysis that have been discussed in the research method, the statistical test that will be used to answer research questions is the Wilcoxon test. This statistical test was chosen because the pre-test and post data were not normally distributed.

Therefore, to answer whether or notCME through online moduleaffects the enrichment of knowledge of GPs and to increase their experience in handling cases of Bell's Palsy disease, the researchers conducted the Wilcoxon test.In this Wilcoxon test, researchers rely on the standard interpretation of the Wilcoxon Signed Ranks Test. There are three things to know about this, namely:

1. Negative Ranks describe the difference (negative) between the pre-test and post-test results obtained by the GPs. Negative Ranks indicate no decrease in the value of Pre-Test and Post-test. For example, a GP gains 75 in the pre-test and then decreases to 70 in the post-test, then his status will be recorded in Negative Ranks. However, if it is Negative Ranks, the score of N, Mean Ranks and Sum of Ranks is 0, which means no decrease in the score obtained by GPS in the post-test. In other words, the post-test score is higher than the pre-test score. Therefore, the Negative Ranks (N) line will show a 0 (zero) score or a nominal number indicating the number of GPs that have decreased.

2. Positive Ranks or positive (difference) between pre-test and post-test scores means an increase in the post-test scores achieved by GPs. This line will show the number of (N) GPs or samples that get positive values. This line will also show the average increase (Mean Ranks) obtained by GPs.

3. Ties are the similarity of pre-test and post-test scores achieved by GPs. The number of GPs who scored the same between pre-test and post-test will be shown in column N.

4. Decision-making for the Wilcoxon test assumes that if the Asymp Sig score is <0,05, it can be concluded that CME through online modulehas an effect on enriching GPs knowledge and adds insight into handling cases Bell's Palsy.

Based on the Wilcoxon test results on pre-test and post-test GPs score data, the data obtained are as shown in the following table:

Wilcoxon Signed Ranks Test

		N	Mean Rank	Sum of Ranks
Post Test - Pre Test	Negative Ranks	93[a]	208,59	19399,00
	Positive Ranks	669[b]	405,54	271304,00
	Ties	17[c]		
	Total	779		

a. Post Test < Pre Test

b. Post Test > Pre Test

c. Post Test = Pre Test

Test Statistics[a]

	Post Test - Pre Test
Z	-20,803[b]
Asymp. Sig. (2-tailed)	0,000

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

The Wilcoxon Signed Ranks Test table displays some information, including:

1. In the Negative Ranks row, the N value is 93. This number means that there are 93 GPs whose pre-test scores are higher than the Post-Test results.

2. While in the Positive Ranks row, the N value is 669. This number shows that 669 GPs who get post-test scores are higher than their pre-test scores.

3. In the Ties row, the value of N is 17. This number means that there are 17 GPs who achieved the same score between the pre-test and post-test.

4. In the Test Statistics table, the Asymp Sig (2-tailed) score is 0.000. This figure is smaller than 0.05, or the Asymp Sig score is 0.000 < 0.05, which means that CME through online module affects knowledge enrichment and adds insight to GPs in dealing with Bell's Palsy disease cases.

V. CONCLUSION

Based on the results of the Wilcoxon test, it can be concluded that CME through online learning has an effect on the achievement of GPs learning outcomes. In other words, CME, through the PDUI online module, can enrich GPS knowledge and enrich the handling of cases of Bell's Palsy.

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