RESEARCH ARTICLE

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Strengthening Primary Health Care Through MOOCs (Massive Open Online Courses): A Cross-Sectional Study

ABSTRACT

Objective: After the increased number of COVID-19 positive patients, a plateau-phase and a decrease in the numbers were expected, followed by a second-phase which could lead to an increased health system workload. The importance of training well-educated and qualified healthcare professionals (HPs) has been reconsidered. The rapid spread of the epidemic revealed the limitations of traditional method education. Massive Open Online Courses (MOOCs) were offered as a solution to keep the information up-to-date and accessible. The aim of our study was to evaluate the perceptions and experiences of healthcare professionals on strengthening the health system during the COVID-19 pandemic.

Methods: In this descriptive cross-sectional multi-centered study, an online survey was applied to HPs between February-May 2021. There were 28 participating countries. Due to international participation, the survey was conducted in English.

Results: There were 88 female and 87 male participants. Most of the participants were from Europe and Euroasia. Most of them reported their income as $501-$1500 US Dollars). The duration of job experience was between 5-15 years. 111 of them have completed a postdoctoral degree.

Conclusions: According to the survey, all the groups reported as the effect of strengthening primary care by MOOCs was positive.

Keywords: Primary Care, MOOC, COVID-19.

Birinci Basamak Sağlık Hizmetlerinin MOOC'lar (Yoğunlaştırılmış Açık Kurs) Aracılığıyla Güçlendirilmesi-Kesitsel Bir Çalışma

ÖZET

Amaç: Artmış COVID-19 pozitif hasta sayısının ardından, bir plato dönemini ve sayılarda bir azalma, sağlık sistemine artan bir iş yüküne yol açabilecek ikinci bir faz tarafından takip etmesi bekleniyordu. İyi eğitimli ve nitelikli sağlık profesyonellerinin (SP'ler) yetiştirilmesinin önemi tekrar gözden geçirildi. Salgının hızla yayılması geleneksel yöntemle eğitimin sınırlılıklarını ortaya çıkardı. Kitlesel çevrimiçi kurslar (MOOC'lar), bilgiyi güncel tutmak ve erişilebilir kılmak için bir çözüm olarak sunuldu. Çalışmamızın amacı, COVID-19 pandemisi sırasında sağlık profesyonellerinin sağlık sisteminin güçlendirilmesi konusundaki algılarını ve deneyimlerini değerlendirmekti.

Gereç ve Yöntem: Bu tanımlayıcı kesitsel çok merkezli çalışmada, Şubat-Mayıs 2021 tarihleri arasında SP'lerine çevrimiçi bir anket uygulandı. Katılan 28 ülke vardı. Uluslararası katılım nedeniyle anket İngilizce olarak gerçekleştirildi.

Bulgular: 88 kadın ve 87 erkek katılımcı vardı. Katılımcıların çoğu Avrupa ve Avrasya'dandı. Onların çoğu gelirlerini 501-1500 Amerikan Doları olarak bildirdi. İş deneyimi süresi 5-15 yıl arasındaydı. 111'i doktora sonrası dereceyi tamamlamıştı.

Sonuç: Araştırmaya göre, tüm gruplar MOOC aracılığıyla birinci basamağın güçlendirilmesinin etkisinin olumlu olduğunu bildirdi.

Anahtar Kelimeler: Birinci Basamak, MOOC, COVID-19.

INTRODUCTION

A pandemic leads to significant disruption in a short span, impacting human resources, community assets, economy, and environment. While many sectors play a role in handling a pandemic, healthcare remains paramount, with a unique role in planning and response. Their primary goal is to provide timely and effective care to those affected. Every pandemic follows a trend: after identifying the first case, cases rise to a peak, plateau, and then a potential second peak. (1-4).

During fast-spreading pandemics like COVID-19, healthcare systems grapple with a surge in infectious patients and a shortage of trained workers. While hospitals usually have committees for infection control and traditional training methods such as lectures and simulations, it's extremely difficult to provide comprehensive training to all staff rapidly when facing a unique and swiftly spreading microbial threat. (1,3).

During contagious pandemics like COVID-19, physical training for medical staff is difficult due to restrictions on gatherings. Despite these challenges, it's vital for health workers to be updated on new developments. Technology, like MOOCs from global institutions, offers a solution to continue training in such scenarios. (5-8).

MOOCs, offering unlimited participation and open access, have become a significant advancement in online education. They provide video lectures, readings, and interactive forums, fostering community interactions and immediate feedback mechanisms. Although MOOCs have garnered attention in recent years, the concept predates the digital era. In the 1980s and 1990s, distance learning primarily manifested as correspondence courses. With the advent of e-learning platforms, despite initial low course completion rates, the digital shift transformed distant learning. By 2010, following this evolutionary trajectory, millions accessed renowned university courses, including Michael J. Sandel's "Justice" and Marian Diamond's "Human Anatomy". (6,9-11).

During the management of the COVID-19 Pandemic, the health sector took the most important role in preparing for this situation and providing the appropriate response. In times of the ongoing COVID-19 pandemic, meeting the health needs of the affected society and individuals should be a top priority (1). After the initial increase in patient numbers, reaching a plateau phase and a subsequent decline in numbers, another second phase was expected. Above all, the increase in the number of patients leads to a higher utilization of the healthcare system and higher workload for healthcare workers (1,2). Studies shown that the coping skills of healthcare workers increase with increasing the knowledge/training levels (3,4). The importance of raising well-trained and qualified health workers has been understood once again (1). The rapid spread of the epidemic has also shown the limitations of education by using the old methods. for this reason, intensive online courses (MOOC) have been offered as a training tool (5,6).

The aim of this research was to examine the perceptions and experiences of healthcare professionals about health system strengthening intensified online courses during the COVID-19 pandemic.

MATERIAL AND METHODS

Type of Research: This study was planned in a descriptive-cross-sectional, multi-centered research design. It was designed with core working group.

Place and Time of the Research: Research data was delivered online to health professionals working in community health and family medicine units, who accepted digital responses via e-mail. It was implemented between February and May 2021.

Questionnaire Form for Participants: This form was created by the researchers by examining the relevant literature. In general, it includes demographic data and open-ended questions.

Data Collection Methods: Data collected and sent to personal e-mails using the Google Survey program. In this study, an online survey was applied to HPs between February-May 2021. Due to international participation, the survey was conducted in English. Ethical approval was obtained from the Ethics Committee of Izmir University of Economics. Participation was based on volunteerism.

Analysis and Evaluation of Data: The data transferred to the computer environment and analyzed by using the SPSS 21.0 package program. Parametric or nonparametric analysis methods are preferred by testing number and percentage values, normal distribution and covariance compatibility for sociodemographic characteristics. Binary Logistic Regression analysis was used to evaluate the combined effects of its independent variables (strengthening PC [yes/no] and the dependent variables[promotion, Daily clinic usage, academic usage,etc]). Multinomial LR analyses were used to compare demographic data, academic degree, occupational experience duration, being in teaching position, monthly income. In the study, $p<0.05$ is accepted as a statistical significance level and the results are evaluated according to this level of significance.

Duration and Facilities: Survey questions were sent to the participants electronically between February and May 2021.

Ethical Disclosures: Written ethical permission was obtained in order to conduct the research. Among the health workers who are sent an electronic questionnaire, those who agree to participate in the study filled out the questionnaire.

RESULTS

The survey was answered by 231 participants answered the survey. When the participants were analysed for their occupation, some of them were excluded as they were not health workers and some of the participants were not answered all the questions. So in total 175 participants were analysed for the research (88 female and 87 male participants).

The countries of the participants were Albania (30), Greece (38), India (33), Kosovo (30), Romania (31), Turkey (45), United States (9), other countries(15). That's why the group of lands were classified as Europe, Middle Asia, Asia, Euroasia, America. Distribution of genders by locations are shown in Table 1 detailed.

Table 1. Distribution of genders by locations

		Number/Location					
		Europe	Euroasia	Middle Asian	Asia	America	Total
Gender	Female	47	20	6	9	6	88
	Male	42	11	8	23	3	87
Total		89	31	14	32	9	175

In general, Binary Logistic Regression analysis was used to evaluate the combined effects of its independent variables on "Demographic data", "Scientific degree", "Monthly income level", "Professional Experience", "Educational Experience", and "MOOC participation level", which can be effective on "PC Strengthening" (Dual Dependent Variable) MOOC view and perspective" (Table 2).

Table 2. Evaluation of combined effects of independent variables by binary logistic regression analysis

Categorical Variables Codings									
			Parameter coding						
		Frequency	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Income.(US dollars)	<500	5	1	0	0	0	0	0	0
	501-1000	49	0	1	0	0	0	0	0
	1001-1500	50	0	0	1	0	0	0	0
	1501-2000	21	0	0	0	1	0	0	0
	2001-2500	18	0	0	0	0	1	0	0
	2501-3000	7	0	0	0	0	0	1	0
	3001-5000	10	0	0	0	0	0	0	1
	>5000	8	0	0	0	0	0	0	0
Job.Experience	<1	4	1	0	0	0	0	0	
	1-5	37	0	1	0	0	0	0	
	>5-10	49	0	0	1	0	0	0	
	>10-15	40	0	0	0	1	0	0	
	>15-20	18	0	0	0	0	1	0	
	>20-30	8	0	0	0	0	0	1	
	>30-40	12	0	0	0	0	0	0	
Teaching.Experience	None	76	1	0	0	0			
	1-5	50	0	1	0	0			
	>5-10	28	0	0	1	0			
	>10-15	3	0	0	0	1			
	>15	11	0	0	0	0			
Homeland	Europe	87	1	0	0	0			
	Euroasia	31	0	1	0	0			
	MiddleaAsia sia	12	0	0	1	0			
	Asia	30	0	0	0	1			
	America	8	0	0	0	0			
Degree*	1	9	1	0	0				
	2	23	0	1	0				
	3	111	0	0	1				
	4	25	0	0	0				
Gender	Female	84	1						
	Male	84	0						

*Degree are: 1) Bachelors, 2) master-doctoral(student), 3) master-doctoral degree (has completed) 4) post-doctoral(carier)

The occupational status of the participants have been detailed in Table 3. Most of them answered as "MOOCs could strength the primarycare" positively (87.5%).

Table 3. Answers strengthening primary care by occupational status

			Strengthening		
			No	Yes	Total
Occupational Status	Career	Number	2	23	25
		%	8.0%	92.0%	100.0%
	PC Employee	Number	1	16	17
		%	5.9%	94.1%	100.0%
	Researcher	Number	1	4	5
		%	20.0%	80.0%	100.0%
	PC Doctor	Number	10	44	54
		%	18.5%	81.5%	100.0%
	Sp Doctor	Number	1	6	7
		%	14.3%	85.7%	100.0%
	Administer	Number	2	20	22
		%	9.1%	90,9%	100.0%
	Trainer	Number	1	21	22
		%	4.5%	95.5%	100.0%
	Asistant Doctor	Number	3	16	19
		%	15.8%	84.2%	100.0%
	Consultant	Number	1	4	5
		%	20.0%	80.0%	100.0%
Total		Number	22	154	176
		%	12.5%	87.5%	100.0%

DISCUSSION

In our study involving 231 healthcare professionals assessing perceptions and experiences related to strengthening the health system during the COVID-19 pandemic, we determined that a majority of the participants were middle-aged, with approximately half being male. We found that the majority of our participants were general practitioners having mid-level work experience, holding a master degree, and having teaching experience of less than one year (Tables 3-5). Similar finding had been observed in a study conducted by Impey C et al. It was found that the normal spring enrolment baseline of 840, the extra enrolment from March to May was 12,490. During those three months (pandemic time), 83% of all those enrolled were associated with the pandemic (7).

Majority of our participants attended more MOOCs (free of cost) during the pandemic having 3-5 sessions at the time of data collection. Among one third participants have paid 50-100 USD as MOOC fees. This may be due to the knowledge of COVID-19 was evolving and they were facing day to day challenges more than others that's why they have enrolled in the COVID -19 related MOOCs.

Another study conducted in Malaysia came to the conclusion that the 4.0 Industrial Revolution and the use of MOOC platforms for online learning were revolutionary (8). Almost all Malaysian universities have made the switch to online learning despite early reluctance, and several public universities intend to keep doing so. (9,10). The authors recommended that MOOC should be utilised as the preferred online learning platform by universities as it helps to keep the students occupied with their lessons and learning experience (6,11) .

Majority of our participants agreed that MOOC was an interesting teaching method. Similar finding was observed in previous studies (12-14).

One of the most important supplemental forms of learning (in-class learning being the primary) is through Massive Open Online Courses (MOOCs), and Jie Zhang examined how professors may better encourage students to do so. Drawing on the regulatory focus theory, the author proposed that different types of advocates (promotion-oriented or prevention-oriented advocates), to students with a different regulatory-focus (promotion-focus or prevention-focus), would yield different levels of motivation in students participating in MOOC learning. The results of the experiment suggested that proper pairing of promotion-oriented advocates with promotion-focused students and prevention-oriented advocates with prevention-focused students significantly increases students' motivation to learn from a MOOC and their assessment of the MOOC as helpful, but they typically do not produce positive evaluations from students regarding the enjoyment of MOOC learning. (15,16).

Majority of the participants got the information about MOOC from social media (17,18). It was found that MOOC courses as part of continuous medical education were significantly correlated with factors such as contribution of MOOC courses to primary care services, age, MOOC as group activity, better expression of participants and self-learning (Tables 6,7) (6,11,19,20). Along with socioeconomic differences, there may be cognitive-affective differences among all kind of students that contribute to educational inequality (21,22).

CONCLUSION

According to the survey, all the groups reported as the effect of strengthening primary care by MOOC was positive.

Recommendation: The online free course could help the primary health care workers.

Lessons for Practice section:

- In collaboration with healthcare professionals, MOOCs prove to be a valuable option for continued medical education.
- MOOCs could help with sustainable health education.
- There are differences between MOOCs in terms of assessment methods and educational quality.

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