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Short research communication

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Abstract

Background: Health professionals are at the frontline of the COVID-19 pandemic and are directly exposed to infection hazards. Therefore, they should have the essential competencies for approaching patients.

Aims: The study aimed to identify essential competencies required for approaching patients with COVID-19.

Methods: All postgraduate health professionals at the Syrian Virtual University SVU (n=28) were invited to participate in the study during the Covid-19 lockdown in 2020, resulting in 20 postgraduates accepting. The Delphi technique was adopted for identifying competencies in medical education and a virtual meeting was undertaken through the University Management System in order to provide instruction and create a list of competencies. Competency domains were divided into ‘knowledge’, ‘skills’, and ‘attitudes’ and were classified into four categories: etiology, assessment and diagnosis, management, and prognosis.

Results: Fifty-two essential competencies were identified; 7 competencies on etiology, 7 related to assessment and diagnosis, 34 related to management, and 4 related to prognosis

Conclusion: It is hoped that the identified competencies would help health professionals to deliver the best health care for COVI-19 patients, as well as help policy-makers to support comprehensive training programmes that can equip health professionals with the required competencies to fight the pandemic.

Keywords: COVID-19, competencies, health professional, education, Syria

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Introduction

On December 12, 2019, health professionals started to investigate patients who developed viral pneumonia, after visiting the Human Seafood Wholesale Market (1). On December 31, 2019, the report published by the Wuhan Municipal Health Commission about viral pneumonia indicated that 27 patients were infected (1). In the first week of January 2020, Chinese officials identified a novel type of coronavirus called SARS-COV-2, which was spread outside of China the following week. On March 2020, the WHO announced COVID-19 as a pandemic (1–3).

It is currently believed that the virus's route of transmission is respiratory droplets (4). Infected patients may have symptoms such as fever (90%), fatigue and dry cough (80%), dyspnea (20%), sore throat, headache, or loss of smelling and taste (5). Disease manifestations range from asymptomatic cases to severe pneumonia accompanied by severe respiratory distress and septic shock, followed by multi-organ failure leading often to death (1). According to global

statistics, 81% of patients have a mild infection that spontaneously recovers; 14% have a severe infection; and 5% are critical cases that need intensive care and mechanical ventilation (6,7).

Health professionals are directly responsible for facing infected patients and suspected persons. They are at the frontline of the COVID-19 pandemic and are exposed to hazards that put them at risk of infection (8). As of 23 August 2020, there were 23 408 376 confirmed cases of COVID-19 globally and 809 098 deaths; 8499 recorded infections per day, and 15 941 566 recovered cases (9). Moreover, a recent publication (6 May 2020) by the International Council of Nurses (10) indicated that more than 90 000 health-care workers around the world were infected with COVID-19, of which 260 nurses had died, amounting to 2.195% of total confirmed COVID-19 cases (10). In addition, the World Health Organization (WHO) indicated that 194 member states are not providing comprehensive figures on health worker infections while dealing with the unprecedented crisis (11).

It is clear that health professionals should be appropriately prepared to ensure that all necessary preventive and protective measures are taken to minimize occupational safety and health risks. In addition, they should be properly trained to provide the best health care during assessment, triage, and treatment (11). Health professionals should also be successful role performers, since they must possess performance abilities that allow them to operate across a broad range of situations over an extended period of time (12).

Today, competency-based medical education has emerged as a priority issue that should be adopted to overcome the COVID-19 pandemic. The traditional approach that begins with the question “what do health professionals need to know about COVID-19?” should be modified to the question “what abilities are needed by health professionals to face COVID-19?” In this regard, an organized framework of competencies should be designed in which the observable abilities of health professionals, integrating multiple components such as knowledge, skills, values and attitudes, can be identified (13–15).

Methods

This study was undertaken by a research team in the Medical Education Program (MEP), Syrian Virtual University. The MEP is a distance-learning programme designed to enable health professionals to obtain a Master’s degree in medical education at the same time as practicing medicine, dentistry, pharmacy or nursing in Syrian health centres or hospitals, which are related to the Syrian Ministry of Health, Ministry of Higher Education, Ministry of Defense or Ministry of Interior. Ethical approval was obtained from the Ethical Committee of the Syrian Virtual University, Damascus, Syrian Arab Republic April 2020.

The Delphi Technique is considered one of the most useful techniques for identifying competencies in medical education (16,17). It has many advantages over other decision-making methods, since it facilitates ownership and increases acceptance of the generated consensus rather than possible bias developed by dominant individuals (17,18). Therefore, the technique was employed to develop consensus about essential competencies required for approaching COVID-19 patients.

All MEP students were invited to take part in this study (n=28). Twenty postgraduates who represent different faculties in the Syrian Arab Republic and different health specializations accepted to participate in this study. During the lockdown, participants were virtually instructed, using the Virtual University Management System to study all recently published protocols and guidelines on COVID-19 by recognized health bodies such as WHO, Centers for Disease Control and Prevention, the UK National Health Service, and Cochrane collaboration (19–22). Advice was also received concerning the methodology for writing competencies and vocabulary to be used to describe functions (18) in order to create the initial list of competencies related to essential knowledge, skills and attitudes required for approaching patients with COVID-19.

To develop a general plan of competencies, participants were divided into three groups corresponding to knowledge, skills, and attitudes domains that can identify competencies for appropriate and safe practice when dealing with COVID-19 (23). To unify the work and style, responses were gathered, reviewed, and modified for each domain by the team leader. Repeated and inappropriate competencies were also deleted or reformulated. A second virtual meeting was undertaken to discuss switching any competency from its domain to another. It was also agreed to cross-match these groups with the classification of required competencies according to etiology, assessment and diagnosis, management, and prognosis of COVID-19. Each member in the meeting was asked to revise the list of competencies in each major group and under each classification separately.

The revised list was then sent to the participants to suggest any additional items or modification that should be considered and to rate each competency on a 4- point Likert scale: 0, 1, 2 and 3 corresponding to ‘not important’, ‘less important’, ‘important’, and ‘essential’, respectively (23,24).

In the third stage, the resulted list was sent again to all participants. Competencies suggested by at least 80% of participants were combined and merged. To obtain the weighted response for each competency, the number of responses in each level and the mean score for each

competency (0.0–3.0) were calculated (18,23,24). All competencies required for COVID-19 were ranked and the relative importance for each competency was determined.

Results

The response rate was 71.4% for invited participants (n=20). The findings indicated 52 essential competencies suggested by at least 80% of participants required for approaching COVID-19 patients. The competencies for each domain were organized under three major categories including knowledge, skills and attitude, as outlined in Figure 1, which presents the 'Ability' with its purpose, process and commitment as previously documented (25). In addition, four subheadings including etiology, assessment and diagnosis, management, and prognosis were also outlined in Table 1 .

The final identified competencies were as follows: 12 knowledge competencies, 20 skills competencies, and 20 competencies related to attitudes. According to competencies classification, 7 competencies were related to etiology, 7 competencies related to assessment and diagnosis, 34 competencies related to management, and 4 competencies related to prognosis.

Discussion

There is an extensive global effort to provide effective treatment and research for a vaccine to combat COVID-19. For this purpose, numerous scientific papers are published daily (1); however, efforts targeting health professionals exposed daily to the hazards of COVID-19 infection are still limited. To rectify this, it is important that occupational health and safety become a priority and health professionals should be equipped with all essential competencies before duties on the front line of COVID-19 disease response.

This is where the role of medical education needs to be highlighted. It can ensure that all health professionals directly involved in prevention or treatment of COVID-19 pandemic, whether patient intake, screening, inspection, testing, transport, treatment, nursing, specimen collection, pathogen detection, pathologic examination or technical personnel, should all have the necessary competencies to deal with this pandemic (2).

Participants were instructed to write competencies required for dealing with COVID-19 in the light of those competencies already constructed for professionals dealing with accidents and emergencies in the United States of America (26), United Kingdom (27) and Canada (28). For

example, according to Clerkship Directors in Emergency Medicine (CDEM), six core competencies should be acquired when dealing with COVID-19 including patient care, medical knowledge, professionalism, systems-based practice, practice-based learning and improvement, and interpersonal and communication skills (26). In the present study, 52 essential competencies related to ethical behaviour, professionalism, personal development health promotion, disease prevention and management were identified.

To the best of our knowledge, this study is the first that has identified competencies examining knowledge, skills, and attitudes domains and categories, including etiology, assessment and diagnosis, management, and prognosis of COVID-19.

Following studies by George Miller (1990) (29), it is suggested that knowledge, competencies, performances and actions are required for health professionals at the frontline of the COVID-19 pandemic. This study has adopted the hierarchy proposed by Miller whereby three domains of learning competencies – including knowledge (cognitive), skills (psychomotor) and attitude (affective) – have been addressed (29). For example, if the health professionals are in the frontline of the pandemic they should know the etiology of the disease (cognitive domain), should be able to perform physical examination (psychomotor domain), and should have communication and teamwork skills in a trauma situation (affective domain). Health professionals who have the information ‘know what’ and expertise ‘how to’ will master the process. Through the skills ‘knowing how’ and attitudes ‘knowing why’, health professionals will be encouraged and remain committed to the patient. It is also clear that the unity of knowledge with attitudes can grant them an over-arching sense of purpose in patient care (25,29,30). Union of purpose, process and commitment provides the heath professional with the ‘Ability’, enabling effective disease control and maintain health and safety of patients and society in general (Figure 1).

The present study is unique in gathering core competencies needed for health-care workers to face COVID-19 patients. In the literature, a previous research article assessing knowledge, skills, and attitudes among 327 health-care workers about COVID-19 at District 2 Hospital in Ho Chi Minh City, Viet Nam (31), found that the majority of health-care workers had good knowledge and positive attitude toward COVID-19. However, researchers also found that the level of learning was lower than expectation. Therefore, they suggested updating knowledge and learning materials about this epidemic and as well as to communicate information to professionals who have a lack of knowledge or were not aware of COVID-19 (31).

Similarly, another study assessed the knowledge, attitude, and practice (KAP) of 1357 health professionals towards COVID-19 across ten hospitals in Henan, China (32). The study

addressed the need to understand the KAPs of health workers and possible risk factors in order to deliver the relevant training and policies that can provide protection and decrease occupational exposure during the outbreak (32).

The current study has introduced a novel and practical model for development of training programmes during the pandemic. In addition, the consensus of participants upon all points through the Delphi technique increases the reliability and confidence of results, drawing from previous studies used the Delphi method to develop curriculum for undergraduate medical education. For example, Almoallim (2011) (18) determined competencies in undergraduate internal medicine curriculum in Saudi Arabia using the Delphi technique, identifying competencies based on a group (20 clinicians) utilizing textbooks (18). Similarly, Shah et al. (2019) (33) developed a national competency-based diabetes curriculum in undergraduate medical education.

Limitations

Sample size (n=20) was a limiting factor and an increase in the number of participants would be of critical importance to support our findings. Comprehensive understanding about COVID-19 is still not possible. Specific agreed treatments for COVID-19 patients are not yet fully available. Thus, there remains a concern that these competencies identified might require continuous revision in light of the ongoing understanding of the etiology, assessment and treatment to address the COVID-19 pandemic. Therefore, the present findings should be considered as a baseline for future work that aims to clearly identify competencies that can influence the process of curriculum reform in the Region adopted by schools, and the methods of assessment that can measure the knowledge, skills and attitude of health professionals.

It is hoped that the identified competencies would direct policy-makers to support and organize ad hoc comprehensive training programmes that can equip health professionals with the required knowledge, attitudes and skills competencies to enable them to effectively deal with the pandemic.

Conclusion

Future training development for health care professionals dealing with COVID-19 patients should consider utilizing the designed list of competencies highlighted in this study to assess and improve competencies.

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Competing interests: None declared.

Perspective pédagogique concernant l'identification des compétences essentielles requises pour aborder les patients atteints de COVID-19

Résumé

Contexte : Les professionnels de santé sont en première ligne dans la lutte contre la pandémie de COVID-19 et sont directement exposés aux risques d'infection. Ils doivent donc posséder les compétences essentielles pour aborder les patients.

Objectifs : La présente étude visait à identifier les compétences essentielles requises pour aborder les patients atteints de COVID-19.

Méthodes : Tous les professionnels de santé postuniversitaires de la Syrian Virtual University (Université virtuelle syrienne) (n = 28) ont été invités à participer à l’étude lors du confinement pour la COVID-19 en 2020, ; 20 diplômés ont accepté l’invitation. La méthode Delphi a été adoptée pour identifier les compétences en matière d’éducation médicale et une réunion virtuelle a été organisée par le biais du système de gestion universitaire afin de fournir une instruction et de créer une liste de compétences. Les domaines de compétence ont été divisés en « connaissances », « compétences » et « attitudes » et ont été classés en quatre catégories : étiologie, évaluation et diagnostic, prise en charge et pronostic.

Résultats : Cinquante-deux compétences essentielles ont été identifiées : sept compétences sur l'étiologie, sept sur l'évaluation et le diagnostic, 34 sur la prise en charge et quatre sur le pronostic.

Conclusion : Nous espérons que les compétences identifiées aideront les professionnels de santé à fournir les meilleurs soins de santé aux patients atteints de COVID-19, ainsi que les responsables de l’élaboration des politiques à soutenir des programmes de formation complets susceptibles de doter les professionnels de santé des compétences nécessaires pour lutter contre la pandémie.

منظور تعليمي لتحديد الكفاءات الاساسية للتعامل مع مرضى كوفيد-19

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ميسون دشاش، بشار المصري، آلاء أبو حلاوة، إيمان تقالة، أمل صهيوني

الخلاصة

: يواجه المهنيون الصحيون في الخطوط الأولى لمجابهة جائحة كوفيد -19 مخاطرالخلفية
العدوى مباشرة . ومن ثَم يجب أن يكون لديهم الكفاءات الأساسية للتعامل مع المرضى .

: هدفت هذه الدراسة إلى تحديد الكفاءات الأساسية المطلوبة للتعامل مع مرضاالأهداف
كوفيد -19

: دُعي جميع المهنيين الصحيين بعد تخرجهم في الجامعة الافتراضية السوريةطرق البحث
(عددهم = 28) للمشاركة في الدراسة خلال فترة الإغلاق في عام 2020 بسبب كوفيد -19 ، وكانت
النتيجة قبول 20 طالبًا من طلاب الدراسات العليا المشاركة . وقد اعتمدت تقنية « دلفي »
لتحديد الكفاءات في التعليم الطبي . وعُقد اجتماع افتراضي من خلال نظام إدارة الجامعة
للتوجيه وإعداد قائمة بالكفاءات . وقُسِّمَت مجالات الكفاءة إلى " المعلومات "
و" المهارات " و" المواقف " وصُنِّفَت إلى أربع فئات : المسببات، والتقييم والتشخيص،
والإنذار لتصبح : والعلاج والإنذار .

: حُدِدَت 52 كفاءة أساسية؛ 7 كفاءات تتعلق بالمسببات، وسبعة تتعلق بالتقييمالنتائج
والتشخيص، و 34 تتعلق بالعلاج ، و 4 تتعلق بالإنذار .

: من المأمول أن تساعد الكفاءات التي حددت المهنيين الصحيين على تقديم أفضلالاستنتاج
رعاية صحية لمرضى كوفيد -19 ، فضلاً عن مساعدة واضعي السياسات على دعم برامج التدريب
الشاملة التي تزوّد المهنيين الصحيين بالكفاءات المطلوبة لمكافحة الجائحة .

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