

COMMENTARY

Anatomy Laboratory Postdoctoral Training during COVID-19 Pandemic in Europe: Challenges and Solutions

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ABSTRACT

Postdoctoral researchers utilise their time in training to broaden their research interests, learn new ideas and practices, such as grant application and laboratory administration, develop their higher-order thinking and communication skills, and get familiar with new scientific methodologies and concepts. Anatomy postdoctoral trainees working in laboratory research benefit greatly from biological sciences. During the COVID-19 pandemic, postdoctoral researchers face several challenges, including restricted hands-on laboratory work, limited lab supplies and equipment, less labour work as peoples become more isolated, and reduced supervision of their postgraduate students. Hence, in this commentary, we discussed the challenges and solutions during the anatomy laboratory postdoctoral fellowship amidst the COVID-19 pandemic in Europe, with regard to our own experience. Academic and research institutions, financial institutions, learning and professional associations, and employers must all work together to define the future, regardless of the situation.

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INTRODUCTION

Postdoctoral researchers, who play a significant role in academic research, are becoming increasingly essential in science, technology, and engineering. Postdoctoral researchers use their training time to widen their research interests, learn new ideas and techniques including grant application and laboratory administration, improve their higher-order thinking and communication skills, and become acquainted with new scientific methods and concepts. All of these abilities are necessary for academic and non-academic achievement (1).

The biological and anatomical sciences are extremely beneficial for postdoctoral trainees who work in laboratory research. As the demand for anatomy academics grows, a variety of graduate programs have

been established to prepare people to teach the various anatomical disciplines. Laboratory learning theory and pedagogy, educational research, as well as academic teaching are all covered in these programs (2). Despite the fact that there are an increasing number of master and doctorate level programs available, postdoctoral positions dedicated to anatomy training are almost non-existent (3).

The importance of diversity in leadership roles, curriculum refinement, coaching, inquiry-based learning, and the need for solid information are all highlighted as key objectives for postdoctoral training (4). While postdoctoral positions are required for career positions, they do not provide stable income. The existing postdoctoral training service benefits postdoctoral supervisors, mentors, institutions, and funding bodies by offering highly educated personnel interested in working long hours to generate cutting-edge science at a minimal cost. It is hard to say if this system produces more superior science than when PhDs graduates enter the workforce directly, which would empower young

researchers to lead their research in more innovative areas (5).

Institutions across Europe have adopted a variety of techniques to tackle the limited number of faculty members who are certified and enthusiastic to teach anatomy throughout the last few decades. These techniques included hiring physical anthropologists and training new faculty members who are usually hired based on their research to teach anatomy; using part-time, nontenured, or retired faculty members, training and embracing their graduate students and postdoctoral fellows to teach anatomy (6). These individuals, in most circumstances, do not commit to the scientific industry. Despite their significant educational input, they are frequently viewed as 'second-class citizens' in the educational world (6).

As in other continents, undergoing a postdoctoral fellowship or training in Europe has emerged as an important phase in the career development (7). Members of the European Union have stated that they are investing in science infrastructure and increasing the number of people working in research and development (7). The European Research Area, which was founded in 2000, has aided in the reduction of barriers to postdoctoral mobility within Europe, and governments have established prestigious initiatives to discover and attract the best researchers (7). Hence, in this commentary, we discussed the challenges encountered and solutions in anatomy laboratory postdoctoral training amidst the COVID-19 pandemic based on our own experience in Belgium and The Netherlands which represent European countries.

OVERVIEW OF COVID-19 AND HIGHER EDUCATION IN EUROPE

In Belgium, over three million COVID-19 cases have been reported. An average of 61,773 new infections were reported every day in January 2022. Since the outbreak began, the country has seen 29,000 coronavirus-related deaths. So far, Belgium has given out at least 23 million doses of COVID vaccination. Assuming that each individual requires two doses, that would be enough to vaccinate around 79.4% of the country's population. Belgium provided an average of 67,000 doses per day over the past week as reported. At the time of writing, it would take another month to provide enough doses for another 10% of the population at this rate (8). Meanwhile, in The Netherlands, infections with COVID-19 were at an all-time high, with an average of 61,051 new infections reported every day in January 2022. Since the outbreak began, the country has seen four million cases and 21,000 coronavirus-related deaths. So far, the Netherlands has distributed at least 33 million doses of COVID vaccination. Assuming that each individual requires two doses, that would be enough to vaccinate 95.3 per cent of the country's population (8).

The COVID-19 pandemic is posing significant problems to the societies throughout Europe and the world, with direct and indirect effects on higher education institutions and systems (9). The majority of European higher education institutions are either executing or developing strategies in response to the COVID-19 outbreak. Institutions across Europe are engaged in substantial and multi-faceted communications activities, but there is surprisingly little recorded usage of social media as a significant communication channel. In a survey, there is quite an insufficient mention of the survey respondents' participation with the local community or the general public as a significant focus of crisis communications (9). Yet, it is possible that other individuals within institutions are engaged in local community participation as well.

Many of the evaluations and opinions expressed concern that COVID-19 could have disastrous consequences for higher education in Europe and around the world, including significant public sector budget cuts, significant tuition fee losses (particularly in systems with large numbers of fee-paying international students), the potential closure of certain institutions of higher learning, and adverse consequences for lack of representation (10). Meanwhile, the COVID-19 outbreak has offered an opportunity to critically analyse how higher education is organised and administered, as well as to provide appropriate innovations and alternative options for future higher education trajectories (10).

THE CHALLENGES

The requirement to work from home during the COVID-19 pandemic has resulted in fewer contact hours for the anatomy laboratory. In addition, social distancing practice during the COVID-19 pandemic has imposed unnecessarily stress and lower the morale of trainees and staff members of the anatomy laboratory which might led to mental health problem (11). It was important for post-doctoral fellows to coordinate laboratory work with the supervisors and, for example, negotiate on-time distribution throughout the week. It is mandatory for all personnel in the anatomy laboratory to wear a mask, especially in common areas. The mask could only be removed only in their own office space. Inevitably, lab works observation would be limited especially during face-to-face discussion of the results or findings. Furthermore, as a preventive measure, the employees were being asked to take the COVID-19 self-test twice a week. Taking self-test regularly helps keep fellow students and academics safe, but it was time-consuming and hampers the work. Furthermore, to separate the flow of patients, staff, and students, the floors and routes in the buildings were mapped out. People were encouraged to take the stairs if possible, which was inconvenient for those who work on multiple floors.

In addition, all equipment and anatomy laboratory

spaces need to be reserved before they can be allowed to be used. As a result, the progression of the lab work would be very slow. Furthermore, the lab works could be halted by a disrupted supply chain for laboratory reagents and equipment. Employees were increasingly being quarantined because of the high incidence of the disease. This was quite inconvenient, especially given the already high level of absenteeism that we had already encountered. Employees who were infected or in quarantine would not be allowed to return to work, even if they have recently received a booster dose. Postgraduate students undertaking training and postdoctoral fellowship programs have had both positive and negative experiences as a result of the ongoing pandemic. Although supervisors reported more opportunities to train in telehealth service delivery, it is critical that trainees gain research experiences that meet training standards for the depth and breadth of skills required to ensure readiness to transition into the field of independent practice as an emerging researcher (12).

Some postdoctoral researchers were expected to mentor postgraduate students such as PhD, Master, or even bachelor degree students as part of their duties. Since there was a limited amount of time to meet physically during a pandemic, information may be misinterpreted. Assessment, communication and interpersonal skills, intervention, consultation, and interprofessional/interdisciplinary abilities were the most significantly impacted profession-related competencies during COVID-19 pandemic (12). The practical and laboratory sessions, which should be conducted face-to-face, might have been affected. Hence, the postgraduate students did not acquire much skill in laboratory work. The impact of the pandemic crisis had been experienced not only in the postponement in awarding or even cancellation of grants, but also in the failure of university researchers, graduates, and postdoctoral students to progress professionally. There were financial challenges for institutions as a consequence of the lack of international student's tuition fees, as well as a substantial drop in postdoctoral or even postgraduate student recruitment (13).

SOLUTION AND OPPORTUNITIES

Even though multiple obstacles were faced during postdoctoral training during the COVID-19 pandemic, a few solutions and opportunities have been identified. We are aggregating the availability of computers, phones, and webcams, as well as secure internet connectivity. As a result, more hours of discussion can be carried out with colleagues and supervisors. Furthermore, throughout supervisory sessions, we evaluate the workload and devise strategies to balance productivity with the challenges. We come up with a list of informal and formal professional development possibilities, especially for postgraduate students to explore as well as engage in collaborative discussions

about opportunities with their postdoctoral mentors. Despite individuals' perceptions of social support, these connections with social distancing existed, implying that even social resources known to protect mental health do not diminish the influence of social distancing (11). A number of techniques exist to help researchers' mental health and coping strategies. Physical activities such as exercise, playing sport, jogging or brisk walking, and meditation, as well as mentor-mentee/buddy programs between supervisors and students, are a few of them (14).

Importantly, this pandemic renders strict time management to be paramount. Punctuality is very important in daily activity. We learn how to respect the time and observe deadlines. We update the online laboratory booking systems to let others know the slot availabilities, hence increasing the work output despite the restriction on the number of people. Surprisingly, an increase in the number of open access journals leads to a rise in grant application and manuscript writing productivity which is important for postdoctoral researchers' key performance index (15). As a result, worldwide collaboration can also be strengthened. Whichever the situation could be, academic and research organizations, financial agencies, learning and professional societies, and employers must collaborate to define the future (4).

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